

CHEMICAL KIT OF LAB IN A BOX OF STEMUL8:

As part of the science Lab-in-a-Box (Stemul8), we are providing a chemical kit. These chemicals are used in school experiments from grade 6 to grade 10. Like in the lab, students have to handle apparatus and equipment with care, these chemicals also need to be handled with care. They are safe for grade 6 to grade 10 students when handled with care under adult supervision. Quantities of these chemicals are very low to make it safe for the students. Wherever required, chemicals have been diluted. Below is the list and quantities of chemicals provided in the box's two variants. In the subsequent pages, we have enclosed MSDS provided by these chemical manufacturers. Please note that we have further diluted some of these chemicals to make them safe for experiments to be performed by the students under adult supervision. Parents and students are solely responsible for safe handling, storage and disposal of these chemicals.

1. LIST AND QUANTITIES OF CHEMICALS SUPPLIED IN THE ASIN NO: B0CJ2V4M6L

Grade 6 to Grade 7 (MIDDLE SCHOOL)		
Name	Unit of Measure	Quantity (Approx)
1. Alum	g	4
2. Ascorbic acid	g	4
3. Benedict's Reagent Qualitative LR	ml	6
4. Biuret Reagent	ml	6
5. Calcium Carbonate	g	10
6. Corn starch	g	30
7. Cupric sulphate	g	14
8. Ethanol 99.9% AR China	ml	10
9. Glucose	g	10
10. Hydrogen peroxide	ml	10
11. Indophenol - DPIP (2,6-dichlorophenolindophenol)	g	0.2
12. Iodine Solution N/10 LR	ml	10
13. Iron powder	g	2
14. Lead nitrate	g	2
15. Lime water	g	7
16. Litmus Blue Solution LR	ml	20
17. Litmus Red Solution LR	ml	20
18. Magnesium Ribbon	Cm	6
19. Nutrient Agar	g	4
20. Methylene Blue Aqueous LR	ml	4
21. mlPectinase enzyme powder	g	2
22. Phenolphthalein Solution LR	ml	8
23. Potassium iodide	g	2
24. Potassium permanganate	g	0.2
25. Potato starch	g	12
26. Safranin Stain Solution LR	ml	8

27. Sodium Bicarbonate LR	g	26
28. Sodium Hydroxide	g	8
29. Stannous Chloride (Tin (II) Chloride) LR	g	2
30. Starch Soluble LR	g	6
31. Sudan III	ml	4
32. Tartaric acid	g	10
33. Vinegar	ml	100
34. Yeast	g	4

2. LIST AND QUANTITIES OF CHEMICALS SUPPLIED IN THE ASIN NO: B0CJ2XZD7V

Grade 8 to Grade 10 (HIGH SCHOOL)		
Name	Unit of Measure	Quantity (Approx)
1. Acetocarmine	ml	4
2. Agar-agar Powder	g	4
3. Ammonium Chloride	g	2
4. Ascorbic acid	g	2
5. Benedict's Reagent Qualitative LR	ml	6
6. Biuret Reagent	ml	6
7. Calcium Carbonate	g	24
8. Cupric sulphate	g	28
9. Disodium EDTA	g	10
10. Eriochrome Black T	g	1
11. Ethanol 99.9% AR China	ml	50
12. Gelatine	g	10
13. Glucose	g	10
14. Glycerine	ml	28
15. Hydrochloric acid (1M)	ml	28
16. Hydrogen peroxide	ml	20
17. Indophenol - DPIP (2,6-dichlorophenolindophenol)	g	0.2
18. Iodine Solution N/10 LR	ml	8
19. Iron powder	g	6
20. Lead nitrate	g	2
21. Litmus Blue Solution LR	ml	4
22. Magnesium Chloride	g	25
23. Magnesium Ribbon	cm	8
24. Methylene Blue Aqueous LR	ml	6
25. Nutrient Agar	g	4
26. Pectinase Enzyme Powder	g	2
27. Phenolphthalein Solution LR	ml	4
28. Potassium iodide	g	2
29. Potassium permanganate	g	2.2
30. Potato starch	g	18
31. Safranin Stain Solution LR	ml	8

32. Sodium Bicarbonate LR	g	18
33. Sodium Hydroxide	g	18
34. Sodium Polyacrylate	g	10
35. Sodium thiosulphate	g	10
36. Stannous Chloride (Tin (II) Chloride) LR	g	1
37. Starch Soluble LR	g	8
38. Sudan III	ml	4
39. Vinegar	ml	100
40. Yeast	g	12
41. Zinc Dust	g	2
42. Zinc Sulphate	g	1



SAFETY DATA SHEET

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

Catalogue No. : B 20829(500 ML), B 20851(5L)
Product Name : BENEDICT'S REAGENT QUALITATIVE

Manufacturer/supplier identification

Company : NICE Chemicals (P) Ltd., Cochin, India
Tel - 0484 2800212, 2802755

Contact for information : Tel. No.- 0484 2802536 Fax : 0484 2802483
Emergency Telephone No. : 0484 2801583 Tele fax No. : 0484 2802483

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ec-Index No. : ----
Molar Mass : ----
EC-No. : 231-847-6

3. HAZARDS IDENTIFICATION

According to the evaluative data available, a classification according to categories of danger as specified in Directive 67/548/EEC & laid down in the legislation of the country concerned is not required.

4. FIRST AID MEASURES

After inhalation : Fresh air.
After skin contact : Wash off with plenty of water.
After eye contact : Rinse out with plenty of water with the eyelid held wide open.



SAFETY DATA SHEET

Catalogue No.	:	B 20829(500 ML), B 20851(5L)
Product Name	:	BENEDICT'S REAGENT QUALITATIVE

After swallowing : Make victim drink plenty of water, induce vomiting.
Summon doctor if feeling unwell.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : In adaption to materials stored in the
immediate neighbourhood.

Special risks : Combustible. Development of hazardous combustion gases
or vapours possible in the event of fire. The following may
develop in event of fire : Sulphur Oxides

Other information : Non-combustible.

6. ACCIDENTAL RELEASE MEASURES

Environmental-protection measures :

Do not allow to enter sewerage system.

Procedures for cleaning/absorption : Take up with liquid-
absorbent material (e.g.SPILLAGE MOPS). Forward for
disposal.

Clean up affected area.



SAFETY DATA SHEET

Catalogue No.	:	B 20829(500 ML), B 20851(5L)
Product Name	:	BENEDICT'S REAGENT QUALITATIVE

7. HANDLING AND STORAGE

Handling : Cannot be stored indefinitely.

Storage : At +15° C to +25° C. Tightly closed. In a well-ventilated place

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection : Required when vapours/ aerosols are generated.

Eye Protection : Required

Hand Protection : Required

Industrial hygiene : Change contaminated clothing.

Wash hands after working with substance.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Liquid
Colour	:	Blue
Odour	:	Odourless
pH value at gm/lit. H ₂ O (20°C)	:	-
Melting temperature	:	Not available
Boiling temperature	:	Not available
Ignition temperature	:	Not available
Flash Point	:	Not available
Explosion limit lower	:	Not available
upper	:	Not available
Relative vapour density	:	Not available
Density (20° C)	:	Not available
Solubility in Water (20° C)	:	Soluble



SAFETY DATA SHEET

Catalogue No.	:	B 20829(500 ML), B 20851(5L)
Product Name	:	BENEDICT'S REAGENT QUALITATIVE

10. STABILITY AND REACTIVITY

Conditions to be avoided : - -

Substances to be avoided : Hydroxylamine

Hazardous decomposition products : In the event of fire :

Sulphur Oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity : Quantitative data on the toxicity of this product are not available.

Further toxicological information :

Hazardous properties cannot be excluded, but are relatively improbable due to the low concentration of the dissolved substance.

12. ECOLOGICAL INFORMATION

Ecotoxic effects : Applicable to the dissolved substance:

Biological effects : Toxic for aquatic organisms. High aquatic toxicity :

Fungicidal effect.

Fish toxicity : L.idus LC₅₀ : 0.8 mg/l.(calculated on the pure substance

Further ecologic data : The following applies to copper compounds : biological effects :
toxic for aquatic organisms : copper ions toxic for fish, algae,
protozoa & bacteria at concentrations below 1 mg/l.



SAFETY DATA SHEET

Catalogue No.	:	B 20829(500 ML), B 20851(5L)
Product Name	:	BENEDICT'S REAGENT QUALITATIVE

Fish : C.auratus toxic 0,01 mg/l.;
mussels : 0.55 mg/l. lethal in 12 h; oysters : 0,1 mg/l. toxic
Do not allow to enter waters, waste water or soil.

13. DISPOSAL METHOD

There are no uniform EC regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste.

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

14. TRANSPORT INFORMATION : Not subject to transport regulations.

15. REGULATORY INFORMATION

Labelling according to EC Directives

Symbol : ---

R-phrases : ---

S-phrases : ---



SAFETY DATA SHEET

Catalogue No.	:	B 20829(500 ML), B 20851(5L)
Product Name	:	BENEDICT'S REAGENT QUALITATIVE

Water pollution class : 1 (slightly polluting substance) (own classification)

16. OTHER INFORMATION

Reason for alteration

Specific control parameter

Change in the chapter on toxicology

Change in the chapter on ecology.

The information contained herein is based on the present state of our knowledge.

It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.



SAFETY DATA SHEET

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

Catalogue No. : I 51079
Product Name : IODINE N/10 SOLUTION

Manufacturer/supplier identification
Company : NICE Chemicals (P) Ltd., Cochin, India
Tel - 0484 2800212, 2802755

Contact for information : Tel. No.- 0484 2802536 Fax : 0484 2802483
Emergency Telephone No. : 0484 2801583 Tele fax No. : 0484 2802483

2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS-No : 7553-56-2 EC-Index No. : 053-001-00-3
Molar Mass : - EC-No. : 231-442-4

3. HAZARDS IDENTIFICATION : Harmful by inhalation and in contact with skin.

4. FIRST AID MEASURES : After inhalation : Fresh air.

After skin contact : Wash off with plenty of water.

Remove contaminated clothing.

After eye contact : Rinse out with plenty of water with
the eyelid held wide open. Summon eye specialist if necessary.

After swallowing : Make victim drink plenty of water, oat gruel.

Subsequently administer decoction of flour.

Laxative : Sodium sulphate (1 tablespoon/ 1/4 lt. water).

5. FIRE-FIGHTING MEASURES : Suitable extinguishing media : In adaption to materials stored
in the immediate neighbourhood.
Special risks : Non - combustible. Development of hazardous
combustion gases or vapours possible in the event of fire.



SAFETY DATA SHEET

Catalogue No.	:	I 51079
Product Name	:	IODINE N/10 SOLUTION

Special protective equipment for fire fighting : Do not stay in dangerous zone without self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES : Person-related precautionary measures: Avoid substance contact.
Avoid generation of dusts; do not inhale dusts.
Environmental-protection measures : Do not allow to enter sewerage system.
Procedures for cleaning/absorption : Take up dry. Forward for disposal.
Clean up affected area.

7. HANDLING AND STORAGE : Handling : Store protected from solvents.

Storage : Tightly closed. Dry. In a well-ventilated place.

Storage temperature : No restrictions.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Respiratory protection : Required when vapours are generated.

Eye protection : Required

Hand protection : Required

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Industrial hygiene : Change contaminated clothing. Wash hands and face after working with substance. Apply skin-protective barrier cream.



SAFETY DATA SHEET

Catalogue No.	:	I 51079
Product Name	:	IODINE N/10 SOLUTION

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	LIQUID
Colour	:	Brown solution
Odour	:	Pungent
pH value	:	Not available
Melting temperature	:	-
Boiling temperature	:	-
Ignition temperature	:	Not available
Flash Point	:	Not applicable
Explosion limit lower	:	Not available
upper	:	Not available
Relative vapour density	:	Not available
Vapour pressure (20 ° C)	:	-
Density (20 ° C)	:	-
Bulk Density	:	-
Solubility in Water (20 ° C)	:	Soluble

10. STABILITY AND REACTIVITY : Conditions to be avoided : No information available.

Substances to be avoided : Alkali metals, ammonia, ammonium compounds, nonmetallic oxides, nonmetals, halogen-halogen compounds, acetylidene, semimetals, metals in powder form, aluminium, acetylene, carbides, fluorine, magnesium, lithium, silicide azides, turpentine oils and or turpentine substitutes, alkali oxides.

Hazardous decomposition products : No information available.

11. TOXICOLOGICAL INFORMATION : Acute toxicity : LD₅₀ (oral, rat) : 14000 mg/kg

The literature data available to us do not conform with the labelling prescribed by the EC. The EC has dossiers which have not been published.

Further toxicological information :

After inhalation of vapours : Irritation symptoms in the respiratory tract



SAFETY DATA SHEET

Catalogue No.	:	I 51079
Product Name	:	IODINE N/10 SOLUTION

After swallowing : Metallic taste, bloody diarrhoea, fever and collapse

After contact with substance : Skin lesions.

Chronic intoxication : Skin lesions & allergic reactions with rhinitis, conjunctivitis, bronchitis and asthma.

Further data : The product should be handled with the care usual when dealing with chemicals.

12. ECOLOGICAL INFORMATION : Ecotoxic effects :

Quantitative data on the ecological effect of this product are not available.

Further ecologic data : No ecological problems are to be expected when the product is handled and used with due care and attention.

13. DISPOSAL METHOD : Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like house-hold waste or recycled.

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. Approved waste disposal companies which will advise you on how to dispose of special waste.

14. TRANSPORT INFORMATION :

Transport over land

ADR/RID & GGVS/GGVE :	GGVS/GGVE class :	8	Number and letter :	65c
	ADR/RID class :	8	Number and letter :	65c

Name of material : IODINE N/10 SOLUTION

Sea Transport IMDG :	IMDG class :	8	UN No. :	1759	Packing group :	III
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SAFETY DATA SHEET

Catalogue No. : **I 51079**
Product Name : **IODINE N/10 SOLUTION**

Ems : 8-15 MFAG : 760,4.3

Correct Technical Name : IODINE N/10 SOLUTION

Air Transport ICAO-TI

and IATA-DGR : ICAO/IATA class : 8 UN No. : 1759

Packaging group : III

Correct Technical Name : IODINE N/10 SOLUTION

15. REGULATORY INFORMATION :

Labelling according to EC Directives :

Symbol	:		
R-phrases	:	20/21	Harmful by inhalation and in contact with skin.
S-phrases	:	23-25	Do not breathe vapour. Avoid contact with eyes.
EC.No.	:	231-442-4	EC label

Water pollution class : 1 (slightly polluting substance)

16. OTHER INFORMATION :

Reason for alteration

General update.

The information contained herein is based on the present state of our knowledge.
It characterises the product with regard to the appropriate safety precautions. It
does not represent a guarantee of the properties of the product.



SAFETY DATA SHEET

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

Catalogue No. : B 21671
Product Name : BIURET REAGENT

Manufacturer / supplier identification

Company : NICE Chemicals (P) Ltd. , Cochin , India
Tel - 0484 2800212 , 2802755

Contact For Information : Tel . No. – 0484 2802536 Fax : 0484 2802483
Emergency Telephone No. : 0484 2801583 Tele fax No. : 0484 2802483

2. COMPOSITION / INFORMATION ON INGREDIENTS

Aqueous solution of inorganic and organic compounds.

Hazardous ingredients :

Name according to EC Directives: Sodium hydroxide

Hazard symbols : C
R-phrases : 35
CAS-No. : 1310-73-2
Content : >- 0.5-2%
Ec index – No. : 011-002-00-6

Causes severe burns.

3. HAZARDS IDENTIFICATION : Irritating to eyes and skin.



SAFETY DATA SHEET

Catalogue No. : **B 21671**
Product Name : **BIURET REAGENT**

4. FIRST AID MEASURES

After skin contact : Wash off with plenty of water. Remove contaminated clothing.

After eye contact : Rinse out with plenty of water with the eyelid held wide open. Summon eye specialist.

After inhalation : Fresh air.

After swallowing : Make victim drink plenty of water, induce vomiting ,summon doctor.

5. FIRE – FIGHTING MEASURES

Suitable extinguishing media : In adaption to materials stored in the immediate neighbourhood.

Special risks : None

Special protective equipment for fire fighting : When large amounts of substance are released, work only with self - enclosed respirators and suitable chemical –resistant protective clothing.

Other information : Non-combustible. Prevent fire-fighting water from entering surface water or groundwater.

6. ACCIDENTAL RELEASE MEASURES

Procedures for cleaning /absorption:

Take up with liquid –absorbent material (e.g. Chemizorb @).

Forward for disposal. Clean up effected area.



SAFETY DATA SHEET

Catalogue No. : **B 21671**
Product Name : **BIURET REAGENT**

7. HANDLING AND STORAGE

Handling : No further requirements.

Storage : Tightly closed . At +15° C to + 25° C.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal protective equipment

Respiratory protection : Required when vapours/aerosols are generated.

Eye protection : Required

Hand protection : Required

Industrial hygiene : Change contaminated clothing. Application of skin-protective barrier cream recommended. Wash hands after working with substance.

9. PHYSICAL & CHEMICAL PROPERTIES

Form	:	Liquid
Colour	:	Blue
Odour	:	Odourless
PH value (20°C)	:	13.2
Melting temperature	:	Not available
Boiling temperature	:	Not available
Ignition temperature	:	Not available
Flash point	:	Not available
Explosion limits lower	:	Not available
Upper	:	Not available
Relative vapour density	:	Not available



SAFETY DATA SHEET

Catalogue No. : **B 21671**
Product Name : **BIURET REAGENT**

Density (20° C) : 1.02 g/cm³
Solubility in water(20°C) : Soluble

10. STABILITY AND REACTIVITY

Conditions to be avoided : None.
Substances to be avoided : None.
Hazardous decomposition products : None.

11. TOXICOLOGICAL INFORMATION

Acute toxicity: Quantitative data on the toxicity of this product are not available.

Further toxicological information :

After skin contact : Irritations.
After eye contact : Irritations.
After swallowing : Irritations of mucous membranes in the
mouth, pharynx, oesophagus and gastrointestinal tract.

Further data : The product should be handled with the care usual when dealing with chemicals.

12. ECOLOGICAL INFORMATION

Ecotoxic effects: Fish toxicity: fish LC₅₀ : 189 mg/l (sodium hydroxide : IN solution = 40 g/l). Harmful effect due to pH shift. Neutralize prior to passing into drainage system.



SAFETY DATA SHEET

Catalogue No. : **B 21671**
Product Name : **BIURET REAGENT**

Further ecologic data : No ecological problems are to be expected when the product is handled and used with due care and attention.

13. DISPOSAL METHOD

There are no uniform EC regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste.

Disposal in compliance with official regulations. Handle contaminated packaging as In the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.\

14. TRANSPORT INFORMATION : No subject to transport regulations.

15. REGULATORY INFORMATION

Labelling according to EC Directives

Symbol	:	Xi	Irritant
R-phrases	:	36/38	Irritating to eyes and skin.
S-phrases	:	26	In case of contact with eyes , rinse immediately with plenty of water and seek medical advice.



SAFETY DATA SHEET

Catalogue No. : **B 21671**

Product Name : **BIURET REAGENT**

Water pollution class : 1 (Slightly polluting substance) (own classification).

16. OTHER INFORMATION

Reason for alteration

Change in labelling

General update.

The information contained here in is based on the present state of our knowledge.

It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.

SOLOCHROME BLACK T (M.I.)

GHS Safety Data Sheet

Version No:2.0

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

SOLOCHROME BLACK T (M.I.)

OTHER NAMES

C20-H12-N3-Na-O7-S, "3-hydroxy-4-[(1-hydroxy-2-naphthalenyl)azo]-7-nitro-1-naphthalene-sulfonic acid, disodium salt", "3-hydroxy-4-[(1-hydroxy-2-naphthalenyl)azo]-7-nitro-1-naphthalene-sulfonic acid, disodium salt"

PRODUCT USE

Laboratory reagent, metal indicator (pM) for metal ion concentration, and water hardness determinations.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,
248, WORLI,

MUMBAI- 400030.INDIA.

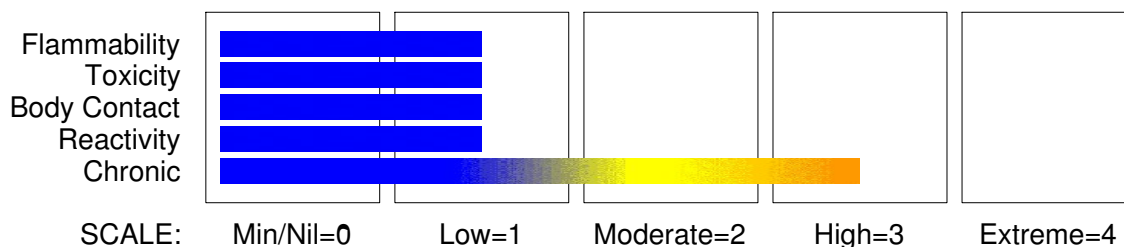
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Carcinogen Category 1B

continued...

SOLOCHROME BLACK T (M.I.)

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Section 2 - HAZARDS IDENTIFICATION



EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by using GHS criteria:

H350

May cause CANCER

PRECAUTIONARY STATEMENTS

Prevention

Do not handle until all safety precautions have been read and understood.

Use personal protective equipment as required.

Obtain special instructions before use.

Response

If exposed or concerned: Get medical attention advice.

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
azo dye, as		
C.I. Mordant Black 11	1787-61-7	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

EYE

If this product comes in contact with the eyes:

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- If pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

continued...

SOLOCHROME BLACK T (M.I.)

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Section 4 - FIRST AID MEASURES

SKIN

If skin contact occurs:

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

- If dust is inhaled, remove from contaminated area.
- Encourage patient to blow nose to ensure clear passage of breathing.
- If irritation or discomfort persists seek medical attention.

NOTES TO PHYSICIAN

Periodic medical surveillance should be carried out on persons in occupations exposed to the manufacture or bulk handling of the product and this should include hepatic function tests and urinalysis examination. [ILO Encyclopaedia].

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

FIRE FIGHTING

Alert Fire Brigade and tell them location and nature of hazard.

- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses.

DO NOT approach containers suspected to be hot.

If safe to do so, remove containers from path of fire.

Use water delivered as a fine spray to control the fire and cool adjacent area. Use fire fighting procedures suitable for surrounding area.

FIRE/EXPLOSION HAZARD

- Solid which exhibits difficult combustion or is difficult to ignite.
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.
- Dry dust can also be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.
- Build-up of electrostatic charge may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.
- All movable parts coming in contact with this material should have a speed of less than 1-metre/sec.

Combustion products include: carbon dioxide (CO₂), carbon monoxide (CO), nitrogen oxides (NO_x) and sulfur oxides (SO_x).

FIRE INCOMPATIBILITY

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

continued...

SOLOCHROME BLACK T (M.I.)

GHS Safety Data Sheet

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Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Wear impervious gloves and safety glasses.
- Use dry clean up procedures and avoid generating dust.
- Sweep up or
- Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
- Place spilled material in clean, dry, sealable, labelled container.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact by using protective equipment and dust respirator.
- Prevent spillage from entering drains, sewers or water courses.
- Avoid generating dust.
- Sweep, shovel up. Recover product wherever possible.
- Put residues in labelled plastic bags or other containers for disposal.
- If contamination of drains or waterways occurs, advise emergency services.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- When handling DO NOT eat, drink or smoke.
- Always wash hands with soap and water after handling.
- Avoid physical damage to containers.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.

SUITABLE CONTAINER

- Polyethylene or polypropylene container.
 - Packing as recommended by manufacturer.
 - Check all containers are clearly labelled and free from leaks.
- Glass container.

STORAGE INCOMPATIBILITY

Segregate from strong oxidisers and reducing agents.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- No smoking, naked lights or ignition sources.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

continued...

SOLOCHROME BLACK T (M.I.)

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Section 7 - HANDLING AND STORAGE

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+: May be stored together

O: May be stored together with specific precautions

X: Must not be stored together

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

• C.I. Mordant Black 11:

CAS:1787- 61- 7

MATERIAL DATA

These "dusts" have little adverse effect on the lungs and do not produce toxic effects or organic disease. Although there is no dust which does not evoke some cellular response at sufficiently high concentrations, the cellular response caused by P.N.O.C.s has the following characteristics:

- the architecture of the air spaces remain intact,
- scar tissue (collagen) is not synthesised to any degree,
- tissue reaction is potentially reversible.

Extensive concentrations of P.N.O.C.s may:

- seriously reduce visibility,
- cause unpleasant deposits in the eyes, ears and nasal passages,
- contribute to skin or mucous membrane injury by chemical or mechanical action, per se, or by the rigorous skin cleansing procedures necessary for their removal. [ACGIH]

This limit does not apply:

- to brief exposures to higher concentrations
- nor does it apply to those substances that may cause physiological impairment at lower concentrations but for which a TLV has as yet to be determined.

This exposure standard applies to particles which

- are insoluble or poorly soluble* in water or, preferably, in aqueous lung fluid (if data is available) and
- have a low toxicity (i.e.. are not cytotoxic, genotoxic, or otherwise chemically reactive with lung tissue, and do not emit ionizing radiation, cause immune sensitization, or cause toxic effects other than by inflammation or by a mechanism of lung overload).

PERSONAL PROTECTION



EYE

- Safety glasses with side shields; or as required,
- Chemical goggles.

continued...

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

· Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

Wear protective gloves, eg. PVC.

OTHER

No special equipment needed when handling small quantities.

OTHERWISE:

- Overalls.
- Barrier cream.
- Eyewash unit.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-
		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air)	0.25- 0.5 m/s (50- 100 f/min)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5- 1 m/s (100- 200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1- 2.5 m/s (200- 500 f/min)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high	2.5- 10 m/s (500- 2000 f/min.)

continued...

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

initial velocity into zone of very high rapid air motion).

Within each range the appropriate value depends on:

Lower end of the range

1: Room air currents minimal or favourable to capture

2: Contaminants of low toxicity or of nuisance value only

3: Intermittent, low production.

4: Large hood or large air mass in motion

Upper end of the range

1: Disturbing room air currents

2: Contaminants of high toxicity

3: High production, heavy use

4: Small hood - local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Purple black powder with no odour; soluble in water.

Indicator normally used in low concentrations and small amounts.

PHYSICAL PROPERTIES

Solid.

Mixes with water.

Molecular Weight: 461.38

Melting Range (°C): Not available.

Solubility in water (g/L): Miscible

pH (1% solution): Not available.

Volatile Component (%vol): Negligible

Relative Vapour Density (air=1): Not applicable

Lower Explosive Limit (%): Not available.

Autoignition Temp (°C): Not available.

State: Divided solid

Boiling Range (°C): Not applicable.

Specific Gravity (water=1): Not available.

pH (as supplied): Not applicable

Vapour Pressure (kPa): Negligible

Evaporation Rate: Not applicable

Flash Point (°C): Not applicable

Upper Explosive Limit (%): Not available.

Decomposition Temp (°C): Not available.

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

continued...

SOLOCHROME BLACK T (M.I.)

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Although ingestion is not thought to produce harmful effects (as classified under EC Directives), the material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.

EYE

Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).
The dust may produce eye discomfort causing transient smarting, blinking.

SKIN

The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

INHALED

The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

CHRONIC HEALTH EFFECTS

On the basis, primarily, of animal experiments, the material may be regarded as carcinogenic to humans. There is sufficient evidence to provide a strong presumption that human exposure to the material may result in cancer on the basis of:

- appropriate long-term animal studies
- other relevant information.

Principal routes of exposure are by accidental skin and eye contact and inhalation of generated dusts.

Many azo dyes have been found to be carcinogenic in laboratory animals, affecting the liver, urinary bladder and intestines. Specific toxicity effects in humans have not been established but some dyes are known to be mutagenic. Benzidine and its metabolic derivatives have been detected in the urine of workers exposed to direct azo dyes. An epidemiological study of silk dyers and painters with multiple exposures to benzidine based and other dyes indicate a strong association with bladder cancer.

The simplest azo dyes, which raise concern, have an exocyclic amino-group that is the key to any carcinogenicity for it is this group which undergoes biochemical N-oxidation and further reaction to reactive electrophiles. The DNA adducts formed by covalent binding through activated nitrogen have been identified. However not all azo compounds possess this activity and delicate alterations to structure vary the potential of carcinogenicity

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Section 11 - TOXICOLOGICAL INFORMATION

/ acid, reduces or eliminates the effect. Complex azo dyes consisting of more than one azo (N=N) linkage may be metabolised to produce complexed carcinogenic aromatic amines such as benzidine.

TOXICITY AND IRRITATION

No significant acute toxicological data identified in literature search.

Section 12 - ECOLOGICAL INFORMATION

No data for C.I. Mordant Black 11.

Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Authority for disposal.
- Bury or incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS:UN, IATA, IMDG

Section 15 - REGULATORY INFORMATION

REGULATIONS

C.I. Mordant Black 11 (CAS: 1787-61-7) is found on the following regulatory lists;
OECD Representative List of High Production Volume (HPV) Chemicals

Section 16 - OTHER INFORMATION

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

Issue Date: 5-Apr-2018

AMMONIUM CHLORIDE

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

AMMONIUM CHLORIDE

OTHER NAMES

Cl-H4-N, NH₄Cl, "ammonium muriate", "sal ammoniac", "sal ammonia", chloroammonium, Salmiac, Salammoniac, Salmiak, Amchlor, Ammoneric, Darammon, Salammonite

PRODUCT USE

As a flux for coating sheet iron with zinc, tinning; in dry and Leclanche batteries; dyeing; freezing mixtures; electroplating; to clean soldering irons; safety explosives; lustering cotton; tanning. Also used in washing powders; manufacture of dyes; in cement for iron pipes; for snow treatment (slows melting on ski slopes).

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

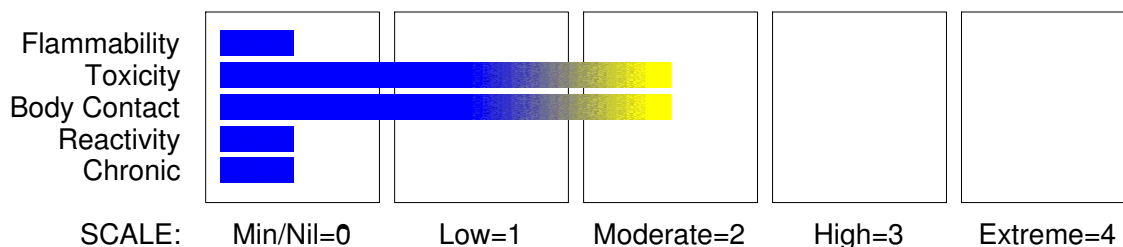
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity (Oral) Category 4

continued...

AMMONIUM CHLORIDE

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Section 2 - HAZARDS IDENTIFICATION

Eye Irritation Category 2A



EMERGENCY OVERVIEW

HAZARD

WARNING

Determined by using GHS criteria:

H302 H319

Harmful if swallowed

Causes serious eye irritation

PRECAUTIONARY STATEMENTS

Prevention

Wash hands thoroughly after handling.

Do not eat, drink or smoke when using this product.

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Wear eye/face protection.

If eye irritation persists, get medical advice/attention.

Specific treatment: refer to Label or MSDS.

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
ammonium chloride	12125-02-9	> 99

Section 4 - FIRST AID MEASURES

SWALLOWED

- IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.
- For advice, contact a Poisons Information Centre or a doctor.
- Urgent hospital treatment is likely to be needed.
- In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.

continued...

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Section 4 - FIRST AID MEASURES

- If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided. Further action will be the responsibility of the medical specialist.
 - If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.
 - Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:
 - INDUCE vomiting with fingers down the back of the throat, ONLY IF CONSCIOUS. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- NOTE: Wear a protective glove when inducing vomiting by mechanical means.

EYE

- If this product comes in contact with the eyes:
- Wash out immediately with fresh running water.
 - Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
 - If pain persists or recurs seek medical attention.
 - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

- If skin or hair contact occurs:
- Flush skin and hair with running water (and soap if available).
 - Seek medical attention in event of irritation.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

NOTES TO PHYSICIAN

Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- Non combustible.
- Not considered a significant fire risk, however containers may burn.

continued...

AMMONIUM CHLORIDE

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Section 5 - FIRE FIGHTING MEASURES

Decomposition may produce toxic fumes of: hydrogen chloride, nitrogen oxides (NO_x).

May emit poisonous fumes.

May emit corrosive fumes.

FIRE INCOMPATIBILITY

None known.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact by using protective equipment.
- Use dry clean up procedures and avoid generating dust.
- Place in a suitable labelled container for waste disposal.

MAJOR SPILLS

Moderate hazard.

- CAUTION: Advise personnel in area.
- Alert Emergency Services and tell them location and nature of hazard.
- Control personal contact by wearing protective clothing.
- Prevent, by any means available, spillage from entering drains or water courses.
- Recover product wherever possible.
- IF DRY: Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal. IF WET: Vacuum/shovel up and place in labelled containers for disposal.
- ALWAYS: Wash area down with large amounts of water and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise Emergency Services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

ammonium chloride 500 mg/m³

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

ammonium chloride 50 mg/m³

other than mild, transient adverse effects without perceiving a clearly defined odour is:

ammonium chloride 20 mg/m³

The threshold concentration below which most people will experience no appreciable risk of health effects:

ammonium chloride 10 mg/m³

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

continued...

AMMONIUM CHLORIDE

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Section 6 - ACCIDENTAL RELEASE MEASURES

Very Toxic (T+)	$\geq 0.1\%$	Toxic (T)	$\geq 3.0\%$
R50	$\geq 0.25\%$	Corrosive (C)	$\geq 5.0\%$
R51	$\geq 2.5\%$		
else	$\geq 10\%$		

where percentage is percentage of ingredient found in the mixture

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+ X + X 0 +

+: May be stored together

O: May be stored together with specific precautions

X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

Contact with acids produces toxic fumes.

Flammable.

Avoid storage with most common metals, bromine trifluoride and trichloride, silver and silver compounds.

Contact with alkalis produces toxic fumes of ammonia.

continued...

AMMONIUM CHLORIDE

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Section 7 - HANDLING AND STORAGE

STORAGE REQUIREMENTS

Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- ammonium chloride:

CAS:12125- 02- 9 CAS:75944- 36- 4 CAS:15630- 61- 2
CAS:20548- 08- 7 CAS:55871- 05- 1 CAS:89485- 84- 7
CAS:89485- 85- 8 CAS:127634- 24- 6
CAS:128532- 42- 3 CAS:867060- 75- 1 CAS:50295- 88- 0
CAS:154383- 48- 9 CAS:152128- 19- 3

MATERIAL DATA

Based on moderate inhalation the TLV-TWA is thought to be protective against irritation of the respiratory tract.

PERSONAL PROTECTION



EYE

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

Suitability and durability of glove type is dependent on usage. Factors such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity,

are important in the selection of gloves.

Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids.

- polychloroprene

continued...

AMMONIUM CHLORIDE

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

- nitrile rubber
- butyl rubber
- fluorocautchouc
- polyvinyl chloride

Gloves should be examined for wear and/ or degradation constantly.

OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	K P1 Air- line*	- -	K PAPR- P1 -
50 x ES	Air- line**	K P2	K PAPR- P2
100 x ES	-	K P3	-
		Air- line*	-
100+ x ES	-	Air- line**	K PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

· Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.

· If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered.

Such protection might consist of:

- (a): particle dust respirators, if necessary, combined with an absorption cartridge;
- (b): filter respirators with absorption cartridge or canister of the right type;
- (c): fresh-air hoods or masks.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:

direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion) grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).

Air Speed:

1- 2.5 m/s (200- 500 f/min.)

2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

continued...

AMMONIUM CHLORIDE

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Lower end of the range

- 1: Room air currents minimal or favourable to capture
- 2: Contaminants of low toxicity or of nuisance value only.
- 3: Intermittent, low production.
- 4: Large hood or large air mass in motion

Upper end of the range

- 1: Disturbing room air currents
- 2: Contaminants of high toxicity
- 3: High production, heavy use
- 4: Small hood- local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 f/min) for extraction of crusher dusts generated 2 metres distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Colourless, odourless crystals, or white, granular powder with a cooling saline taste. Somewhat hygroscopic and strongly endothermic. Soluble in water, methanol and ethanol. Almost insoluble in acetone, ether. Sublimes on heating to 340 deg. C.

PHYSICAL PROPERTIES

Solid.
Mixes with water.

Molecular Weight: 53.50
Melting Range (°C): 340 (sublimes)
Solubility in water (g/L): Miscible
pH (1% solution): 5.5
Volatile Component (%vol): Nil @ 38 C.
Relative Vapour Density (air=1): Not available.
Lower Explosive Limit (%): Not applicable
Autoignition Temp (°C): Not applicable
State: Divided solid

Boiling Range (°C): 520
Specific Gravity (water=1): 1.53
pH (as supplied): Not applicable
Vapour Pressure (kPa): 0.13 @ 160.4 C
Evaporation Rate: Non Volatile
Flash Point (°C): Not Applicable
Upper Explosive Limit (%): Not applicable
Decomposition Temp (°C): 340 sublimes
Viscosity: Not Applicable

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

continued...

AMMONIUM CHLORIDE

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

Human metabolism allows detoxification of ammonia, however toxic effects appear if this mechanism is overwhelmed by other than small doses. Large doses of ammonium salts may produce diarrhoea and may be sufficiently absorbed to produce diuresis and systemic ammonia poisoning. Such poisonings have been described after parenteral administration of the salts and produce flaccidity of facial muscles, tremor, generalised discomfort, anxiety and impairment of motor performance, recognition and of critical flicker fusion. Such a clinical picture resembles that found in terminal liver failure - elevated levels of ammonia are found regularly in advanced liver disease.

EYE

Evidence exists, or practical experience predicts, that the material may cause severe eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Eye contact may cause significant inflammation with pain. Corneal injury may occur; permanent impairment of vision may result unless treatment is prompt and adequate. Repeated or prolonged exposure to irritants may cause inflammation characterised by a temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

SKIN

The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

Skin contact is not thought to produce harmful health effects (as classified under EC Directives using animal models). Systemic harm, however, has been identified following exposure of animals by at least one other route and the material may still produce health damage following entry through wounds, lesions or abrasions. Good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

AMMONIUM CHLORIDE

Section 11 - TOXICOLOGICAL INFORMATION

CHRONIC HEALTH EFFECTS

Long term exposure to high dust concentrations may cause changes in lung function (i.e. pneumoconiosis) caused by particles less than 0.5 micron penetrating and remaining in the lung. A prime symptom is breathlessness. Lung shadows show on X-ray.
Long-term exposure to the product is not thought to produce chronic effects adverse to health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.

TOXICITY AND IRRITATION

TOXICITY

Oral (rat) LD50: 1650 mg/kg

Intraperitoneal (rat) LD50: 3250 mg/kg

IRRITATION

Eye (rabbit): 500 mg/24h SEVERE

Eye (rabbit): 100 mg SEVERE

The material may produce severe irritation to the eye causing pronounced inflammation.
Repeated or prolonged exposure to irritants may produce conjunctivitis.

Section 12 - ECOLOGICAL INFORMATION

Daphnia magna EC50 (48hr.) (mg/l): 161

In air ammonia is persistent whilst, in water, it biodegrades rapidly to nitrate, producing a high oxygen demand. Ammonia is strongly adsorbed to soil. Ammonia is non-persistent in water (half-life 2 days) and is moderately toxic to fish under normal temperature and pH conditions. Ammonia is harmful to aquatic life at low concentrations but does not concentrate in the food chain.

Drinking Water Standards:

0.5 mg/l (UK max.)

1.5 mg/l (WHO Levels)

Soil Guidelines: none available.

Air Quality Standards: none available.

DO NOT discharge into sewer or waterways.

The material is classified as an ecotoxin* because the Fish LC50 (96 hours) is less than or equal to 0.1 mg/l

* Classification of Substances as Ecotoxic (Dangerous to the Environment)

Appendix 8, Table 1

Compiler's Guide for the Preparation of International Chemical Safety Cards: 1993

Commission of the European Communities.

Toxicity Fish TLM (96h): 50mg/l

Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.
- Bury residue in an authorised landfill.
- Recycle containers if possible, or dispose of in an authorised landfill.
- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.

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Section 13 - DISPOSAL CONSIDERATIONS

· Where possible retain label warnings and MSDS and observe all notices pertaining to the product.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS:UN, IATA, IMDG

Section 15 - REGULATORY INFORMATION

REGULATIONS

ammonium chloride (CAS: 12125-02-9) is found on the following regulatory lists;
CODEX General Standard for Food Additives (GSFA) - Additives Permitted for Use in Food in General, Unless Otherwise Specified, in Accordance with GMP
International Council of Chemical Associations (ICCA) - High Production Volume List
OECD Representative List of High Production Volume (HPV) Chemicals
WHO Guidelines for Drinking-water Quality - Chemicals for which guideline values have not been established

ammonium chloride (CAS: 152128-19-3) is found on the following regulatory lists;
WHO Guidelines for Drinking-water Quality - Chemicals for which guideline values have not been established

No data available for ammonium chloride as CAS: 75944-36-4, CAS: 15630-61-2, CAS: 20548-08-7, CAS: 55871-05-1, CAS: 89485-84-7, CAS: 89485-85-8, CAS: 127634-24-6, CAS: 128532-42-3, CAS: 867060-75-1, CAS: 50295-88-0, CAS: 154383-48-9.

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
ammonium chloride	12125- 02- 9, 75944- 36- 4, 15630- 61- 2, 20548- 08- 7, 55871- 05- 1, 89485- 84- 7, 89485- 85- 8, 127634- 24- 6, 128532- 42 - 3, 867060- 75- 1, 50295- 88- 0, 154383- 48- 9, 152128- 19- 3

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to

continued...

AMMONIUM CHLORIDE

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Section 16 - OTHER INFORMATION

determine the suitability of the information for their particular purpose.

Issue Date: 21-May-2018

CALCIUM HYDROXIDE SPECIAL

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

CALCIUM HYDROXIDE

OTHER NAMES

Ca-H₂O₂, Ca(OH)₂, "calcium hydrate", "caustic lime", "hydrated lime", "slaked lime", "lime water", "milk of lime", "limbux lime", setelime, kemikal, "lime hydrated",

PRODUCT USE

Laboratory reagent. A large volume industrial chemical. Manufacture of calcium salts. A binder in mortar, plaster, cement and in building and paving materials. A component in drilling muds, pesticides, fireproof coatings, water paints. As an acid neutralizing agent in water and sewage treatment. Disinfectant. As a flux in steel production; in manufacture of paper pulp. Depilatory, dehairing hides. Poultry food additive - shell forming agent. In purification of sugar.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

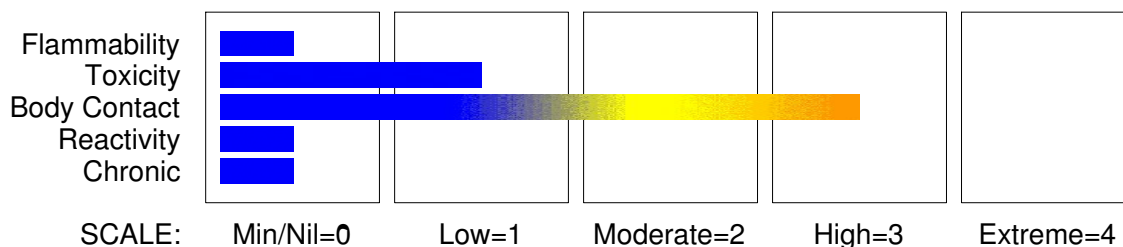
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

HAZARD RATINGS



continued...

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Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Eye Irritation Category 2A

Respiratory Irritation Category 3

Skin Corrosion/Irritation Category 2



EMERGENCY OVERVIEW

HAZARD

WARNING

Determined by using GHS criteria:

H335 H315 H319

May cause respiratory irritation

Causes skin irritation

Causes serious eye irritation

PRECAUTIONARY STATEMENTS

Prevention

Wash thoroughly after handling.

Wash hands thoroughly after handling.

Response

If skin irritation occurs, seek medical advice/attention.

Wear eye/face protection.

If eye irritation persists, get medical advice/attention.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Wash/Decontaminate removed clothing before reuse.

IF ON SKIN: Gently wash with plenty of soap and water.

Remove/Take off immediately all contaminated clothing

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
calcium hydroxide	1305-62-0	>95

continued...

CALCIUM HYDROXIDE SPECIAL

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Section 4 - FIRST AID MEASURES

SWALLOWED

Rinse mouth out with plenty of water.

- For advice, contact a Poisons Information Centre or a doctor at once.
- Urgent hospital treatment is likely to be needed.
- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Transport to hospital or doctor without delay.

EYE

If this product comes in contact with the eyes:

- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin contact occurs:

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

- If dust is inhaled, remove from contaminated area.
- Encourage patient to blow nose to ensure clear passage of breathing.
- If irritation or discomfort persists seek medical attention.

NOTES TO PHYSICIAN

For acute or short-term repeated exposures to highly alkaline materials:

- Respiratory stress is uncommon but present occasionally because of soft tissue edema.
 - Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary.
 - Oxygen is given as indicated.
 - The presence of shock suggests perforation and mandates an intravenous line and fluid administration.
 - Damage due to alkaline corrosives occurs by liquefaction necrosis whereby the saponification of fats and solubilisation of proteins allow deep penetration into the tissue.
- Alkalis continue to cause damage after exposure.

INGESTION:

- Milk and water are the preferred diluents

continued...

CALCIUM HYDROXIDE SPECIAL

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Section 4 - FIRST AID MEASURES

No more than 2 glasses of water should be given to an adult.

- Neutralising agents should never be given since exothermic heat reaction may compound injury.

- * Catharsis and emesis are absolutely contra-indicated.

- * Activated charcoal does not absorb alkali.

- * Gastric lavage should not be used.

Supportive care involves the following:

- Withhold oral feedings initially.

- If endoscopy confirms transmucosal injury start steroids only within the first 48 hours.

- Carefully evaluate the amount of tissue necrosis before assessing the need for surgical intervention.

- Patients should be instructed to seek medical attention whenever they develop difficulty in swallowing (dysphagia).

SKIN AND EYE:

- Injury should be irrigated for 20-30 minutes.

Eye injuries require saline. [Ellenhorn & Barceloux: Medical Toxicology].

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

There is no restriction on the type of extinguisher which may be used.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- Non combustible.
- Not considered to be a significant fire risk, however containers may burn.
- In a fire may decompose on heating and produce toxic / corrosive fumes.

FIRE INCOMPATIBILITY

Reacts with aluminium / zinc producing flammable, explosive hydrogen gas.

Personal Protective Equipment

Gloves, boots (chemical resistant).

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

continued...

CALCIUM HYDROXIDE SPECIAL

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Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

Clean up all spills immediately.
Avoid contact with skin and eyes.
Wear impervious gloves and safety glasses.
Use dry clean up procedures and avoid generating dust.
Place spilled material in clean, dry, sealable, labelled container.

MAJOR SPILLS

Clear area of personnel and move upwind.
Alert Fire Brigade and tell them location and nature of hazard.
Control personal contact by using protective equipment.
Stop leak if safe to do so.
Use dry clean up procedures and avoid generating dust.
Collect recoverable product into labelled containers for recycling.
Collect residues and place in labelled polyethylene bag.
Wash area down with large quantity of water and prevent runoff into drains.
After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

calcium hydroxide 500 mg/m³

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

calcium hydroxide 25 mg/m³

other than mild, transient adverse effects without perceiving a clearly defined odour is:

calcium hydroxide 15 mg/m³

The threshold concentration below which most people will experience no appreciable risk of health effects:

calcium hydroxide 15 mg/m³

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		
else	>= 10%		

where percentage is percentage of ingredient found in the mixture

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+: May be stored together

continued...

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Section 6 - ACCIDENTAL RELEASE MEASURES

O: May be stored together with specific preventions

X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

Use good occupational work practice. Observe manufacturer's storing and handling recommendations.

Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Avoid all personal contact, including inhalation.

Avoid generating and breathing dust.

Wear personal protective equipment when handling.

Use in a well-ventilated area.

Avoid contact with incompatible materials.

When handling, DO NOT eat, drink or smoke.

Keep containers securely sealed when not in use.

Avoid physical damage to containers.

Always wash hands with soap and water after handling. Work clothes should be laundered separately.

Launder contaminated clothing before re-use.

SUITABLE CONTAINER

Multi-ply paper bag with sealed plastic liner or heavy gauge plastic bag.

NOTE: Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse. Check that all containers are clearly labelled and free from leaks. Packing as recommended by manufacturer.

STORAGE INCOMPATIBILITY

Avoid storage with acids, maleic anhydride, ammonium salts, nitromethane, nitroethane, nitropropane, nitroparaffins, phosphorus.

Forms salts with nitroparaffins in the presence of water which are explosive when dried.

DO NOT use aluminium or galvanised containers.

STORAGE REQUIREMENTS

Keep dry and Container must be air-tight.

Store in a cool, dry place.

Observe manufacturer's storing and handling recommendations.

Store in original containers.

Keep containers securely sealed.

Store in a well-ventilated area.

Store away from incompatible materials.

DO NOT store near acids.

Protect containers against physical damage.

Check regularly for spills and leaks.

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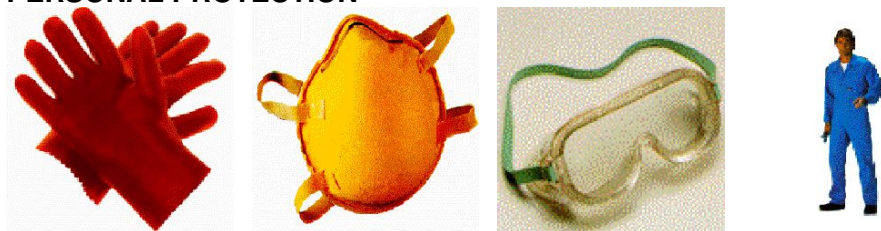
Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

MATERIAL DATA

In the absence of reports of adverse effects from exposure and the recognised lesser alkalinity of the alkaline earths compared with the the alkali hydroxides the relatively high value of TLV-TWA is recommended. This value corresponds in total alkalinity to 5 mg/m³ of sodium hydroxide or 2.5 times the TLV-TWA of sodium hydroxide.

PERSONAL PROTECTION



EYE

- Safety glasses with side shields; or as required,
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

- Barrier cream.

Wear physical protective gloves, eg. leather or Cotton gloves or PVC gloves.
Wear safety footwear.

OTHER

- Overalls.
- Eyewash unit.

Ensure there is ready access to a safety shower.

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:
"Forsberg Clothing Performance Index".
The effect(s) of the following substance(s) are taken into account in the computer-generated selection: calcium hydroxide

continued...

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

NATURAL RUBBER	A
NATURAL+NEOPRENE	A

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-
		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Use in a well-ventilated area.

General exhaust is adequate under normal operating conditions.

If exposure to workplace dust is not controlled, respiratory protection is required; wear SAA approved dust respirator.

Provide adequate ventilation in warehouse or closed storage areas.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

White or off white amorphous odourless powder with bitter, alkaline taste; slightly soluble in water and insoluble in alcohol.

Readily absorbs carbon dioxide from the air to form calcium carbonate; and loses water when heated strongly to form calcium oxide.

Soluble in glycerol, sugar or ammonium chloride solutions.

Soluble in acids with evolution of heat. Bulk density: 400-500 kg/m³.

Grades available: Builders Lime, technical, Pure, BP sterilised.

PHYSICAL PROPERTIES

Solid.

continued...

CALCIUM HYDROXIDE SPECIAL

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Does not mix with water.

Sinks in water.

Alkaline.

Molecular Weight: 74.10

Melting Range (°C): 580 (- H₂O)

Solubility in water (g/L): Partly miscible

pH (1% solution): 12.4 (saturated)

Volatile Component (%vol): Nil

Relative Vapour Density (air=1): Not applicable.

Lower Explosive Limit (%): Not applicable

Autoignition Temp (°C): Not applicable

State: Divided solid

Boiling Range (°C): Decomposes.

Specific Gravity (water=1): 2.2- 2.3

pH (as supplied): Not applicable

Vapour Pressure (kPa): Negligible

Evaporation Rate: Non Volatile

Flash Point (°C): Not applicable

Upper Explosive Limit (%): Not applicable

Decomposition Temp (°C): 580

Viscosity: Not available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Although ingestion is not thought to produce harmful effects (as classified under EC Directives), the material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.

Considered an unlikely route of entry in commercial/industrial environments.

EYE

Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals.

Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

continued...

CALCIUM HYDROXIDE SPECIAL

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Section 11 - TOXICOLOGICAL INFORMATION

SKIN

Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.

Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.

Solution of material in moisture on the skin, or perspiration, may markedly increase skin corrosion and accelerate tissue destruction.

Open cuts, abraded or irritated skin should not be exposed to this material.

The material may accentuate any pre-existing skin condition.

INHALED

Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system in a substantial number of individuals following inhalation.

Although inhalation is not thought to produce harmful effects (as classified under EC Directives), the material may still produce health damage, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally confined to doses producing mortality rather than those producing morbidity (disease, ill-health).

Reactions may not occur on exposure but response may be delayed with symptoms only appearing many hours later.

CHRONIC HEALTH EFFECTS

Principal routes of exposure are usually by skin contact with the material.

eye contact.

with the material and inhalation of generated dust.

Chronic exposure symptom is narrowing of the esophagus, with difficulty in swallowing.

This may happen after weeks, months or years of exposure. [CCINFO Mallinck]

TOXICITY AND IRRITATION

TOXICITY

Oral (rat) LD50: 7340 mg/kg

IRRITATION

Eye (rabbit): 10 mg - SEVERE

Section 12 - ECOLOGICAL INFORMATION

Fish LC50 (96hr.) (mg/l): 160

Section 13 - DISPOSAL CONSIDERATIONS

Recycle wherever possible.

Consult manufacturer for recycling options.

Consult State Land Waste Management Authority for disposal.

continued...

CALCIUM HYDROXIDE SPECIAL

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Section 13 - DISPOSAL CONSIDERATIONS

Bury residue in an authorised landfill.
Decontaminate empty containers.

WASTE DISPOSAL PROCEDURES

- Collect and package the recoverable quantities of calcium hydroxide into labelled containers for recycling or disposal. Dissolve small quantities of calcium hydroxide in water to give a 10% solution. Neutralize with 2M hydrochloric acid. Discard the contents into the drain with water [Armour 1996].

SPILLAGE DISPOSAL

- Wear nitrile rubber gloves, goggles and protective clothing to control personal contact. Cover the calcium hydroxide spill with a 1:1:1 mixture by weight of sodium carbonate or calcium carbonate, calcium carbonate and sand. Scoop the contents into a container and add water to dissolve the calcium hydroxide and sodium carbonate. Allow to stand for 24 hours. Neutralise with 2M hydrochloric acid. Discard the solution into the drain with large quantities of water [Armour 1996].

Section 14 - TRANSPORTATION INFORMATION

LabelsRequired:
HAZCHEM:



UNDG:

DangerousGoodsClass:	8	Subrisk:	
UNNumber:	3262	PackingGroup:	II
ShippingName:CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.			

Air Transport IATA:

ICAO/IATAClass:	8	ICAO/IATASubrisk:	
UN/IDNumber:	3262	PackingGroup:	II
Specialprovisions:			
ShippingName:CORROSIVE SOLID, BASIC, INORGANIC N.O.S.			

Maritime Transport IMDG:

IMDGClass:	8	IMDGSubrisk:	
UNNumber:	3262	PackingGroup:	II
EMSNumber:		Specialprovisions:	
Marine Pollutant:	Not Determined		
ShippingName:CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.			

Section 15 - REGULATORY INFORMATION

REGULATIONS

Calcium hydroxide (CAS: 1305-62-0) is found on the following regulatory lists;
CODEX General Standard for Food Additives (GSFA) - Additives Permitted for Use in Food in General, Unless Otherwise Specified, in Accordance with GMP
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk
International Council of Chemical Associations (ICCA) - High Production Volume List
OECD Representative List of High Production Volume (HPV) Chemicals

continued...

CALCIUM HYDROXIDE SPECIAL

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Section 16 - OTHER INFORMATION

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
calcium hydroxide	1305- 62- 0, 1332- 69- 0

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

Issue Date: 16-Aug-2017



SAFETY DATA SHEET

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

Catalogue No. : M31971
Product Name : METHYLENE BLUE AQUEOUS

Manufacturer/supplier identification

Company : NICE Chemicals (P) Ltd., Cochin, India
Tel - 0484 2800212, 2802755

Contact for information : Tel. No.- 0484 2802536 Fax : 0484 2802483
Emergency Telephone No. : 0484 2801583 Tele fax No. : 0484 2802483

2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : 3,7-Bis(dimethylamino)phenamthionium Chloride

CAS-No : Ec-Index No. :
Molar Mass : - EC-No. : 200-515-2
Molecular Formula : -

3. HAZARD INDEX : Harmful if drink.

4. FIRST AID MEASURES :

After skin contact : Wash off with plenty of water. Remove contaminated clothing.

After eye contact : Rinse out with plenty of water with the eyelid held wide open.

After swallowing : Make victim drink plenty of water, induce vomiting, summon doctor.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Water, Foam.



SAFETY DATA SHEET

Catalogue No.	:	M31971
Product Name	:	METHYLENE BLUE AQUEOUS

Special risks : Combustible. Development of hazardous combustion gases or vapours possible in the event of fire.

The following may develop in event of fire : Sulphur oxides, Nitrous gases, Hydrochloric Acid, Chlorine.

Special protective equipment for fire fighting : Do not stay in dangerous zone without suitable chemical protection clothing and self- contained breathing apparatus.

Other information : Contain escaping vapours with water. Prevent fire-fighting water from entering surface water or groundwater.

6. ACCIDENTAL RELEASE MEASURES

Person -related precautionary measures: Avoid generation of dusts; do not inhale dusts.

Procedures for cleaning/absorption: Take up dry. Forward for disposal.

Clean up affected area.

Environmental-protection measures : Do not allow to enter sewerage system.

7. HANDLING AND STORAGE : Handling - No further requirements.
Storage - Tightly closed.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Respiratory protection : Required when dust are generated.

Eye Protection : Required

Hand Protection : Required



SAFETY DATA SHEET

Catalogue No.	:	M31971
Product Name	:	METHYLENE BLUE AQUEOUS

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Industrial hygiene : Change contaminated clothing. Wash hands and face after working with substance.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Liquid
Colour	:	Dark Blue solution
Odour	:	Almost odourless
pH value at 10 ₂ g/l H ₂ O (20° C)	:	-
Melting temperature	:	-
Boiling temperature	:	Not available
Ignition temperature	:	Not available
Flash Point	:	Not available
Explosion limit lower	:	Not available
upper	:	Not available
Relative vapour density	:	Not available
Density	:	Not available
Bulk density	:	-
Solubility in Water (20° C)	:	soluble

10. STABILITY AND REACTIVITY

Conditions to be avoided Heating.

Hazardous decomposition products - in the event of fire : Nitrous gases,
Sulphur Oxides, Hydrochloric Acid, Chlorine.



SAFETY DATA SHEET

Catalogue No.	:	M31971
Product Name	:	METHYLENE BLUE AQUEOUS

11. TOXICOLOGICAL INFORMATION

Acute toxicity : LD₅₀ (oral, rat) : 1180 mg/kg (anhydrous substance)

Further toxicological information :

After swallowing of large amounts : Irritation in the urinary tract.
However, when the product is handled appropriately, hazardous effects are likely to occur.

Further Data : Hazardous properties cannot be excluded. The product should be handled with the care usual when dealing with chemicals.

12. ECOLOGICAL INFORMATION

Ecotoxic effects : Quantitative data on the ecological effect of this product are not available.

Ecotoxic effects : Do not allow to enter waters, waste water or soil !

13. DISPOSAL METHOD

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste.

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

14. TRANSPORT INFORMATION : Not subject to transport regulations.



SAFETY DATA SHEET

Catalogue No.	:	M31971
Product Name	:	METHYLENE BLUE AQUEOUS

15. REGULATORY INFORMATION

Labelling according to EC Directives

Symbol : - -
R-phrases : - -
S-phrases : ----

Water pollution class : 2 (polluting substances) (own classification)

16. OTHER INFORMATION

Reason for alteration :

General update.

The information contained herein is based on the present state of our knowledge.

It characterises the product with regard to the appropriate safety precautions. It

does not represent a guarantee of the properties of the product.

ETHYLENEDIAMINE TETRAACETIC ACID DISODIUM SALT

GHS Safety Data Sheet

Version No:3.1

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

EDTA DISODIUM SALT

OTHER NAMES

C10-H14-N2-O8-Na2.2H2O, "disodium ethylenediaminetetraacetate disodium dihydrate", "edetateN, N'-ethylenediaminediacetic acid disodium hydrate", "N, N'-1, 2-ethandiylbis[N-(carboxymethyl)glycine] disodium salt", "N, N'-1, 2-ethandiylbis[N-(carboxymethyl)glycine] disodium salt", "Chelaton III", "Chelaton III", "disodium diacid ethylenediaminetetraacetate disodium dihydrate", "EDTA disodium dihydrogen ethyl", "glycine, N, N'-1, 2-ethanediybi[N-carboxymetyl)-, disodium salt, ", "glycine, N, N'-1, 2-ethanediybi[N-carboxymetyl)-, disodium salt, ", dihydrate

PRODUCT USE

Chelating agent for metal poisoning, decontamination of radioactive surfaces, pharmaceuticals; anticoagulant of blood; clarification of liquids; analytical chemistry; detergents and shampoos. Used in agricultural chemical sprays; metal cleaning and plating; to remove insoluble deposits of magnesium and calcium soaps; in text Reagent

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

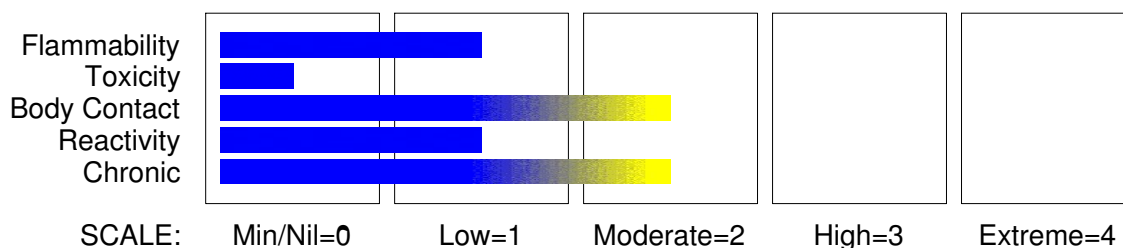
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

HAZARD RATINGS



continued...

ETHYLENEDIAMINE TETRAACETIC ACID DISODIUM SALT

GHS Safety Data Sheet

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Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity (Oral) Category 4
Eye Irritation Category 2A
Skin Corrosion/Irritation Category 2



EMERGENCY OVERVIEW

HAZARD

WARNING
Determined by using GHS criteria:
H302 H315 H319
Harmful if swallowed
Causes skin irritation
Causes serious eye irritation

PRECAUTIONARY STATEMENTS

Prevention

Wash hands thoroughly after handling.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists, get medical advice/attention.
Wear eye/face protection.
If skin irritation occurs, seek medical advice/attention.
IF ON SKIN: Gently wash with plenty of soap and water.
Specific treatment: refer to Label or MSDS.
Remove/Take off immediately all contaminated clothing
Wash/Decontaminate removed clothing before reuse.

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

continued...

ETHYLENEDIAMINE TETRAACETIC ACID DISODIUM SALT

GHS Safety Data Sheet

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Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
EDTA disodium salt dihydrate	6381-92-6	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

EYE

- If this product comes in contact with the eyes:
- Wash out immediately with fresh running water.
 - Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
 - If pain persists or recurs seek medical attention.
 - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

- If skin contact occurs:
- Immediately remove all contaminated clothing, including footwear.
 - Flush skin and hair with running water (and soap if available).
 - Seek medical attention in event of irritation.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

NOTES TO PHYSICIAN

Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- DO NOT approach containers suspected to be hot.

continued...

ETHYLENEDIAMINE TETRAACETIC ACID DISODIUM SALT

GHS Safety Data Sheet

Page 4 of 12

Section 5 - FIRE FIGHTING MEASURES

- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- Combustible solid which burns but propagates flame with difficulty.
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.
- Dry dust can be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.
- Build-up of electrostatic charge may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.
- All movable parts coming in contact with this material should have a speed of less than 1-meter/sec.

Combustion products include: carbon dioxide (CO₂), nitrogen oxides (NO_x), other pyrolysis products typical of burning organic material.

May emit corrosive fumes.

FIRE INCOMPATIBILITY

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

Personal Protective Equipment

Gloves, boots (chemical resistant).

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing dust and contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.
- Sweep up, shovel up or
- Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
- Place spilled material in clean, dry, sealable, labelled container.

MAJOR SPILLS

Moderate hazard.

- CAUTION: Advise personnel in area.
- Alert Emergency Services and tell them location and nature of hazard.
- Control personal contact by wearing protective clothing.
- Prevent, by any means available, spillage from entering drains or water courses.
- Recover product wherever possible.
- IF DRY: Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal. IF WET: Vacuum/shovel up and place in labelled containers for disposal.

continued...

ETHYLENEDIAMINE TETRAACETIC ACID DISODIUM SALT

GHS Safety Data Sheet

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Section 6 - ACCIDENTAL RELEASE MEASURES

- ALWAYS: Wash area down with large amounts of water and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise Emergency Services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

EDTA disodium salt dihydrate 250 mg/m³

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

EDTA disodium salt dihydrate 50 mg/m³

other than mild, transient adverse effects without perceiving a clearly defined odour is:

EDTA disodium salt dihydrate 30 mg/m³

The threshold concentration below which most people will experience no appreciable risk of health effects:

EDTA disodium salt dihydrate 10 mg/m³

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		
else	>= 10%		

where percentage is percentage of ingredient found in the mixture

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+ X + X 0 +

+: May be stored together

O: May be stored together with specific precautions

X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.

continued...

ETHYLENEDIAMINE TETRAACETIC ACID DISODIUM SALT

GHS Safety Data Sheet

Page 6 of 12

Section 7 - HANDLING AND STORAGE

- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

Multi-ply paper bag with sealed plastic liner or heavy gauge plastic bag.

NOTE: Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse. Check that all containers are clearly labelled and free from leaks. Packing as recommended by manufacturer.

STORAGE INCOMPATIBILITY

Avoid reaction with oxidising agents.

STORAGE REQUIREMENTS

Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- EDTA disodium salt dihydrate: CAS:139- 33- 3 CAS:69772- 70- 9 CAS:104244- 09- 9 CAS:1892- 64- 4 CAS:37341- 71- 2 CAS:42615- 28- 1 CAS:6381- 92- 6

MATERIAL DATA

These "dusts" have little adverse effect on the lungs and do not produce toxic effects or organic disease. Although there is no dust which does not evoke some cellular response at sufficiently high concentrations, the cellular response caused by P.N.O.C.s has the following characteristics:

- the architecture of the air spaces remain intact,
- scar tissue (collagen) is not synthesised to any degree,
- tissue reaction is potentially reversible.

Extensive concentrations of P.N.O.C.s may:

- seriously reduce visibility,
- cause unpleasant deposits in the eyes, ears and nasal passages,
- contribute to skin or mucous membrane injury by chemical or mechanical action, per se, or by the rigorous skin cleansing procedures necessary for their removal. [ACGIH]

This limit does not apply:

- to brief exposures to higher concentrations
- nor does it apply to those substances that may cause physiological impairment at lower concentrations but for which a TLV has as yet to be determined.

This exposure standard applies to particles which

- are insoluble or poorly soluble* in water or, preferably, in aqueous lung fluid (if data is available) and

continued...

ETHYLENEDIAMINE TETRAACETIC ACID DISODIUM SALT

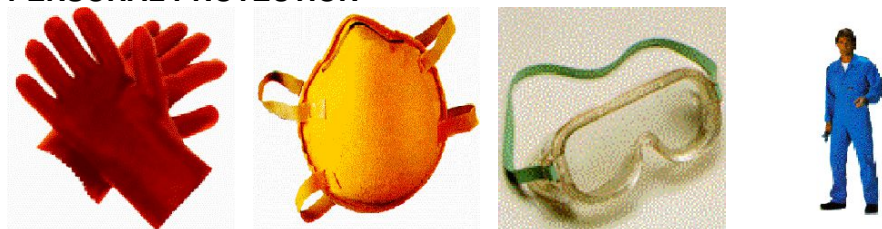
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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

- have a low toxicity (i.e.. are not cytotoxic, genotoxic, or otherwise chemically reactive with lung tissue, and do not emit ionizing radiation, cause immune sensitization, or cause toxic effects other than by inflammation or by a mechanism of lung overload).

PERSONAL PROTECTION



EYE

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

Wear chemical protective gloves, eg. PVC.
Wear safety footwear or safety gumboots, eg. Rubber.

OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-
		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.
For further information consult your Occupational Health and Safety Advisor.

continued...

ETHYLENEDIAMINE TETRAACETIC ACID DISODIUM SALT

GHS Safety Data Sheet

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.
- If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of:
 - (a): particle dust respirators, if necessary, combined with an absorption cartridge;
 - (b): filter respirators with absorption cartridge or canister of the right type;
 - (c): fresh-air hoods or masks
- Build-up of electrostatic charge on the dust particle, may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to efficiently remove the contaminant.

Type of Contaminant:

direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).

Air Speed:

1- 2.5 m/s (200- 500 f/min.)

2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range

- 1: Room air currents minimal or favourable to capture
- 2: Contaminants of low toxicity or of nuisance value only
- 3: Intermittent, low production.
- 4: Large hood or large air mass in motion

Upper end of the range

- 1: Disturbing room air currents
- 2: Contaminants of high toxicity
- 3: High production, heavy use
- 4: Small hood- local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 f/min) for extraction of crusher dusts generated 2 metres distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

continued...

ETHYLENEDIAMINE TETRAACETIC ACID DISODIUM SALT

GHS Safety Data Sheet

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

White crystals or powder, soluble in water. Usually as dihydrate crystals. pH of a 5% solution is 4-5.5. A weak acid.
Displaces CO₂ from carbonates and forms chelates with many elements.

Flammability	Colour	Physical State	Odour with water	Miscibility
Highly flammable	White	Solid	Miscible	

PHYSICAL PROPERTIES

Mixes with water.

Molecular Weight: 372.28

Melting Range (°C): Not Available

Solubility in water (g/L): Miscible

pH (1% solution): 5

Volatile Component (%vol): Not Available

Relative Vapour Density (air=1): Not Available

Lower Explosive Limit (%): Not Available

Autoignition Temp (°C): Not Available

State: Divided Solid

Boiling Range (°C): Not Available

Specific Gravity (water=1): Not Available

pH (as supplied): Not Applicable

Vapour Pressure (kPa): Not Available

Evaporation Rate: Not Available

Flash Point (°C): Not Available

Upper Explosive Limit (%): Not Available

Decomposition Temp (°C): Not Available

Viscosity: Not Applicable

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

Product is considered stable and hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.

continued...

ETHYLENEDIAMINE TETRAACETIC ACID DISODIUM SALT

GHS Safety Data Sheet

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Section 11 - TOXICOLOGICAL INFORMATION

EYE

Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals.

Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

SKIN

Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.

The material may accentuate any pre-existing dermatitis condition.

Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.

INHALED

The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

CHRONIC HEALTH EFFECTS

Long term exposure to high dust concentrations may cause changes in lung function (i.e. pneumoconiosis) caused by particles less than 0.5 micron penetrating and remaining in the lung. A prime symptom is breathlessness. Lung shadows show on X-ray.

Parenteral administration of EDTA and its salts in high doses may produce severe renal lesions with tubular necrosis, internal haemorrhage, transient bone marrow depression and life-threatening hypocalcaemia. Prolonged parenteral exposures produce electrolyte imbalance and possible cardiac arrhythmias.

Prolonged or repeated skin contact may result in irritation. EDTA and its metal salts do not permeate the cellular membrane to a significant extent; they remain in the extracellular fluid until excreted. (ILO Encyclopaedia)

NOTE: Conflicting animal test data is available with regard to the teratogenic potential of EDTA sodium salts. Some data indicate that teratogenic effects may occur at extremely high maternal doses.

TOXICITY AND IRRITATION

No significant acute toxicological data identified in literature search.

NOTE: Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA.

continued...

ETHYLENEDIAMINE TETRAACETIC ACID DISODIUM SALT

GHS Safety Data Sheet

Page 11 of 12

Section 12 - ECOLOGICAL INFORMATION

No data for EDTA disodium salt dihydrate.

Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: Burial in a licenced land-fill or Incineration in a licenced apparatus (after admixture with suitable combustible material)
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS:UN, IATA,
IMDG

Section 15 - REGULATORY INFORMATION

REGULATIONS

EDTA disodium salt dihydrate (CAS: 139-33-3) is found on the following regulatory lists;
International Council of Chemical Associations (ICCA) - High Production Volume List
OECD Representative List of High Production Volume (HPV) Chemicals

No data available for EDTA disodium salt dihydrate as CAS: 69772-70-9, CAS: 104244-09-9,
CAS: 1892-64-4, CAS: 37341-71-2, CAS: 42615-28-1, CAS: 6381-92-6.

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
EDTA disodium salt dihydrate	139- 33- 3, 69772 - 70- 9, 104244- 09- 9, 1892- 64- 4, 37341- 71- 2, 42615- 28- 1, 6381- 92- 6

The above information is believed to be accurate and represent the best information

continued...

ETHYLENEDIAMINE TETRAACETIC ACID DISODIUM SALT

GHS Safety Data Sheet

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Section 16 - OTHER INFORMATION

currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

Issue Date: 19-Jul-2023



POTASSIUM IODIDE

GHS Safety Data Sheet

Version No:1

Page 1 of 10

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

POTASSIUM IODIDE

OTHER NAMES

I-K, KI, "Merck Cat. No. 10212, 16028, 29631, 29632, 45221, 51135, 71909", "kalium jodatum", Potide, Knollide, "Univar Unilab Labchem GPR AnalaR"

PRODUCT USE

Used in photographic emulsions, animal feeds, medicinal and veterinary preparations; as table salt 2899 and an analytical agent.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

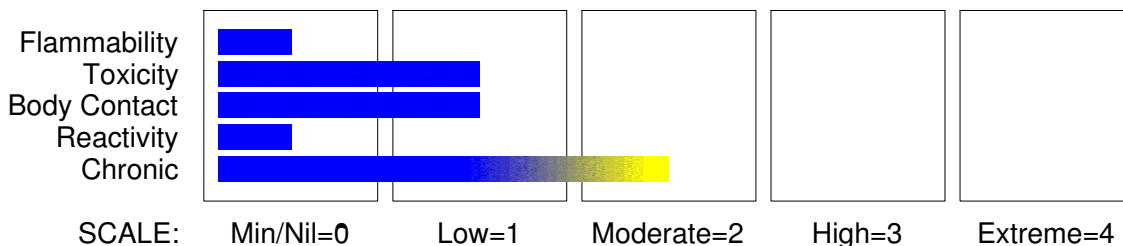
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HAZARD

Not hazardous

No hazards determined by using GHS criteria

PRECAUTIONARY STATEMENTS

continued...

POTASSIUM IODIDE

GHS Safety Data Sheet

Version No:1

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Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
potassium iodide	7681-11-0	> 99

Section 4 - FIRST AID MEASURES

SWALLOWED

For advice, contact a Poisons Information Centre or a doctor.

- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

EYE

If this product comes in contact with the eyes:

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- If pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin contact occurs:

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

NOTES TO PHYSICIAN

Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- There is no restriction on the type of extinguisher which may be used.

FIRE FIGHTING

Alert Fire Brigade and tell them location and nature of hazard.

- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses.

Use fire fighting procedures suitable for surrounding area.

Cool fire exposed containers with water spray from a protected location.

DO NOT approach containers suspected to be hot.

continued...

POTASSIUM IODIDE

GHS Safety Data Sheet

Version No:1

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Section 5 - FIRE FIGHTING MEASURES

If safe to do so, remove containers from path of fire.
Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- Non combustible.
 - Not considered a significant fire risk, however containers may burn.
- Decomposes on heating and produces toxic fumes of: hydrogen iodide.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Wear impervious gloves and safety glasses.
- Use dry clean up procedures and avoid generating dust.
- Sweep up or
- Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
- Place spilled material in clean, dry, sealable, labelled container.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact by using protective equipment and dust respirator.
- Prevent spillage from entering drains, sewers or water courses.
- Avoid generating dust.
- Sweep, shovel up. Recover product wherever possible.
- Put residues in labelled plastic bags or other containers for disposal.
- If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

potassium iodide 300 mg/m³

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

potassium iodide 6 mg/m³

other than mild, transient adverse effects without perceiving a clearly defined odour is:

potassium iodide 0.75 mg/m³

The threshold concentration below which most people will experience no appreciable risk of health effects:

potassium iodide 0.25 mg/m³

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		
else	>= 10%		

continued...

POTASSIUM IODIDE

GHS Safety Data Sheet

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Section 6 - ACCIDENTAL RELEASE MEASURES

where percentage is percentage of ingredient found in the mixture

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- When handling DO NOT eat, drink or smoke.
- Always wash hands with soap and water after handling.
- Avoid physical damage to containers.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.

SUITABLE CONTAINER

Packaging as recommended by manufacturer.

- Check that containers are clearly labelled.

Glass container.

Plastic container.

Multi-ply woven plastic or paper bag with sealed plastic liner

NOTE: Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse.

Polylined drum.

STORAGE INCOMPATIBILITY

Avoid storage with acids, oxidising materials, bromine trifluoride and trichloride, chloral hydrate, calomel (mercurous chloride), potassium chlorate and alkaloidal salts.

STORAGE REQUIREMENTS

- Keep dry.
 - Store in original containers.
 - Keep containers securely sealed.
 - No smoking, naked lights or ignition sources.
 - Store in a cool, dry, well-ventilated area.
 - Store away from incompatible materials.
 - Protect containers against physical damage.
 - Check regularly for leaks.
 - Observe manufacturer's storing and handling recommendations.
- Oxidises to iodine when exposed to air, light or moisture.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+



+



+



+



+



+

+: May be stored together

O: May be stored together with specific preventions

X: Must not be stored together

continued...

POTASSIUM IODIDE

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

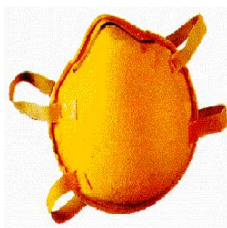
The following materials had no OELs on our records

- potassium iodide: CAS:7681- 11- 0

MATERIAL DATA

Not available. Refer to individual constituents.

PERSONAL PROTECTION



EYE

- Safety glasses.
- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

Wear protective gloves, eg. PVC.

OTHER

Overalls.

- Impervious protective clothing.
- Barrier cream.
- Eyewash unit.

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the computer-generated selection: potassium iodide

Protective Material CPI *.

NATURAL RUBBER	A
NATURAL+NEOPRENE	A
NITRILE	A

continued...

POTASSIUM IODIDE

GHS Safety Data Sheet

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-
		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult
your

Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air)	0.25- 0.5 m/s (50- 100 f/min)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5- 1 m/s (100- 200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1- 2.5 m/s (200- 500 f/min)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range

1: Room air currents minimal or favourable to capture

2: Contaminants of low toxicity or of nuisance value only

Upper end of the range

1: Disturbing room air currents

2: Contaminants of high toxicity

continued...

POTASSIUM IODIDE

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

3: Intermittent, low production.

4: Large hood or large air mass in motion

3: High production, heavy use

4: Small hood - local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Colourless or white, odourless crystals, granules or powder. Slightly deliquescent in moist air. Bitter saline taste. Soluble in water, alcohol, acetone and glycerol. Light and moisture accelerate decomposition.

PHYSICAL PROPERTIES

Solid.

Mixes with water.

Molecular Weight: 166.0

Melting Range (°C): 723

Solubility in water (g/L): Miscible

pH (1% solution): Not available

Volatile Component (%vol): Negligible

Relative Vapour Density (air=1): Not applicable

Lower Explosive Limit (%): Not applicable

Autoignition Temp (°C): Not applicable

State: Divided solid

Boiling Range (°C): 1420

Specific Gravity (water=1): 3.13

pH (as supplied): Not applicable

Vapour Pressure (kPa): 13.3 @ 1080 C

Evaporation Rate: Not applicable

Flash Point (°C): Not applicable

Upper Explosive Limit (%): Not applicable

Decomposition Temp (°C): Not available.

Viscosity: Not available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Although ingestion is not thought to produce harmful effects (as classified under EC Directives), the material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health).

continued...

POTASSIUM IODIDE

Section 11 - TOXICOLOGICAL INFORMATION

Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.

EYE

Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

The dust may produce eye discomfort causing transient smarting, blinking.

SKIN

The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

Open cuts, abraded or irritated skin should not be exposed to this material.

INHALED

The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

CHRONIC HEALTH EFFECTS

Principal routes of exposure are by accidental skin and eye contact and inhalation of generated dusts.

Iodine and iodides may produce goitre and hypothyroidism as well as hyperthyroidism. A mild toxic syndrome resulting from chronic iodide overdose and from repeated administration of small amounts of iodine ("iodism") is characterised by salivation, coryza, sneezing, conjunctivitis, headache, fever, laryngitis, bronchitis, stomatitis, parotitis (iodine mumps), and various skin rashes (iododerma*, thrombotic thrombocytopenic purpura). Swelling and inflammation of the throat, irritated and swollen eyes and pulmonary oedema may also occur. Oedema of the glottis, necessitating tracheotomy has been reported. Occasional use of iodides for asthma in pregnancy has resulted in foetal death, severe goiter, hypothyroidism and the cretinoid appearance of the new-born. *Iododerma may vary from mild erythema and acneform eruptions to urticaria and suppurative or haemorrhagic rashes.

TOXICITY AND IRRITATION

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY

Oral (mouse) LDLo: 1862 mg/kg

IRRITATION

Nil Reported

Section 12 - ECOLOGICAL INFORMATION

Toxicity Fish: LC50(48)0.09-0.48mg/L

Toxicity invertebrate: LC50(48)0.8mg/L

Nitrif. inhib.: inhib at 0.05mg/L

POTASSIUM IODIDE

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Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.
- Bury residue in an authorised landfill.
- Recycle containers if possible, or dispose of in an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS:UN, IATA,
IMDG

Section 15 - REGULATORY INFORMATION

REGULATIONS

No regulations applicable

No data available for potassium iodide as CAS: 7681-11-0.

Section 16 - OTHER INFORMATION

REPRODUCTIVE HEALTH GUIDELINES

Established occupational exposure limits frequently do not take into consideration reproductive end points that are clearly below the thresholds for other toxic effects. Occupational reproductive guidelines (ORGs) have been suggested as an additional standard. These have been established after a literature search for the reproductive no-observed-adverse effect-level (NOAEL) and the lowest-observed-adverse-effect-level (LOAEL). In addition the US EPA's procedures for risk assessment for hazard identification and dose-response assessment as applied by NIOSH were used in the creation of such limits. Uncertainty factors (UFs) have also been incorporated.

Ingredient	ORG	UF	Endpoint	CR	Adeq TLV
potassium iodide	1.0 mg/m ³	NA	NA	NA	Yes

These exposure guidelines have been derived from a screening level of risk assessment and should not be construed as unequivocally safe limits. ORGS represent an 8-hour time-weighted average unless specified otherwise.

CR = Cancer Risk/10000; UF = Uncertainty factor:

TLV believed to be adequate to protect reproductive health:

LOD: Limit of detection

Toxic endpoints have also been identified as:

D = Developmental; R = Reproductive; TC = Transplacental carcinogen

Jankovic J., Drake F.: A Screening Method for Occupational Reproductive
American Industrial Hygiene Association Journal 57: 641-649 (1996).

continued...

POTASSIUM IODIDE

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Section 16 - OTHER INFORMATION

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

Issue Date: 3-Oct-2017

SODIUM HYDROXIDE PELLETS

GHS Safety Data Sheet

Version No: 7.1

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

SODIUM HYDROXIDE PELLETS

OTHER NAMES

NaOH, "soda lye", "white caustic soda", "caustic soda, anhydrous", lye, "sodium hydroxide solid", pellets, pearl, flakes, alkali, "caustic soda - pearl", "solid grades", 30167, "PPG Pels Caustic Soda Beads", "Spectrum S1303", S1302, S1303, S1305, S1308, SO170

PROPER SHIPPING NAME

SODIUM HYDROXIDE, SOLID

PRODUCT USE

Component of alkali cleaners. Manufacture of soap, pulp and paper; rayon. Chemical manufacture. Neutralising agent in petroleum refining; manufacture of aluminium, detergents, textile processing, refining of vegetable oils. Laboratory reagent, for organic fusion, etching of metal. Used for regenerating ion exchange resins, lye peeling of fruits and vegetables in the food industry.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

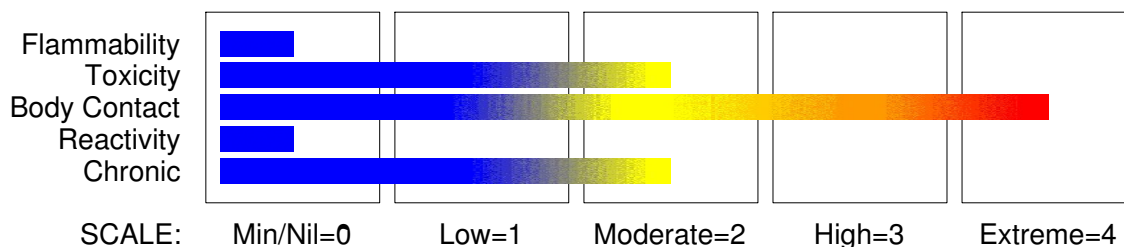
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Metal Corrosion Category 1

continued...

SODIUM HYDROXIDE PELLETS

Section 2 - HAZARDS IDENTIFICATION

Skin Corrosion/Irritation Category 1B



EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by using GHS criteria:

H290 H314

May be corrosive to metals

Causes severe skin burns and eye damage

PRECAUTIONARY STATEMENTS

Prevention

Do not breathe dust or mist.

Wash thoroughly after handling.

Wear protective gloves/clothing and eye/face protection.

Response

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

Wash contaminated clothing before reuse.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Specific treatment: refer to Label or MSDS.

Absorb spillage to prevent material damage.

Immediately call a POISON CENTER or doctor/physician.

If on skin or hair: remove/take off immediately all contaminated clothing. Rinse with water/shower.

Storage

Store locked up.

Store in a corrosive resistant container with a resistant inliner.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
sodium hydroxide	1310-73-2	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

- For advice, contact a Poisons Information Centre or a doctor at once.
- Urgent hospital treatment is likely to be needed.

continued...

SODIUM HYDROXIDE PELLETS

Section 4 - FIRST AID MEASURES

- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Transport to hospital or doctor without delay.

EYE

If this product comes in contact with the eyes:

- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin or hair contact occurs:

- Immediately flush body and clothes with large amounts of water, using safety shower if available.
- Quickly remove all contaminated clothing, including footwear.
- Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
- Transport to hospital, or doctor.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor, without delay.

NOTES TO PHYSICIAN

For acute or short-term repeated exposures to highly alkaline materials:

- Respiratory stress is uncommon but present occasionally because of soft tissue edema.
- Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary.
- Oxygen is given as indicated.
- The presence of shock suggests perforation and mandates an intravenous line and fluid administration.
- Damage due to alkaline corrosives occurs by liquefaction necrosis whereby the saponification of fats and solubilisation of proteins allow deep penetration into the tissue.

Alkalis continue to cause damage after exposure.

INGESTION:

- Milk and water are the preferred diluents

No more than 2 glasses of water should be given to an adult.

- Neutralising agents should never be given since exothermic heat reaction may compound injury.

* Catharsis and emesis are absolutely contra-indicated.

* Activated charcoal does not absorb alkali.

continued...

SODIUM HYDROXIDE PELLETS

GHS Safety Data Sheet

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Section 4 - FIRST AID MEASURES

- * Gastric lavage should not be used.

Supportive care involves the following:

- Withhold oral feedings initially.
- If endoscopy confirms transmucosal injury start steroids only within the first 48 hours.
- Carefully evaluate the amount of tissue necrosis before assessing the need for surgical intervention.
- Patients should be instructed to seek medical attention whenever they develop difficulty in swallowing (dysphagia).

SKIN AND EYE:

- Injury should be irrigated for 20-30 minutes.
- Eye injuries require saline. [Ellenhorn & Barceloux: Medical Toxicology].

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use fire fighting procedures suitable for surrounding area.
- Do not approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- Non combustible.
 - Not considered a significant fire risk, however containers may burn.
- May emit corrosive fumes.

FIRE INCOMPATIBILITY

None known.

Personal Protective Equipment

Gas tight chemical resistant suit.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact by using protective equipment.
- Use dry clean up procedures and avoid generating dust.

continued...

SODIUM HYDROXIDE PELLETS

Section 6 - ACCIDENTAL RELEASE MEASURES

- Place in a suitable labelled container for waste disposal.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Consider evacuation (or protect in place).
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Neutralise/decontaminate residue.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

sodium hydroxide 50 mg/m³

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

sodium hydroxide 5 mg/m³

other than mild, transient adverse effects without perceiving a clearly defined odour is:

sodium hydroxide 0.5 mg/m³

The threshold concentration below which most people will experience no appreciable risk of health effects:

sodium hydroxide 0.5 mg/m³

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	$\geq 0.1\%$	Toxic (T)	$\geq 3.0\%$
R50	$\geq 0.25\%$	Corrosive (C)	$\geq 5.0\%$
R51	$\geq 2.5\%$		
else	$\geq 10\%$		

where percentage is percentage of ingredient found in the mixture

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

DO NOT use aluminium, galvanised or tin-plated containers.

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- WARNING: To avoid violent reaction, ALWAYS add material to water and NEVER water to material.
- Avoid smoking, naked lights or ignition sources.
- Avoid contact with incompatible materials.

continued...

SODIUM HYDROXIDE PELLETS

Section 7 - HANDLING AND STORAGE

- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

Glass container.

- Lined metal can, lined metal pail/ can.
- Plastic pail.
- Polyliner drum.
- Packing as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

In presence of moisture, the material is corrosive to aluminium, zinc and tin producing highly flammable hydrogen gas.

Avoid strong acids.

Avoid contact with copper, aluminium and their alloys.

Store away from nitro compounds and trichlorethylene.

Reacts with mineral acids to form corresponding salts; reacts with weak acids, gases such as hydrogen sulfide, sulfur dioxide and carbon dioxide; ignites when in contact with cinnamaldehyde or zinc and reacts explosively with a mixture of chloroform and methane.

Corrosive to metals such as aluminium, tin and zinc as well as to alloys such as steel - may form explosive hydrogen gas.

STORAGE REQUIREMENTS

Plastic bag

NOTE: Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse.

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

DO NOT store near acids, or oxidising agents.

No smoking, naked lights, heat or ignition sources.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+



+



+



+



+



+

+: May be stored together

O: May be stored together with specific preventions

X: Must not be stored together

SODIUM HYDROXIDE PELLETS

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- sodium hydroxide: CAS:1310- 73- 2

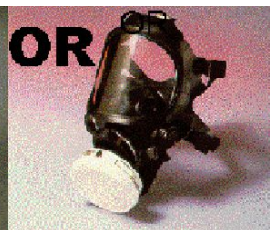
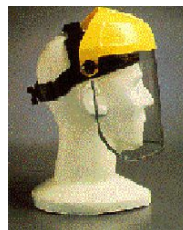
EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m3)	Revised IDLH Value (ppm)
sodium hydroxide	10	

MATERIAL DATA

The TLV-C is recommended based on concentrations that produce noticeable but not excessive, ocular and upper respiratory tract irritation.

PERSONAL PROTECTION



OR

EYE

- Chemical goggles.
- Full face shield may be required for supplementary but never for primary protection of eyes
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

Suitability and durability of glove type is dependent on usage. Factors such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity,

are important in the selection of gloves.

Elbow length PVC gloves.

OTHER

- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.
- Ensure there is ready access to a safety shower.

SODIUM HYDROXIDE PELLETS

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the computer-generated selection: sodium hydroxide

Protective Material CPI *.

BUTYL	A
NAT+NEOPR+NITRILE	A
NATURAL+NEOPRENE	A
NEOPRENE	A
NEOPRENE/NATURAL	A
NITRILE+PVC	A
PE	A
PE/EVAL/PE	A
PVC	A
SARANEX- 23	A
SARANEX- 23 2- PLY	A
TEFLON	A
VITON/CHLOROBUTYL	A
NATURAL RUBBER	A
NITRILE	A

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-
		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.

An approved self contained breathing apparatus (SCBA) may be required in some situations. Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine

continued...

SODIUM HYDROXIDE PELLETS

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25- 0.5 m/s (50- 100 f/min.)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5- 1 m/s (100- 200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1- 2.5 m/s (200- 500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood- local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

White hygroscopic, odourless, pellets, flakes, sticks or solid cast mass. Vigorously exotherms when mixed with water. Explosive boiling and spitting will occur if added to hot water. Reacts violently with acids. CAUSTIC alkali. Soluble in water, alcohol, ether, glycerol. In the presence of moisture, highly corrosive to aluminium, zinc and tin. HIGHLY reactive: with ammonium salts evolves ammonia gas. Rapidly picks up moisture from the air and with carbon dioxide in air forms sodium carbonate.

PHYSICAL PROPERTIES

Solid.
Mixes with water.
Corrosive.

SODIUM HYDROXIDE PELLETS

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Alkaline.

Molecular Weight: 40
Melting Range (°C): 318.4
Solubility in water (g/L): Miscible
pH (1% solution): 12.7
Volatile Component (%vol): Not available
Relative Vapour Density (air=1): Not available
Lower Explosive Limit (%): Not applicable
Autoignition Temp (°C): Not applicable
State: Divided solid

Boiling Range (°C): 1390
Specific Gravity (water=1): 2.12 @ 20 C
pH (as supplied): Not applicable
Vapour Pressure (kPa): Negligible
Evaporation Rate: Not available
Flash Point (°C): Not applicable
Upper Explosive Limit (%): Not applicable
Decomposition Temp (°C): Not Applicable
Viscosity: Not Applicable

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

The material can produce severe chemical burns within the oral cavity and gastrointestinal tract following ingestion. Accidental ingestion of the material may be damaging to the health of the individual. Ingestion of alkaline corrosives may produce immediate pain, and circumoral burns. Mucous membrane corrosive damage is characterised by a white appearance and soapy feel; this may then become brown, oedematous and ulcerated. Profuse salivation with an inability to swallow or speak may also result. Even where there is limited or no evidence of chemical burns, both the oesophagus and stomach may experience a burning pain; vomiting and diarrhoea may follow. The vomitus may be thick and may be slimy (mucous) and may eventually contain blood and shreds of mucosa. Epiglottal oedema may result in respiratory distress and asphyxia. Marked hypotension is symptomatic of shock; a weak and rapid pulse, shallow respiration and clammy skin may also be evident. Circulatory collapse may occur and, if uncorrected, may produce renal failure. Severe exposures may result in oesophageal or gastric perforation accompanied by mediastinitis, substernal pain, peritonitis, abdominal rigidity and fever. Although oesophageal, gastric or pyloric stricture may be evident initially, these may occur after weeks or even months and years. Death may be quick and results from asphyxia, circulatory collapse or aspiration of even minute amounts. Death may also be delayed as a result of perforation, pneumonia or the effects of stricture formation.

EYE

The material can produce severe chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating. When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation. Direct contact with alkaline corrosives may produce pain and burns. Oedema, destruction of the epithelium, corneal opacification and iritis may occur. In less severe cases these symptoms tend to resolve. In severe injuries the full extent of the damage may not be immediately apparent with late complications comprising a persistent oedema,

continued...

SODIUM HYDROXIDE PELLETS

Section 11 - TOXICOLOGICAL INFORMATION

vascularisation and corneal scarring, permanent opacity, staphyloma, cataract, symblepharon and loss of sight.

SKIN

The material can produce severe chemical burns following direct contact with the skin. Skin contact with alkaline corrosives may produce severe pain and burns; brownish stains may develop. The corroded area may be soft, gelatinous and necrotic; tissue destruction may be deep.

Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.

Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation.

In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.

Inhalation of alkaline corrosives may produce irritation of the respiratory tract with coughing, choking, pain and mucous membrane damage. Pulmonary oedema may develop in more severe cases; this may be immediate or in most cases following a latent period of 5-72 hours. Symptoms may include a tightness in the chest, dyspnoea, frothy sputum, cyanosis and dizziness. Findings may include hypotension, a weak and rapid pulse and moist rales. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

The material is not thought to produce adverse health effects following inhalation (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

CHRONIC HEALTH EFFECTS

Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Gastrointestinal disturbances may also occur. Chronic exposures may result in dermatitis and/or conjunctivitis.

Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Long term exposure to high dust concentrations may cause changes in lung function (i.e. pneumoconiosis) caused by particles less than 0.5 micron penetrating and remaining in the lung. A prime symptom is breathlessness. Lung shadows show on X-ray.

TOXICITY AND IRRITATION

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY

IRRITATION

Skin (rabbit): 500 mg/24h SEVERE

Eye (rabbit): 0.05 mg/24h SEVERE

Eye (rabbit): 1 mg/24h SEVERE

Eye (rabbit): 1 mg/30s rinsed- SEVERE

The material may produce severe irritation to the eye causing pronounced inflammation.

continued...

SODIUM HYDROXIDE PELLETS

Section 11 - TOXICOLOGICAL INFORMATION

Repeated or prolonged exposure to irritants may produce conjunctivitis. The material may produce severe skin irritation after prolonged or repeated exposure, and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) thickening of the epidermis.

Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis. Prolonged contact is unlikely, given the severity of response, but repeated exposures may produce severe ulceration. Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

Section 12 - ECOLOGICAL INFORMATION

Prevent, by any means available, spillage from entering drains or water courses.

DO NOT discharge into sewer or waterways.

Ecotoxicity:

Fish LC50 (96h): 43mg/l

Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Treat and neutralise at an approved treatment plant. Treatment should involve : Mixing or slurring in water; Neutralisation followed by: Burial in a licenced land-fill or Incineration in a licenced apparatus (after admixture with suitable combustible material)
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

WASTE DISPOSAL PROCEDURES

- Wear eye protection, protective clothing and nitrile rubber gloves to control personal contact from sodium hydroxide. Add the compound to a large volume of ice water. Neutralise by adding 5% hydrochloric acid and empty into the drain [Armour 1996].

SPILLAGE DISPOSAL

- Wear eye protection, protective clothing and nitrile rubber gloves to control personal contact from sodium hydroxide. Scoop the contents into a container and add small portions into a large volume of ice water. Neutralise with 5% hydrochloric acid and empty into the drain. Wash the area of the spill with

SODIUM HYDROXIDE PELLETS

Section 13 - DISPOSAL CONSIDERATIONS

water [Armour 1996].

Section 14 - TRANSPORTATION INFORMATION



Labels Required: CORROSIVE
HAZCHEM: 2X

UNDG:

Dangerous Goods Class:	8	Subrisk:	None
UN Number:	1823	Packing Group:	II
Shipping Name: SODIUM HYDROXIDE, SOLID			

Air Transport IATA:

ICAO/IATA Class:	8	ICAO/IATA Subrisk:	None
UN/ID Number:	1823	Packing Group:	II
Special provisions:	None		
Shipping Name: SODIUM HYDROXIDE, SOLID			

Maritime Transport IMDG:

IMDG Class:	8	IMDG Subrisk:	None
UN Number:	1823	Packing Group:	II
EMS Number:	F- A, S- B	Special provisions:	None
Shipping Name: SODIUM HYDROXIDE, SOLID			

Section 15 - REGULATORY INFORMATION

REGULATIONS

sodium hydroxide (CAS: 1310-73-2) is found on the following regulatory lists;
CODEX General Standard for Food Additives (GSFA) - Additives Permitted for Use in Food in General, Unless Otherwise Specified, in Accordance with GMP
International Council of Chemical Associations (ICCA) - High Production Volume List
OECD Representative List of High Production Volume (HPV) Chemicals

Section 16 - OTHER INFORMATION

MSDS SECTION CHANGES

The following table displays the version number of and date on which each section was last changed.

Section Name	Version	Date	Section Name	Version	Date	Section Name	Version	Date
First Aid (eye)	5	12- Jan- 2006	Handling Procedure	5	12- Jan- 2006	Acute Health (eye)	6	9- Nov- 2006
First Aid (inhaled)	5	12- Jan- 2006	Storage (storage incompatibility)	7	25- May- 2007	Acute Health (inhaled)	6	9- Nov- 2006
First Aid (skin)	5	12- Jan- 2006	Storage (storage requirement)	6	9- Nov- 2006	Acute Health (skin)	6	9- Nov- 2006
First Aid (swallowed)	5	12- Jan- 2006	Storage (suitable container)	6	9- Nov- 2006	Acute Health (swallowed)	6	9- Nov- 2006
Fire Fighter (extinguishing media)	5	12- Jan- 2006	Engineering Control	5	12- Jan- 2006	Chronic Health	6	9- Nov- 2006
Fire Fighter (fire)	5	12- Jan- 2006	Personal	5	12- Jan- 2006	Toxicity and	6	9- Nov- 2006

continued...

SODIUM HYDROXIDE PELLETS

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Section 16 - OTHER INFORMATION

fighting) Fire Fighter (fire incompatibility)	5	12- Jan- 2006	Protection (eye) Personal Protection (hands/feet) Appearance	6	9- Nov- 2006	Irritation (Other) Environmental	6	9- Nov- 2006
Fire Fighter (fire/explosion hazard)	6	9- Nov- 2006		6	9- Nov- 2006	Disposal	5	12- Jan- 2006
Spills (major)	5	12- Jan- 2006	Physical Properties Instability Condition	6	9- Nov- 2006	Transport	5	12- Jan- 2006
Spills (minor)	6	9- Nov- 2006		5	12- Jan- 2006			

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

Issue Date: 24-March-2023



SAFETY DATA SHEET

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

Catalogue No. : S 11929
Product Name : SODIUM BICARBONATE

Manufacturer/supplier identification
Company : NICE Chemicals (P) Ltd., Cochin, India
Tel - 0484 2800212, 2802755

Contact for information : Tel. No.- 0484 2802536 Fax : 0484 2802483
Emergency Telephone No. : 0484 2801583 Tele fax No. : 0484 2802483

2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Sodium Hydrogen Carbonate

CAS-No : 144-55-8 Ec-Index No. : -----
Molar Mass : 84.01 EC-No. : 205-633-8
Molecular Formula : CHNaO_3

3. HAZARDS IDENTIFICATION :

According to the evaluative data available, a classification according to categories of danger as specified in Directive 67/548/EEC and laid down in the legislation of the country concerned is not required.

4. FIRST AID MEASURES

After inhalation : fresh air.
After skin contact : Wash off with water.
After eye contact : Rinse out with plenty of water.
After swallowing (large amounts) : Consult doctor if feeling unwell.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : In adaption to materials stored in the immediate neighbourhood.

Special risks : None
Other information : Non-combustible.

6. ACCIDENTAL RELEASE MEASURES :

Procedures for cleaning/absorption : Take up dry. Forward for disposal. Clean up affected area. Avoid generation of dusts.

7. HANDLING AND STORAGE

Handling : Store protected from solvents.
Storage : Tightly closed. Dry.
Storage temperature : No restrictions.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Respiratory protection : Required when dusts are generated.
Eye Protection : Required
Hand Protection : Required



SAFETY DATA SHEET

CATALOGUE NO. : S 11929
PRODUCT NAME : SODIUM BICARBONATE

Protective clothing should be selected specifically for the working place, depending on concentration & quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Industrial hygiene : Wash hands after working with substance.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Solid
Colour	:	White
Odour	:	Odourless
pH value at 50gm/l _t .H ₂ O(20° C)	:	~8.2
Melting temperature	:	~270° C (decomposition)
Boiling temperature	:	Not available
Ignition temperature	:	Not available
Flash Point	:	Not available
Explosion limit lower	:	Not available
upper	:	Not available
Relative vapour density	:	Not available
Density (20° C)	:	2.16 gm/cm ³
Bulk density	:	~1000 gm/cm ³
Solubility in Water (20° C)	:	~100 gm/l _t .
Ethanol (20° C)	:	Almost insoluble
Thermal decomposition	:	>50° C

10. STABILITY & REACTIVITY

Conditions to be avoided : No information available
Substances to be avoided : No information available
Hazardous decomposition products : No information available

11. TOXICOLOGICAL INFORMATION

Acute toxicity : LD₅₀(oral, rat) : 4220 mg/kg
Further toxicological information : The literature and our own experience have not revealed any hazardous properties.
Further data : Hazardous properties are relatively improbable.

12. ECOLOGICAL INFORMATION

Ecotoxic effects : Quantitative data on the ecological effect of this product are not available.

Further ecologic data: No ecological problems are to be expected when the product is handled and used with due care and attention.

CATALOGUE NO. : S 11929



SAFETY DATA SHEET

PRODUCT NAME : SODIUM BICARBONATE

13. DISPOSAL METHOD

There are no uniform EC Regulations for the disposal of chemicals or residues.

Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste.

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

14. TRANSPORT INFORMATION

Not subject to transport regulations.

15. REGULATORY INFORMATION :

Labeling according to EC Directives

Symbol : ---

R-phrases : ---

S-phrases : ---

Water pollution class : 0 (generally nonpolluting substance)

16. OTHER INFORMATION

Reason for alteration

Change in the chapter on toxicology.

General update

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.



SAFETY DATA SHEET

SAFETY DATA SHEET

1. Identification of the preparation and of the company

Catalogue No. : S 14029
Product Name : SODIUM THIOSULPHATE

Manufacturer/supplier identification

Company : NICE Chemicals (P) Ltd., Cochin, India
Tel - 0484 2800212, 2802755

Contact for information : Tel. No.- 0484 2802536 Fax : 0484 2802483
Emergency Telephone No. : 0484 2801583 Tele fax No. : 0484 2802483

2. Composition/Information on Ingredients

CAS-No : 7772-98-7 EC No. : 231-867-5
Molar Mass : ---- EC Index No. : ----
Molecular Formula : $\text{Na}_2\text{O}_3\text{S}_2$

3. Hazards Index : According to the evaluative data available, a classification according to categories of danger as specified in Directive 67/548/EEC and laid down in the legislation of the country concerned is not required.

4. First Aid Measures : After eye contact : Rinse out with water
After swallowing (large amounts) : Consult doctor if feeling unwell.

5. Fire-fighting measures : Suitable extinguishing media : In adaption to materials stored in the immediate neighbourhood.
Special risk : Non-Combustible.

6. Accidental release : Take up dry. Forward for disposal. Clean up affected area with water.
Measures

7. Handling and Storage : Handling - No further requirements.
Storage - Tightly closed.

8. Exposure controls/ : Respiratory protection : Not required
Personal protection : Eye Protection : Not required
Hand Protection : Not required
Industrial hygiene : Wash hands after working with substance.

9. Physical and Chemical : Form : Solid
Properties : Colour : Colourless to White
Odour : Odourless
pH value at 50g/l H_2O (20° C) : 6.0 - 8.5
Melting temperature : Not available
Boiling temperature (23hPa) : Not available
Ignition temperature : Not available
Flash Point : Not available

Contd...2

NICE SAFETY DATA SHEET

Catalogue No. : S 14029
Product Name : SODIUM THIOSULPHATE



SAFETY DATA SHEET

Explosion limit lower : Not available
upper : Not available
Relative vapour density : Not available
Density : Not available
Bulk density : 1350 kg/m³
Solubility in Water (20° C) : 209 gm/lt.

10. Stability and reactivity : Conditions to be avoided : No information available
Substances to be avoided : increased reactivity with nitrites and peroxi compounds
(risk of explosion); with acids. Formation of : Sulphur Oxides
Hazardous decomposition products : Sulphur Dioxide

11. Toxicological Information : Quantitative data on the toxicity of this product are not available.
Therapeutically used substance.

12. Ecological Information : No ecological problems are to be expected when the product is handled and used with
due care and attention. COD₅ : 0.322 gm/gm

13. Disposal Method : Disposal in compliance with official regulations. Handle contaminated packaging
in the same way as the substance itself. If not officially specified differently, non-
contaminated packaging may be treated like house-hold waste or recycled.

There are no uniform EC Regulation for the disposal of chemical or residues.
Chemical residues generally count as special waste. Approved waste disposal
companies which will advise you on how to dispose of special waste.

14. Transport information : Not subject to transport regulations.

15. Regulatory Information :
Labeling according to EC Directives

Symbol : ---

R-phrases : ---

S-phrases : ---

Water pollution class : 0 (generally nonpolluting substance)

16. Other Information :
Reason for alteration

The information contained herein is based on the present state of our knowledge.
It characterises the product with regard to the appropriate safety precautions. It
does not represent a guarantee of the properties of the product.

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SODIUM THIOSULPHATE PENTAHYDRATE

GHS Safety Data Sheet

Version No:1

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

SODIUM THIOSULPHATE PENTAHYDRATE

OTHER NAMES

Na₂S₂O₃·5H₂O, "thiosulphuric acid disodium salt pentahydrate", "thiosulfuric acid disodium salt pentahydrate", "sodium thiosulphate pentahydrate", "sodium hyposulphite", "sodium hyposulfite", "sodium oxide sulphide pentahydrate", "sodium oxide sulfide pentahydrate", Ametox, Antichlor, Hypo, Sodothiol, Sulfothiorine

PRODUCT USE

Used as photographic fixing agent; in chrome tanning; removing chlorine in bleaching and papermaking; extraction of silver from its ores; dechlorination of water; mordant in dyeing and printing textiles. Also used as reagent in analytical and organic chemistry; reducing agent in chrome dyeing; sequestrant in salt (up to 0.1%); antidote for cyanide poisoning; in leather manufacture; bleaching of bone, straw and ivory.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

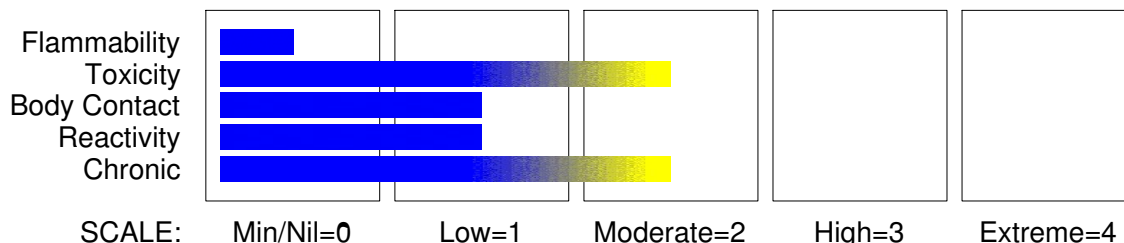
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HAZARD

Not hazardous

continued...

SODIUM THIOSULPHATE PENTAHYDRATE

GHS Safety Data Sheet

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Section 2 - HAZARDS IDENTIFICATION

No hazards determined by using GHS criteria

PRECAUTIONARY STATEMENTS

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
sodium thiosulfate pentahydrate	10102-17-7	100

Section 4 - FIRST AID MEASURES

SWALLOWED

For advice, contact a Poisons Information Centre or a doctor.

- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

EYE

If this product comes in contact with the eyes:

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- If pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin contact occurs:

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

- If dust is inhaled, remove from contaminated area.
- Encourage patient to blow nose to ensure clear passage of breathing.
- If irritation or discomfort persists seek medical attention.

NOTES TO PHYSICIAN

Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- There is no restriction on the type of extinguisher which may be used.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.

continued...

SODIUM THIOSULPHATE PENTAHYDRATE

GHS Safety Data Sheet

Version No:1

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Section 5 - FIRE FIGHTING MEASURES

- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- Non combustible.
 - Not considered to be a significant fire risk, however containers may burn.
 - In a fire may decompose on heating and produce toxic / corrosive fumes.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
Decomposes on heating and produces toxic fumes of: sulfur oxides (SO_x), hydrogen sulfide (H₂S) and caustic compounds.

FIRE INCOMPATIBILITY

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Wear impervious gloves and safety glasses.
- Use dry clean up procedures and avoid generating dust.
- Sweep up or
- Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
- Place spilled material in clean, dry, sealable, labelled container.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact by using protective equipment and dust respirator.
- Prevent spillage from entering drains, sewers or water courses.
- Recover product wherever possible. Avoid generating dust.
- Sweep / shovel up.
- If required, wet with water to prevent dusting.
- Put residues in labelled plastic bags or other containers for disposal.
- Wash area down with large quantity of water and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

sodium thiosulfate pentahydrate	500 mg/m ³
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irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

sodium thiosulfate pentahydrate	50 mg/m ³
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continued...

SODIUM THIOSULPHATE PENTAHYDRATE

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Section 6 - ACCIDENTAL RELEASE MEASURES

other than mild, transient adverse effects without perceiving a clearly defined odour is:

sodium thiosulfate pentahydrate 30 mg/m³

The threshold concentration below which most people will experience no appreciable risk of health effects:

sodium thiosulfate pentahydrate 10 mg/m³

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	$\geq 0.1\%$	Toxic (T)	$\geq 3.0\%$
R50	$\geq 0.25\%$	Corrosive (C)	$\geq 5.0\%$
R51	$\geq 2.5\%$		
else	$\geq 10\%$		

where percentage is percentage of ingredient found in the mixture

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

Glass container.

Multi-ply woven plastic or paper bag with sealed plastic liner

NOTE: Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse.

- Metal can or drum
- Packaging as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

Avoid reaction with oxidising agents.

Avoid strong acids.

Avoid storage metal nitrites, halogens.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

continued...

SODIUM THIOSULPHATE PENTAHYDRATE

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Section 7 - HANDLING AND STORAGE

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+ + + + + +

+: May be stored together

O: May be stored together with specific precautions

X: Must not be stored together

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials have no OELs on our records

• sodium thiosulfate pentahydrate:

CAS:10102- 17- 7 CAS:7772- 98- 7

MATERIAL DATA

These "dusts" have little adverse effect on the lungs and do not produce toxic effects or organic disease. Although there is no dust which does not evoke some cellular response at sufficiently high concentrations, the cellular response caused by P.N.O.C.s has the following characteristics:

- the architecture of the air spaces remain intact,
- scar tissue (collagen) is not synthesised to any degree,
- tissue reaction is potentially reversible.

Extensive concentrations of P.N.O.C.s may:

- seriously reduce visibility,
- cause unpleasant deposits in the eyes, ears and nasal passages,
- contribute to skin or mucous membrane injury by chemical or mechanical action, per se, or by the rigorous skin cleansing procedures necessary for their removal. [ACGIH]

This limit does not apply:

- to brief exposures to higher concentrations
- nor does it apply to those substances that may cause physiological impairment at lower concentrations but for which a TLV has as yet to be determined.

This exposure standard applies to particles which

- are insoluble or poorly soluble* in water or, preferably, in aqueous lung fluid (if data is available) and

• have a low toxicity (i.e.. are not cytotoxic, genotoxic, or otherwise chemically reactive with lung tissue, and do not emit ionizing radiation, cause immune sensitization, or cause toxic effects other than by inflammation or by a mechanism of lung overload).

PERSONAL PROTECTION



EYE

- Safety glasses with side shields; or as required,
- Chemical goggles.

continued...

SODIUM THIOSULPHATE PENTAHYDRATE

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

· Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

Wear chemical protective gloves, eg. PVC.
Wear safety footwear.

OTHER

- Overalls.
- Eyewash unit.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-
		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.
- If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of:
 - (a): particle dust respirators, if necessary, combined with an absorption cartridge;
 - (b): filter respirators with absorption cartridge or canister of the right type;
 - (c): fresh-air hoods or masks
- Build-up of electrostatic charge on the dust particle, may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to efficiently remove the contaminant.

Type of Contaminant:
direct spray, spray painting in shallow booths,
drum filling, conveyer loading, crusher dusts,
gas discharge (active generation into zone of

Air Speed:
1- 2.5 m/s (200- 500 f/min.)

continued...

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

rapid air motion)
grinding, abrasive blasting, tumbling, high
speed wheel generated dusts (released at high
initial velocity into zone of very high rapid
air motion).

2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range

1: Room air currents minimal or favourable to capture

2: Contaminants of low toxicity or of nuisance value only

3: Intermittent, low production.

4: Large hood or large air mass in motion

Upper end of the range

1: Disturbing room air currents

2: Contaminants of high toxicity

3: High production, heavy use

4: Small hood- local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 f/min) for extraction of crusher dusts generated 2 metres distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Odourless, white, translucent crystals or powder. Cooling taste and bitter aftertaste. Soluble in water and oil of turpentine. Insoluble in alcohol. Deliquescent in moist air, efflorescent above 33 deg. C in dry air. Commercial product commonly pentahydrate, the 5H₂O being lost above 100 deg.C.

PHYSICAL PROPERTIES

Solid.

Mixes with water.

Molecular Weight: 248.17

Melting Range (°C): 48 (loses 5H₂O)

Solubility in water (g/L): Miscible

pH (1% solution): 6.5- 8.0 (5% sol)

Volatile Component (%vol): Negligible

Relative Vapour Density (air=1): Not applicable

Lower Explosive Limit (%): Not applicable

Autoignition Temp (°C): Not applicable

State: Divided solid

Boiling Range (°C): > 100 (decompose)

Specific Gravity (water=1): 1.75

pH (as supplied): Not applicable

Vapour Pressure (kPa): Not applicable

Evaporation Rate: Not applicable

Flash Point (°C): Not applicable

Upper Explosive Limit (%): Not applicable

Decomposition Temp (°C): > 100

Viscosity: Not Available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.

continued...

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

- Product is considered stable.
- Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Although ingestion is not thought to produce harmful effects (as classified under EC Directives), the material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.

Thiosulfate salts are poorly absorbed from the alimentary tract and as a consequence act as an osmotic cathartic. Absorbed thiosulfates are remarkably inert and are distributed in extracellular fluids where they may cause osmotic disturbances.

EYE

Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

The dust may produce eye discomfort causing transient smarting, blinking.

SKIN

The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

INHALED

The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

Symptoms of hydrogen sulfide exposure may include profuse salivation, nausea, vomiting, diarrhoea, giddiness, headache, vertigo, amnesia, palpitations, arrhythmia, weakness, muscle cramps, confusion, sudden collapse, unconsciousness and death due to respiratory paralysis (above 300 ppm). Although hydrogen sulfide is extremely odourous, the "rotten egg" odour is not a reliable indicator for warning of exposure since odour fatigue readily occurs. Odour sensation is lost immediately at concentrations exceeding 200 ppm. Case reports suggest that toxic amounts can enter the body through a punctured ear drum, even while wearing some sorts of respiratory protection.

Hydrogen sulfide is primarily a respiratory toxin which inhibits the cytochrome-oxidase system and is probably more potent than hydrogen cyanide. The lifetime of hydrogen sulfide in oxygenated blood is short and sulfmethaemoglobin is rapidly detoxified by red blood cells and the liver. Most fatalities due to hydrogen sulfide intoxication occur at the scene of exposure and immediate supportive care is imperative. Ensure such contingencies are addressed as part of the site emergency plan and that operators or

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Section 11 - TOXICOLOGICAL INFORMATION

other employees who may become accidentally exposed, are made aware of the existence of such a plan.

CHRONIC HEALTH EFFECTS

Principal routes of exposure are by accidental skin and eye contact and inhalation of generated dusts.

Chronic low level exposures to hydrogen sulfide may produce headache, fatigue, dizziness, irritability and loss of libido. These symptoms may also result from damage produced by isolated or repeated unmeasured peak high level exposures in healthy persons or those suffering from pre-existing neurological diseases. A study on long term effects showed that H₂S apparently can cause continuing, sometimes unrecognised olfactory deficits. [Hirsch, A.R. - Occ. Env. Med., 1999, Vol 5, Iss 4, pp 284-287].

TOXICITY AND IRRITATION

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY

Oral (human) TDLo: 300 mg/kg/7d

IRRITATION

Nil Reported

Section 12 - ECOLOGICAL INFORMATION

DO NOT discharge into sewer or waterways.

Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.
- Bury residue in an authorised landfill.
- Recycle containers if possible, or dispose of in an authorised landfill.

For small quantities:

- Neutralise an aqueous solution of the material.
- Filter solids for disposal to approved land fill.
- Flush solution to sewer (subject to local regulation)
- Heat and fumes evolved during reaction may be controlled by rate of addition.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: UN, IATA, IMDG

Section 15 - REGULATORY INFORMATION

REGULATIONS

sodium thiosulfate pentahydrate (CAS: 10102-17-7) is found on the following regulatory lists;
International Council of Chemical Associations (ICCA) - High Production Volume List
OECD Representative List of High Production Volume (HPV) Chemicals

continued...

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Section 16 - OTHER INFORMATION

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

Issue Date: 5-Oct-2017



SAFETY DATA SHEET

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

Catalogue No. : S 20109
Product Name : SAFRANINE M.S.

Manufacturer/supplier identification
Company : NICE Chemicals (P) Ltd., Cochin, India
Tel - 0484 2800212, 2802755

Contact for information : Tel. No.- 0484 2802536 Fax : 0484 2802483
Emergency Telephone No. : 0484 2801583 Tele fax No. : 0484 2802483

2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Safranine O Certistain

CAS-No : 477-73-6-6 Ec-Index No. :
Molar Mass : 350-88 EC-No. : 207-518-8
Molecular Formula : $C_{20}H_{19}ClN_4$

3. HAZARD INDEX

No evaluative data are available. A classification according to categories of danger as specified in Directive 67/548/EEC & laid down in the legislation of the country concerned can therefore not be made. In this context, hazardous properties can therefore not be excluded.

4. FIRST AID MEASURES

After inhalation : fresh air.
After skin contact : wash off with plenty of water. Remove contaminated clothing.
After eye contact : Rinse out with plenty of water with the eyelid held wide open.
Summon eye specialist.
After swallowing : make victim drink plenty of water induce vomiting,
summon doctor.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : CO_2 , foam, powder.
Special risks : Combustible. Development of hazardous combustion gases or vapours possible in the event of fire.

6. ACCIDENTAL RELEASE MEASURES

Take up dry. Forward for disposal. Clean up affected area.

7. HANDLING AND STORAGE

Handling - store protected from solvents.
Storage - Store tightly closed and dry.



SAFETY DATA SHEET

Catalogue No. : S 20109
Product Name : SAFRANINE M.S.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Respiratory protection : Required when dusts are generated.

Eye Protection : Required
Hand Protection : Required

Industrial hygiene : Change contaminated clothing.
Wash hands and face after working with substance.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Solid
Colour	:	Reddish-brown
Odour	:	Odourless
pH value at 50 g/l H ₂ O (20° C)	:	Near 10
Melting temperature	:	Not available
Boiling temperature	:	Not available
Ignition temperature	:	Not available
Flash Point	:	Not applicable
Explosion limit lower	:	Not available
upper	:	Not available
Relative vapour density	:	Not available
Density	:	Not available
Bulk density	:	Near 400 Kg/m ³
Solubility in Water (20° C)	:	50 gm/l.
Ether (20° C)	:	Insoluble

10. STABILITY AND REACTIVITY

Conditions to be avoided : No information available
Substances to be avoided : No information available
Hazardous decomposition products : No information available

11. TOXICOLOGICAL INFORMATION

Acute Toxicity: Quantitative data on the toxicity of this product are not available.

Further toxicological information : The data available to us do not suffice to
Permit any industrial-toxicological assessment.

Further data: Hazardous properties cannot be excluded. The product should be
handled with the care usual when dealing with chemicals.

The data available to us do not suffice to permit any industrial toxicological
Assessment, Hazardous properties cannot be excluded. The product should be
handled with the care usual when dealing with chemicals.



SAFETY DATA SHEET

12. ECOLOGICAL INFORMATION

Ecotoxic effects : Biological effects :

Quantitative data on the ecological effects of this products are not available.

Further ecologic data : Do not allow to enter waters, waste water, or soil.

13. DISPOSAL METHOD

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like house-hold waste or recycled.

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. Approved waste disposal companies which will advise you on how to dispose of special waste.

14. Transport information : Not subject to transport regulations.

15. REGULATORY INFORMATION :

Labeling according to EC Directives

Symbol : -----

R-phrases : -----

S-phrases : -----

Water pollution class : 2 (polluting substance) (provisional classification)

16. OTHER INFORMATION :

Reason for alteration

Change in labeling.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.



SAFETY DATA SHEET

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

Catalogue No. : H 10729; H 10683; H 21951

Product Name : **HYDROGEN PEROXIDE**

Manufacturer/supplier identification

Company : NICE Chemicals (P) Ltd., Cochin, India

Tel - 0484 2800212, 2802755

Contact for information : Tel. No.- 0484 2802536 Fax : 0484 2802483

Emergency Telephone No. : 0484 2801583 Telefax No. : 0484 2802483

2. COMPOSITION/INFORMATION ON INGREDIENTS

Aqueous Solution

Hazardous ingredients :

Name according to EC Directives : Hydrogen Peroxide

Hazard symbols : O C R-phrases : 8-34

EC-Index No.: 008-003-00-9 Contact with combustible material may
cause fire. Causes burns.

CAS No. : 7722-84-1 Content : 30 %

3. HAZARDS INDEX : Causes burns.

4. FIRST AID MEASURES : After inhalation : fresh air. Summon doctor

After skin contact:wash off with plenty of water.

Dab with polyethylene glycol 400. Immediately remove
contaminated clothing.



SAFETY DATA SHEET

Catalogue No. : H 10729; H 10683; H 21951

Product Name : HYDROGEN PEROXIDE

After eye contact : rinse out with plenty of water for at least 10 minutes with the eyelid held wide open. Immediately summon eye specialist.

After swallowing : make victim drink plenty of water, (if necessary several litres), avoid vomiting (risk of perforation). Immediately summon doctor. Do not attempt to neutralize.

5. FIRE-FIGHTING MEASURES : Suitable extinguishing media : Water

Extinguishing media not to be used : CO , foam, powder

2

Special risks : Has a fire-promoting effect due to release of oxygen.

Special protective equipment for fire fighting : Do not stay in dangerous zone without suitable chemical protection clothing and self-contained breathing apparatus.

Other information : Non-combustible.

6. ACCIDENTAL RELEASE MEASURES

Person -related precautionary measures : Avoid substance contact. Do not inhale vapours/aerosols.

Procedures for cleaning/absorption: Take up with liquid -absorbent material(e.g. Chemizorb). Forward for disposal. Clean up affected area.

Environmental-protection measures: Do not allow to enter sewerage system.



SAFETY DATA SHEET

Catalogue No. : H 10729; H 10683; H 21951

Product Name : HYDROGEN PEROXIDE

7. HANDLING AND STORAGE : Handling - No further requirements.

Storage - Tightly closed. In a well-ventilated place.

Protected from light. Below +25 C(Temperature
may be exceeded to up to +40 C for a period of
max. 48 hours)

Notes for common storage : Keep away from combustible
materials and sources of ignition

Requirements for storage rooms and containers : Close
containers in such a way to enable internal pressure to
escape (e.g. excess pressure valve).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection : required when vapours/aerosols
are generated.

Eye Protection : required

Hand Protection : required

Protective clothing should be selected specifically for
the working place, depending on concentration and quan-
tity of the hazardous substances handled. The resistance
of the protective clothing to chemicals should be ascer-
tained with the respective supplier.

Other protective equipment: Suitable protective clothing.

Industrial hygiene : Immediately change contaminated
clothing. Apply skin-protective barrier cream. Wash
hands and face after working with substance.



SAFETY DATA SHEET

Catalogue No. : H 10729; H 10683; H 21951
Product Name : HYDROGEN PEROXIDE

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	liquid
Colour	:	colourless
Odour	:	slightly pungent
pH value (20 C)	:	2-4
Melting temperature	:	-26 C
Boiling temperature	:	107 C
Ignition temperature	:	Not available
Flash Point	:	Not available
Explosion limit lower	:	Not available
upper	:	Not available
Vapour pressure (20 C)	:	~ 18 hPa
Relative vapour density	:	Not available
Density (20 C)	:	1.11 gm/cm
Solubility in Water (20 C)	:	Soluble
Thermal decomposition	:	> 100 C

10. STABILITY AND REACTIVITY

Conditions to be avoided : Heating

Substances to be avoided : alkali metals, alkali salts,
alkali hydroxides, alkaline earth metals, metals, metals
in powder form, metallic oxides, metallic salts, non-
metallic oxides, aldehydes, alcohols, amines, ammonia,
hydrazine & derivatives, hydrides, combustible substances,
ethers, acids, anhydrides, organic nitro compounds, organic
substances, peroxi compounds, impurities/dust, potassium
permanganate, organic solvents, brass, oxidizing agent.

Hazardous decomposition products : oxygen

Further information : light-sensitive, heat-sensitive



SAFETY DATA SHEET

Catalogue No. : H 10729; H 10683; H 21951
Product Name : HYDROGEN PEROXIDE

11. TOXICOLOGICAL INFORMATION

Acute toxicity: LD (dermal, rabbit): 4060 mg/kg (90% soln.); 50 3
LC (inhalation, rat) : 2000 mg/m (90% soln.); 50

Further toxicological information :

When vapours/aerosols are generated:

Irritations of : respiratory tract, eyes, stomach.

Burns of : eyes, skin, mucous membrane.

After swallowing : nausea and vomiting. Burns in oesophagus and stomach.

After swallowing of large amounts :

Risk of perforation in the oesophagus and stomach.

Further data : The product should be handled with the
care usual when dealing with chemicals.

12. ECOLOGICAL INFORMATION

Biologic degradation : Readily biodegradable.

Behavior in environmental compartments :

Evaluation number (FRG) (fish) : 4.5 ;

Evaluation number (FRG) (bacteria) : 6.0 ;

Evaluation number (FRG) (mammal) : 3 ;

Decomposition products : water and oxygen

Ecotoxic effects :

Biological effects : Toxic for aquatic organisms.

In high concentrations :

Toxic effect on fish and plankton.

When used properly, no impairments in the function of
waste-water-treatment plants are to be expected.

Fish toxicity : *C. auratus* LC : 30 mg/l ; 50

Algal toxicity : *Sc. quadricauda* LC : 7.3 mg/l ; 50

Bacterial toxicity : *Ps. putida* EC : 1 mg/l ; 50

Daphnia toxicity : *Daphnia magna* EC : 7.7 mg/l ;



SAFETY DATA SHEET

Catalogue No. : H 10729; H 10683; H 21951
Product Name : HYDROGEN PEROXIDE

Further ecologic data :

No ecological problems are to be expected when the
product is handled and used with due care and attention.

13. DISPOSAL METHOD : Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like house-hold waste or recycled.

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. Approved waste disposal companies which will advise you on how to dispose of special waste.

14. TRANSPORT INFORMATION

Transport over land

ADR/RID and GGVS/GGVE : GGVS/GGVE class : 5.1 Number and letter : 1b

ADR/RID class : 5.1 Number and letter : 1b

Name of material : HYDROGEN PEROXIDE

Sea Transport IMDG : IMDG class : 5.1 UN No. : 2014 Packing group : II

Ems : 5.1 - 02 MFAG : 735

Correct Technical Name : HYDROGEN PEROXIDE

Air Transport ICAO-TI

and IATA-DGR : ICAO/IATA class : 5.1/ 8 UN No. : 2014

Packaging group : II

Correct Technical Name : HYDROGEN PEROXIDE



SAFETY DATA SHEET

Catalogue No. : H 10729; H 10683; H 21951
Product Name : HYDROGEN PEROXIDE

15. REGULATORY INFORMATION

Labelling according to EC Directives

Symbol : C Corrosive

R-phrases : 34 Causes burns.

S-phrases : 3/26-36/37/39-45 Keep in a cool place. In case of contact with eyes, rinse immediately with plenty of water & seek medical advice. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Water pollution class : 0 (generally nonpolluting substance)

16. OTHER INFORMATION

Reason for alteration

General update.

The information's contained herein based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.

For **Nice Chemicals (P) Ltd.**

Authorised signatory.



SAFETY DATA SHEET

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

Catalogue No. : H 50379
Product Name : HYDROCHLORIC ACID N/1

Manufacturer/supplier identification

Company : NICE Chemicals (P) Ltd., Cochin, India
Tel - 0484 2800212, 2802755

Contact for information : Tel. No.- 0484 2802536 Fax : 0484 2802483
Emergency Telephone No. : 0484 2801583 Tele fax No. : 0484 2802483

2. COMPOSITION/INFORMATION ON INGREDIENTS

Aqueous solution

Name according to EC Directives : Hydrochloric Acid 0.1N

Hazard symbols : C R-phrases : 34-37

EC-Index No. : 017-002-01-X Causes burns. Irritating to respiratory system.

CAS-No : 7647-01-0 Content : 0.1N NORMAL

Molar Mass : EC-No. :

3. HAZARDS INDEX : Causes burns. Irritating to respiratory system.

4. FIRST AID MEASURES

After inhalation : fresh air. Summon doctor

After skin contact : Wash off with plenty of water. Dab with polyethylene glycol 400. Immediately remove contaminated clothing.

After eye contact : rinse out with plenty of water for at least 10 minutes with the eyelid held wide open. Immediately summon eye specialist.



SAFETY DATA SHEET

Catalogue No. : **H 50379**
Product Name : **HYDROCHLORIC ACID N/1**

After swallowing: make victim drink plenty of water, avoid vomiting (risk of perforation). Immediately summon doctor. Gastric lavage.

5. FIRE-FIGHTING MEASURES : Suitable extinguishing media : Water
Special risks : Development of hazardous combustion gases or vapours possible in the event of fire.

Hydrogen may form upon contact with metals(danger of explosion). The following may develop in event of fire : Hydrochloric Acid, Chlorine.

Special protective equipment for fire fighting : Do not stay in dangerous zone without suitable chemical protection clothing and self - contained breathing apparatus.

Other information : Non-combustible.

Contain escaping vapours with water.

6. ACCIDENTAL RELEASE MEASURES

Person - related precautionary measures : Avoid substance contact.

Do not inhale vapours/aerosols.

Procedures for cleaning/absorption : Take up with liquid - absorbent material (e.g. Chemisorb). Forward for disposal. Clean up affected area.

Environmental-protection measures :

Do not allow to enter sewerage system.

Additional notes : Render harmless : neutralize with diluted Sodium Hydroxide solution or by throwing on lime, lime sand/Sodium Carbonate.



SAFETY DATA SHEET

Catalogue No.	:	H 50379
Product Name	:	HYDROCHLORIC ACID N/1

7. HANDLING AND STORAGE : Handling - No further requirements.
Storage - Tightly closed. In a well-ventilated place. At +15° C to +25° C.
The data on storage temperature apply to the entire pack.

Requirements for storage rooms and containers : No metal containers.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Respiratory protection : Required when vapours/aerosols are generated.

Eye Protection : Required

Hand Protection : Required

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Other protective equipment : Acid-resistant protective clothing.

Industrial hygiene : Immediately change contaminated clothing. Apply skin-protective barrier cream. Wash hands and face after working with substance.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Liquid
Colour	:	Colourless
Odour	:	Pungent
pH value (20 ° C)	:	1
Melting temperature	:	-
Boiling temperature	:	Not available
Ignition temperature	:	Not available
Flash Point	:	Not available
Explosion limit lower	:	Not available



SAFETY DATA SHEET

Catalogue No.	:	H 50379
Product Name	:	HYDROCHLORIC ACID N/1

upper	:	Not available
Vapour pressure (20 ° C)	:	-
Relative vapour density	:	Not available
Density (20 ° C)	:	-
Solubility in Water (20° C)	:	Soluble

10. STABILITY AND REACTIVITY : Conditions to be avoided : Heating

Substances to be avoided: aluminium, amines, carbides, hydrides, fluorine, alkali metals, metals, potassium permanganate strong alkalis, salts of oxyhalogenic acids, conc.sulphuric acid,semi metallic hydrogen compounds, semi metallic oxides, aldehydes, sulphides, lithium silicide, vinyl methyl ether.

Hazardous decomposition products : in the event of fire :

Hydrochloric acid, chlorine

Further information : unsuitable working materials : metals, metal alloys.

11. TOXICOLOGICAL INFORMATION : Acute toxicity : LC₅₀ (inhalation, rat) : 3124 ppm(V)/1h
(calculated on the pure substance) ;

Subacute to chronic toxicity :

Applicable to the toxicologically determinant component.

An embryotoxic effect need not be feared when the threshold limit value is observed.

Further toxicological information :

Strongly corrosive substance.

After inhalation of vapours : Irritation symptoms in the respiratory tract.

After skin contact : burns.

After eye contact : burns, Risk of blindness!



SAFETY DATA SHEET

Catalogue No.	:	H 50379
Product Name	:	HYDROCHLORIC ACID N/1

After swallowing : Damage of mouth, oesophagus and gastrointestinal tract. Risk of perforation in the oesophagus and stomach. After a latency period : cardiovascular failure.

Further data : The product should be handled with the care usual when dealing with chemicals.

12. ECOLOGICAL INFORMATON : Behavior in environmental compartments :

Evaluation number (FRG) (fish) : 3.1 (calculated on the pure substance) ;

Ecotoxic effects : Biological effects :

Toxic for aquatic organisms. Toxic effect on fish and plankton. Harmful effect due to pH shift. Forms corrosive mixtures with water even if diluted

Damage to plant growth. Does not cause biological oxygen deficit.

Fish toxicity : *Leuciscus idus* LC₅₀ : 862 mg/l.(1N solution) ;

Further ecologic data : The following applies to HCl in general;

Harmfull effect on aquatic organisms. Harmful effect due to pH shift.

Biological effects : hydrochloric acid (including such due to reaction) : lethal for fish as from 25 mg/l.;

Leuciscus idus LC₅₀ : 862 mg/l.(IN-solution). Harmful effects begin at : plants 6 mg/l. Does not cause biological oxygen deficit.

13. DISPOSAL METHOD : There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste



SAFETY DATA SHEET

Catalogue No.	:	H 50379
Product Name	:	HYDROCHLORIC ACID N/1

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

14. TRANSPORT INFORMATION

Transport over land

ADR/RID and GGVS/GGVE :	GGVS/GGVE class	: 8	Number and letter :	5b
	ADR/RID class	: 8	Number and letter :	5b
	Name of material	: HYDROCHLORIC ACID N/10		

Sea Transport IMDG	:	IMDG class	: 8	UN No. :	1789	Packing group :	II
		Ems	: 8-03	MFAG	: 700		
		Correct Technical Name : HYDROCHLORIC ACID N/10					

Air Transport ICAO-TI

and IATA-DGR	:	ICAO/IATA class	: 8	UN No. :	1789
		Packaging group : II			
		Correct Technical Name : HYDROCHLORIC ACID N/10			

15. REGULATORY INFORMATION

Labelling according to EC Directives

Symbol	:	C	Corrosive
--------	---	---	-----------

R-phrases	:	34-37	Cause burns. Irritating to respiratory system.
-----------	---	-------	--

S-phrases	:	26-36/37/39-45	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves & eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
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SAFETY DATA SHEET

Catalogue No.	:	H 50379
Product Name	:	HYDROCHLORIC ACID N/1

Water pollution class : 1 (slightly polluting substance)

16. OTHER INFORMATION

Reason for alteration

General update.

The information contained herein is based on the present state of our knowledge.
It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.

L-ASCORBIC ACID

GHS Safety Data Sheet

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

ASCORBIC ACID

OTHER NAMES

"vitamin C", Cevitamin, Vitacee, Scorbu-C, "V-ascorbic acid", Testascorbic, Cantan, Ribena, Redoxon, Allercorb, "Catavin C", Vicelat, Proscorbin, Cecon, Celin, Vitacin, "cevitamic acid", Ce-Vi-Sol, Centone, Vitacimin

PRODUCT USE

As antimicrobial and antioxidant in foodstuffs. Used for Vitamin C deficiency.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

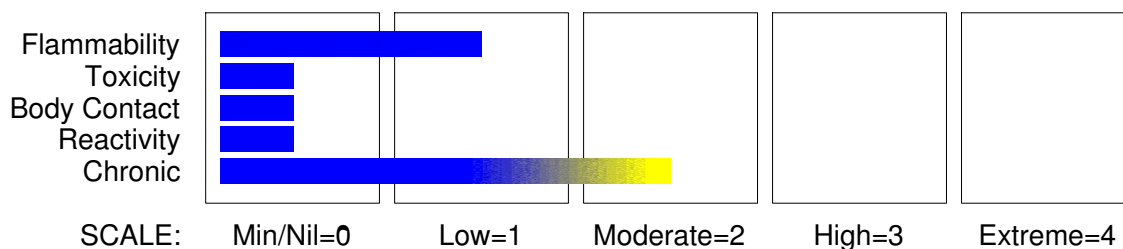
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

HAZARD RATINGS



continued...

L-ASCORBIC ACID

GHS Safety Data Sheet

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Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity (Oral) Category 5

EMERGENCY OVERVIEW

HAZARD

WARNING

Determined by using GHS criteria:

H303

May be harmful if swallowed

PRECAUTIONARY STATEMENTS

Response

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
ascorbic acid	50-81-7	>99

Section 4 - FIRST AID MEASURES

SWALLOWED

- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

EYE

- If this product comes in contact with the eyes:
- Wash out immediately with fresh running water.
 - Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
 - If pain persists or recurs seek medical attention.
 - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

- If skin contact occurs:
- Immediately remove all contaminated clothing, including footwear.
 - Flush skin and hair with running water (and soap if available).
 - Seek medical attention in event of irritation.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where

continued...

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Section 4 - FIRST AID MEASURES

possible, prior to initiating first aid procedures.

- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor.

NOTES TO PHYSICIAN

Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

Combustible.

Burns at high temperatures.

Decomposes on heating and produces toxic fumes of: carbon dioxide (CO₂) and carbon monoxide (CO).

May emit clouds of acrid smoke.

FIRE INCOMPATIBILITY

Avoid reaction with strong acids and strong alkalis.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact by using protective equipment.
- Use dry clean up procedures and avoid generating dust.
- Place in a suitable labelled container for waste disposal.

continued...

L-ASCORBIC ACID

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Section 6 - ACCIDENTAL RELEASE MEASURES

MAJOR SPILLS

Remove all ignition sources.

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact by using protective equipment and dust respirator.
- Prevent spillage from entering drains, sewers or water courses.
- Recover product wherever possible. Avoid generating dust.
- Sweep / shovel up.
- If required, wet with water to prevent dusting.
- Put residues in labelled plastic bags or other containers for disposal.
- Wash area down with large quantity of water and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

ascorbic acid 500 mg/m³

irreversible or other serious effects or symptoms which could impair an individual's ability to take

protective action is:

ascorbic acid 500 mg/m³

other than mild, transient adverse effects without perceiving a clearly defined odour is:

ascorbic acid 200 mg/m³

The threshold concentration below which most people will experience no appreciable risk of health effects:

ascorbic acid 60 mg/m³

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		
else	>= 10%		

where percentage is percentage of ingredient found in the mixture

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+: May be stored together

O: May be stored together with specific preventions

X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

continued...

L-ASCORBIC ACID

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Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

Remove all ignition sources.

Avoid generating and breathing dust.

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

- Check that containers are clearly labelled.

Packaging as recommended by manufacturer.

Glass container.

Plastic container.

Polylined drum.

Multi-ply woven plastic or paper bag with sealed plastic liner

NOTE: Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse.

STORAGE INCOMPATIBILITY

Segregate from strong acids and strong alkalis.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- No smoking, naked lights or ignition sources.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- ascorbic acid:

CAS:50- 81- 7 CAS:57606- 40- 3 CAS:14536- 17- 5
CAS:30208- 61- 8 CAS:50976- 75- 5 CAS:56533- 05-
2 CAS:57304- 74- 2 CAS:623158- 95- 2 CAS:89924-
69- 6 CAS:129940- 97- 2 CAS:56172- 55- 5
CAS:154170- 90- 8 CAS:259133- 78- 3

continued...

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

MATERIAL DATA

These "dusts" have little adverse effect on the lungs and do not produce toxic effects or organic disease. Although there is no dust which does not evoke some cellular response at sufficiently high concentrations, the cellular response caused by P.N.O.C.s has the following characteristics:

- the architecture of the air spaces remain intact,
- scar tissue (collagen) is not synthesised to any degree,
- tissue reaction is potentially reversible.

Extensive concentrations of P.N.O.C.s may:

- seriously reduce visibility,
- cause unpleasant deposits in the eyes, ears and nasal passages,
- contribute to skin or mucous membrane injury by chemical or mechanical action, per se, or by the rigorous skin cleansing procedures necessary for their removal. [ACGIH]

This limit does not apply:

- to brief exposures to higher concentrations
- nor does it apply to those substances that may cause physiological impairment at lower concentrations but for which a TLV has as yet to be determined.

This exposure standard applies to particles which

- are insoluble or poorly soluble* in water or, preferably, in aqueous lung fluid (if data is available) and
- have a low toxicity (i.e.. are not cytotoxic, genotoxic, or otherwise chemically reactive with lung tissue, and do not emit ionizing radiation, cause immune sensitization, or cause toxic effects other than by inflammation or by a mechanism of lung overload).

PERSONAL PROTECTION



EYE

- Safety glasses with side shields.
- Chemical goggles.
- Full face shield may be required for supplementary but never for primary protection of eyes
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

Wear general protective gloves: i.e. Disposable polythene gloves or Cotton gloves or Light weight rubber gloves, with Barrier cream preferably Safety footwear.

continued...

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GHS Safety Data Sheet

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

OTHER

- Overalls.
- Eyewash unit.
- Barrier cream.
- Skin cleansing cream.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-
		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult
your

Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Use in a well-ventilated area.

None required when handling small quantities.

OTHERWISE:

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.
- If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of:
 - (a): particle dust respirators, if necessary, combined with an absorption cartridge;
 - (b): filter respirators with absorption cartridge or canister of the right type;
 - (c): fresh-air hoods or masks
- Build-up of electrostatic charge on the dust particle, may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to efficiently remove the contaminant.

Type of Contaminant:

direct spray, spray painting in shallow booths,
drum filling, conveyer loading, crusher dusts,
gas discharge (active generation into zone of
rapid air motion)
grinding, abrasive blasting, tumbling, high
speed wheel generated dusts (released at high
initial velocity into zone of very high rapid
air motion).

Air Speed:

1- 2.5 m/s (200- 500 f/min.)

2.5- 10 m/s (500- 2000 f/min.)

continued...

L-ASCORBIC ACID

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Within each range the appropriate value depends on:

Lower end of the range

- 1: Room air currents minimal or favourable to capture
- 2: Contaminants of low toxicity or of nuisance value only
- 3: Intermittent, low production.
- 4: Large hood or large air mass in motion

Upper end of the range

- 1: Disturbing room air currents
- 2: Contaminants of high toxicity
- 3: High production, heavy use
- 4: Small hood- local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 f/min) for extraction of crusher dusts generated 2 metres distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

White crystals, soluble in water. Pleasant, sharp acidic taste.
stable to air when dry and pure. Aqueous solutions are rapidly oxidized by air. This reaction is accelerated by alkalis and copper.

PHYSICAL PROPERTIES

Solid.

Mixes with water.

Molecular Weight: 176.14

Melting Range (°C): 190

Solubility in water (g/L): Miscible

pH (1% solution): approx. 3

Volatile Component (%vol): Not applicable

Relative Vapour Density (air=1): Not applicable

Lower Explosive Limit (%): Not available.

Autoignition Temp (°C): 660

State: Divided solid

Boiling Range (°C): Decomposes

Specific Gravity (water=1): 1.65

pH (as supplied): Not applicable

Vapour Pressure (kPa): Not applicable

Evaporation Rate: Not applicable

Flash Point (°C): Not applicable

Upper Explosive Limit (%): Not available.

Decomposition Temp (°C): Not available.

Viscosity: Not available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

Product is considered stable under normal handling conditions.

Stable under normal storage conditions.

Hazardous polymerisation will not occur.

continued...

L-ASCORBIC ACID

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Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Although ingestion is not thought to produce harmful effects (as classified under EC Directives), the material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health).

Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.

Considered an unlikely route of entry in commercial/industrial environments.

EYE

Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

SKIN

The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

INHALED

The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

Not normally a hazard due to non-volatile nature of product.

CHRONIC HEALTH EFFECTS

Principal routes of exposure are by accidental skin and eye contact and inhalation of generated dusts.

Prolonged use of ascorbates (as vitamins) has produced hyperoxaluria (excessive levels of oxalates in the urine) and the possible formation of renal calcium oxalate calculi (calcification). The conversion of ascorbates to oxalic acid shows wide variation amongst individuals.

TOXICITY AND IRRITATION

TOXICITY

Oral (rat) LD50: 11900 mg/kg

IRRITATION

Nil Reported

continued...

L-ASCORBIC ACID

GHS Safety Data Sheet

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Section 12 - ECOLOGICAL INFORMATION

No data for ascorbic acid.

Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible or consult manufacturer for recycling options.
- Dilute with water and flush to sewer.
- Decontaminate empty containers with water.
- Recycle containers if possible, or dispose of in authorised landfill.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS:UN, IATA,
IMDG

Section 15 - REGULATORY INFORMATION

REGULATIONS

ascorbic acid (CAS: 50-81-7) is found on the following regulatory lists;
CODEX General Standard for Food Additives (GSFA) - Additives Permitted for Use in Food
in General, Unless Otherwise Specified, in Accordance with GMP
OECD Representative List of High Production Volume (HPV) Chemicals

No data available for ascorbic acid as CAS: 57606-40-3, CAS: 14536-17-5, CAS: 30208-61-8,
CAS: 50976-75-5, CAS: 56533-05-2, CAS: 57304-74-2, CAS: 623158-95-2, CAS: 89924-69-6, CAS
: 129940-97-2, CAS: 56172-55-5, CAS: 154170-90-8, CAS: 259133-78-3.

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name
ascorbic acid

CAS
50- 81- 7, 57606- 40- 3, 14536 - 17- 5, 30208-
61- 8, 50976- 75- 5, 56533- 05- 2, 57304- 74- 2,
623158- 95- 2, 89924- 69- 6, 129940- 97- 2,
56172- 55- 5, 154170- 90- 8, 259133- 78- 3

The above information is believed to be accurate and represent the best information

continued...

L-ASCORBIC ACID

GHS Safety Data Sheet

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Section 16 - OTHER INFORMATION

currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

Issue Date: 29-Sep-2017

DI-SODIUM TETRABORATE DECAHYDRATE

GHS Safety Data Sheet

Version No:5

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

DI-SODIUM TETRABORATE DECAHYDRATE

OTHER NAMES

Na₂B₄O₇·10H₂O, "CAS RN 12447-40-4", "CAS RN 12447-40-4", "CAS RN 61028-24-8", "CAS RN 61028-24-8", "disodium tetraborate decahydrate", "sodium baborate decahydrate", "sodium pyroborate, decahydrate", "sodium tetraborate, decahydrate", Antipyonin, Borascu, Borax, "Borax decahydrate",

PRODUCT USE

Soldering metals; in the manufacture of glazes and enamels; tanning; in cleaning compounds; corrosion inhibitors; artificially aging wood; as a preservative, either alone or with other antiseptics against wood fungus; fireproofing fabrics.

Also used for curing and preserving skins; in cockroach control.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

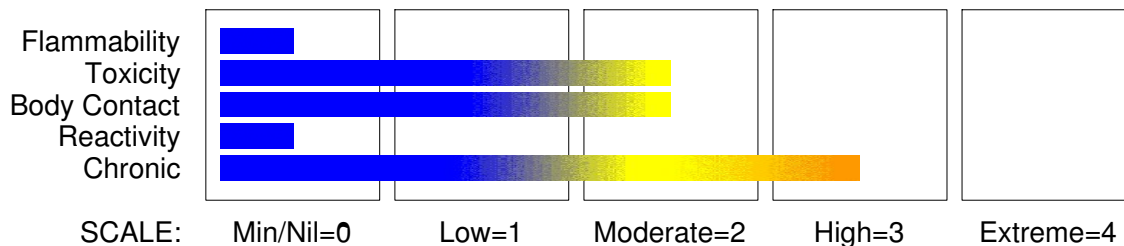
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity (Oral) Category 4

Reproductive Toxicity Category 1B

Respiratory Irritation Category 3

continued...

DI-SODIUM TETRABORATE DECAHYDRATE

GHS Safety Data Sheet

Version No:5

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Section 2 - HAZARDS IDENTIFICATION



EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by using GHS criteria:

H335 H302 H360 H360

May cause respiratory irritation

Harmful if swallowed

May damage fertility

May damage the unborn child

PRECAUTIONARY STATEMENTS

Prevention

Do not handle until all safety precautions have been read and understood.

Use personal protective equipment as required.

Wash hands thoroughly after handling.

Obtain special instructions before use.

Do not eat, drink or smoke when using this product.

Response

If exposed or concerned: Get medical attention advice.

Specific treatment: refer to Label or MSDS.

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
sodium borate, decahydrate	1303-96-4	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

- IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.
- For advice, contact a Poisons Information Centre or a doctor.

Where Medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:

- Induce vomiting with fingers down the back of the of the throat, ONLY IF CONSCIOUS.
- Lean patient forward or place on left side (head-down position if possible) to maintain open airway and prevent aspiration.

NOTE: Wear a protective glove when inducing vomiting by mechanical means.

continued...

DI-SODIUM TETRABORATE DECAHYDRATE

Section 4 - FIRST AID MEASURES

- In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.
- If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided. Further action will be the responsibility of the medical specialist.
- If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.

EYE

- If this product comes in contact with the eyes:
- Immediately hold eyelids apart and flush the eye continuously with running water.
 - Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
 - Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
 - Transport to hospital or doctor without delay.
 - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

- If skin or hair contact occurs:
- Flush skin and hair with running water (and soap if available).
 - Seek medical attention in event of irritation.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor.

NOTES TO PHYSICIAN

- For acute or repeated short term exposures to boron and its compounds:
- Nausea, vomiting, diarrhoea and epigastric pain, haematemesis and blue-green discolouration of both faeces and vomitus characterise adult boron intoxication.
 - Access and correct any abnormalities found in airway and circulation.
 - A tidal volume of 10-15 mg/kg should be maintained.
 - Emesis should be induced unless the patient is in coma, is experiencing seizures or has lost the gag reflex. If any of these are present, gastric lavage should be performed with a large-bore tube after endotracheal intubation or in the presence of continuous respiratory action.
 - Activated charcoal is probably not of value though its use might be indicated following gastric evacuation. Catharsis might be useful to eliminate any borates remaining in the gastro-intestinal tract (magnesium sulfate: adults, 30 gms: children 250 mg/kg).
 - Peritoneal dialysis and haemodialysis remove some borates.
- [Ellenhorn and Barceloux: Medical Toxicology].

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- There is no restriction on the type of extinguisher which may be used.

FIRE FIGHTING

Alert Fire Brigade and tell them location and nature of hazard.

DI-SODIUM TETRABORATE DECAHYDRATE

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Section 5 - FIRE FIGHTING MEASURES

- Wear breathing apparatus plus protective gloves.
 - Prevent, by any means available, spillage from entering drains or water courses.
- Cool fire exposed containers with water spray from a protected location.
If safe to do so, remove containers from path of fire.

FIRE/EXPLOSION HAZARD

- Non combustible.
 - Not considered a significant fire risk, however containers may burn.
- Decomposition may produce toxic fumes of:
caustic compounds.

FIRE INCOMPATIBILITY

None known.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

Clean up all spills immediately.
Wear impervious gloves and safety glasses.
Avoid contact with skin and eyes.
Use dry clean up procedures and avoid generating dust.
Place in suitable containers for disposal.
Flush residue away with large quantities of water.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact by using protective equipment and dust respirator.
- Prevent spillage from entering drains, sewers or water courses.
- Recover product wherever possible. Avoid generating dust.
- Sweep / shovel up.
- If required, wet with water to prevent dusting.
- Put residues in labelled plastic bags or other containers for disposal.
- Wash area down with large quantity of water and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

sodium borate, decahydrate 25 mg/m³

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

sodium borate, decahydrate 5 mg/m³

other than mild, transient adverse effects without perceiving a clearly defined odour is:

sodium borate, decahydrate 3 mg/m³

The threshold concentration below which most people will experience no appreciable risk of health effects:

sodium borate, decahydrate 3 mg/m³

American Industrial Hygiene Association (AIHA)

continued...

DI-SODIUM TETRABORATE DECAHYDRATE

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Section 6 - ACCIDENTAL RELEASE MEASURES

Ingredients considered according to the following cutoffs

Very Toxic (T+)	$\geq 0.1\%$	Toxic (T)	$\geq 3.0\%$
R50	$\geq 0.25\%$	Corrosive (C)	$\geq 5.0\%$
R51	$\geq 2.5\%$		
else	$\geq 10\%$		

where percentage is percentage of ingredient found in the mixture

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

- Glass container.
- Plastic drum.
- Polyethylene or polypropylene container.
- Metal can.
- Metal drum.
- Check that containers are clearly labelled.

STORAGE INCOMPATIBILITY

- Segregate from acids.
- Avoid contact finely divided zirconium.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



X X + X X +

+: May be stored together

O: May be stored together with specific precautions

X: Must not be stored together

continued...

DI-SODIUM TETRABORATE DECAHYDRATE

GHS Safety Data Sheet

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Section 7 - HANDLING AND STORAGE

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- sodium borate, decahydrate: CAS:1303- 96- 4 CAS:1344- 90- 7 CAS:12447- 40- 4
CAS:61028- 24- 8 CAS:1330- 43- 4

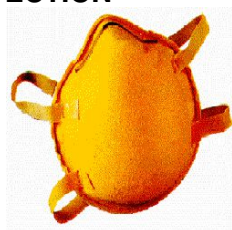
MATERIAL DATA

No data are currently available to establish a causal link between inhalation exposures to sodium tetraborates and chronic respiratory and/or systemic effects.

An occupationally important toxic effect of the sodium tetraborates is their acute irritant effect when in contact with skin and the mucous membranes of the eyes, nose and other sites of the respiratory tract.

The irritant properties increase with decreasing water of hydration due to the exothermic effect of hydration. The TLV-TWA of 1 mg/m³ for the anhydrous and pentahydrate forms and 5 mg/m³ for the decahydrate is thought to be protective against the acute irritant effects.

PERSONAL PROTECTION



EYE

- Safety glasses with side shields; or as required,
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

Plastic gloves.
Neoprene gloves.
Rubber gloves.

OTHER

Overalls.
• Barrier cream.
• Eyewash unit.

continued...

DI-SODIUM TETRABORATE DECAHYDRATE

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-
		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.
For further information consult your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.
- If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of:
 - (a): particle dust respirators, if necessary, combined with an absorption cartridge;
 - (b): filter respirators with absorption cartridge or canister of the right type;
 - (c): fresh-air hoods or masks
- Build-up of electrostatic charge on the dust particle, may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to efficiently remove the contaminant.

Type of Contaminant:
direct spray, spray painting in shallow booths,
drum filling, conveyer loading, crusher dusts,
gas discharge (active generation into zone of
rapid air motion)
grinding, abrasive blasting, tumbling, high
speed wheel generated dusts (released at high
initial velocity into zone of very high rapid
air motion).

Air Speed:
1- 2.5 m/s (200- 500 f/min.)

2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range

- 1: Room air currents minimal or favourable to capture
- 2: Contaminants of low toxicity or of nuisance value only
- 3: Intermittent, low production.
- 4: Large hood or large air mass in motion

Upper end of the range

- 1: Disturbing room air currents
- 2: Contaminants of high toxicity
- 3: High production, heavy use
- 4: Small hood- local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance

continued...

DI-SODIUM TETRABORATE DECAHYDRATE

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 f/min) for extraction of crusher dusts generated 2 metres distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Hard, odourless crystals, granules or powder.
Soluble in glycerol; very slightly soluble in alcohol; insoluble in acids.
Solubility in water @ 0 deg.C: 2.01 g/100 cc.
@ 100 deg.C: 170 g/100 cc.
Loses water of crystallization when heated: @ 100 deg C. - 5 mols H₂O;
@ 150 deg.C. - 9 mols H₂O; @ 320 deg. C. -10 mols H₂O.

PHYSICAL PROPERTIES

Solid.
Mixes with water.

Molecular Weight: 381.37
Melting Range (°C): 62- 75
Solubility in water (g/L): Miscible
pH (1% solution): 9.2- 9.5
Volatile Component (%vol): Nil @ 38C
Relative Vapour Density (air=1): Not available.
Lower Explosive Limit (%): Not applicable
Autoignition Temp (°C): Not available.
State: Divided solid

Boiling Range (°C): 320 (loses H₂O)
Specific Gravity (water=1): 1.71- 1.73
pH (as supplied): Not applicable
Vapour Pressure (kPa): Negligible
Evaporation Rate: Non Volatile
Flash Point (°C): Non Flammable
Upper Explosive Limit (%): Not applicable
Decomposition Temp (°C): 1575
Viscosity: Not available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Although ingestion is not thought to produce harmful effects (as classified under EC Directives), the material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for

continued...

DI-SODIUM TETRABORATE DECAHYDRATE

Section 11 - TOXICOLOGICAL INFORMATION

concern.

Considered an unlikely route of entry in commercial/industrial environments.

EYE

Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

The dust may produce eye discomfort causing transient smarting, blinking.

SKIN

The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

WARNING!

Open cuts, abraded or irritated skin should not be exposed to this material.

INHALED

Inhalation may produce health damage*.

The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation, of the material, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.

Inhalation of small amounts of dust or fume over long periods may cause poisoning.

Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

CHRONIC HEALTH EFFECTS

There is sufficient evidence to provide a strong presumption that human exposure to the material may result in impaired fertility on the basis of: - clear evidence in animal studies of impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects but which is not a secondary non-specific consequence of other toxic effects.

There is sufficient evidence to provide a strong presumption that human exposure to the material may result in developmental toxicity, generally on the basis of:

- clear results in appropriate animal studies where effects have been observed in the absence of marked maternal toxicity, or at around the same dose levels as other toxic effects but which are not secondary non-specific consequences of the other toxic effects.

Principal routes of exposure are usually by:

inhalation of generated dust and inhalation of fumes from the heated material.

Chronic poisoning is characterised gastrointestinal disturbances and skin

rash. Chronic absorption of small amounts of borax causes mild

gastroenteritis and dermatitis.

TOXICITY AND IRRITATION

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY

Oral (rat) LD50: 4500- 5000 mg/kg

Dermal (rabbit) LD50: >10, 000 mg/kg

Inhalation (rat) LC50: >2.0 mg/L

Oral (man) LDLo: 709 mg/kg

Oral (rat) LD50: 2660 mg/kg

IRRITATION

Eyes (rabbit) (-) Mild

Nil Reported

[Orica BORAX-Europe]

Reproductive effector in rats

Mutagenic towards bacteria

DI-SODIUM TETRABORATE DECAHYDRATE

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Section 12 - ECOLOGICAL INFORMATION

For sodium tetraborate:

Algal Toxicity:

EC10: 24 mgB/L/96 Hr (Green algae, *Scenedesmus subspicatus*) B = boron

Invertebrate Toxicity:

LC50: 242 mgB/L/24Hr (Daphnids, *Daphnia magna* Straus)

Fish Toxicity:

Sea water- LC50: 74 mgB/L/96Hr (Dab, *Limanda limanda*)

Fresh water- LC50: 88 mgB/L/24day

LC50: 54 mgB/L/32day (Rainbow trout, *Salmo gairdneri* embryo-larval stage)

LC50: 65 mgB/L/7day

LC50: 71 mgB/L/3day (Goldfish, *Carassius auratus* embryo-larval stage)

The product decomposes in the environment to natural borate.

The product is soluble in water and leachable through normal soil.

[Orica Borax Europe Ltd 02/96]

Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.
- Bury residue in an authorised landfill.
- Recycle containers if possible, or dispose of in an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS:UN, IATA, IMDG

Section 15 - REGULATORY INFORMATION

REGULATIONS

sodium borate, decahydrate (CAS: 1303-96-4) is found on the following regulatory lists;
OECD Representative List of High Production Volume (HPV) Chemicals

sodium borate, decahydrate (CAS: 1344-90-7) is found on the following regulatory lists;
OECD Representative List of High Production Volume (HPV) Chemicals

No data available for sodium borate, decahydrate as CAS: 12447-40-4, CAS: 61028-24-8.

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
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continued...

DI-SODIUM TETRABORATE DECAHYDRATE

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Section 16 - OTHER INFORMATION

sodium borate, decahydrate

1303- 96- 4, 1344 - 90- 7, 12447- 40- 4, 61028-
24- 8

MSDS SECTION CHANGES

The following table displays the version number of and date on which each section was last changed.

Section Name	Version	Date	Section Name	Version	Date	Section Name	Version	Date
First Aid (swallowed)	5	9- Nov- 2006	Exposure Standard	4	28- Jun- 2005	Acute Health (skin)	5	9- Nov- 2006
Fire Fighter (fire/explosion hazard)	4	28- Jun- 2005	Appearance	5	9- Nov- 2006	Acute Health (swallowed)	5	9- Nov- 2006
Storage (storage incompatibility)	5	9- Nov- 2006	Acute Health (inhaled)	5	9- Nov- 2006	Chronic Health	5	9- Nov- 2006

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

Issue Date: 9-Nov-2017



SAFETY DATA SHEET

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

Catalogue No. : B 20829(500 ML), B 20851(5L)
Product Name : BENEDICT'S REAGENT QUALITATIVE

Manufacturer/supplier identification

Company : NICE Chemicals (P) Ltd., Cochin, India
Tel - 0484 2800212, 2802755

Contact for information : Tel. No.- 0484 2802536 Fax : 0484 2802483
Emergency Telephone No. : 0484 2801583 Tele fax No. : 0484 2802483

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ec-Index No. : ----
Molar Mass : ----
EC-No. : 231-847-6

3. HAZARDS IDENTIFICATION

According to the evaluative data available, a classification according to categories of danger as specified in Directive 67/548/EEC & laid down in the legislation of the country concerned is not required.

4. FIRST AID MEASURES

After inhalation : Fresh air.
After skin contact : Wash off with plenty of water.
After eye contact : Rinse out with plenty of water with the eyelid held wide open.



SAFETY DATA SHEET

Catalogue No.	:	B 20829(500 ML), B 20851(5L)
Product Name	:	BENEDICT'S REAGENT QUALITATIVE

After swallowing : Make victim drink plenty of water, induce vomiting.
Summon doctor if feeling unwell.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : In adaption to materials stored in the
immediate neighbourhood.

Special risks : Combustible. Development of hazardous combustion gases
or vapours possible in the event of fire. The following may
develop in event of fire : Sulphur Oxides

Other information : Non-combustible.

6. ACCIDENTAL RELEASE MEASURES

Environmental-protection measures :

Do not allow to enter sewerage system.

Procedures for cleaning/absorption : Take up with liquid-
absorbent material (e.g.SPILLAGE MOPS). Forward for
disposal.

Clean up affected area.



SAFETY DATA SHEET

Catalogue No.	:	B 20829(500 ML), B 20851(5L)
Product Name	:	BENEDICT'S REAGENT QUALITATIVE

7. HANDLING AND STORAGE

Handling : Cannot be stored indefinitely.

Storage : At +15° C to +25° C. Tightly closed. In a well-ventilated place

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection : Required when vapours/ aerosols are generated.

Eye Protection : Required

Hand Protection : Required

Industrial hygiene : Change contaminated clothing.

Wash hands after working with substance.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Liquid
Colour	:	Blue
Odour	:	Odourless
pH value at gm/ltr. H ₂ O (20°C)	:	-
Melting temperature	:	Not available
Boiling temperature	:	Not available
Ignition temperature	:	Not available
Flash Point	:	Not available
Explosion limit lower	:	Not available
upper	:	Not available
Relative vapour density	:	Not available
Density (20° C)	:	Not available
Solubility in Water (20° C)	:	Soluble



SAFETY DATA SHEET

Catalogue No.	:	B 20829(500 ML), B 20851(5L)
Product Name	:	BENEDICT'S REAGENT QUALITATIVE

10. STABILITY AND REACTIVITY

Conditions to be avoided : - -

Substances to be avoided : Hydroxylamine

Hazardous decomposition products : In the event of fire :

Sulphur Oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity : Quantitative data on the toxicity of this product are not available.

Further toxicological information :

Hazardous properties cannot be excluded, but are relatively improbable due to the low concentration of the dissolved substance.

12. ECOLOGICAL INFORMATION

Ecotoxic effects : Applicable to the dissolved substance:

Biological effects : Toxic for aquatic organisms. High aquatic toxicity :

Fungicidal effect.

Fish toxicity : L.idus LC₅₀ : 0.8 mg/l.(calculated on the pure substance

Further ecologic data : The following applies to copper compounds : biological effects :
toxic for aquatic organisms : copper ions toxic for fish, algae,
protozoa & bacteria at concentrations below 1 mg/l.



SAFETY DATA SHEET

Catalogue No.	:	B 20829(500 ML), B 20851(5L)
Product Name	:	BENEDICT'S REAGENT QUALITATIVE

Fish : C.auratus toxic 0,01 mg/l.;
mussels : 0.55 mg/l. lethal in 12 h; oysters : 0,1 mg/l. toxic
Do not allow to enter waters, waste water or soil.

13. DISPOSAL METHOD

There are no uniform EC regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste.

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

14. TRANSPORT INFORMATION : Not subject to transport regulations.

15. REGULATORY INFORMATION

Labelling according to EC Directives

Symbol : ---

R-phrases : ---

S-phrases : ---



SAFETY DATA SHEET

Catalogue No.	:	B 20829(500 ML), B 20851(5L)
Product Name	:	BENEDICT'S REAGENT QUALITATIVE

Water pollution class : 1 (slightly polluting substance) (own classification)

16. OTHER INFORMATION

Reason for alteration

Specific control parameter

Change in the chapter on toxicology

Change in the chapter on ecology.

The information contained herein is based on the present state of our knowledge.

It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.



SAFETY DATA SHEET

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

Catalogue No. : C 12929
Product Name : COPPER SULPHATE

Manufacturer/supplier identification

Company : NICE Chemicals (P) Ltd., Cochin, India
Tel - 0484 2800212, 2802755
Contact for information : Tel. No.- 0484 2802536 Fax : 0484 2802483
Emergency Telephone No. : 0484 2801583 Telefax No. : 0484 2802483

2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS-No : 7758-98-7 Ec-Index No. : 029-004-00-0
Molar Mass : ---- EC-No. : 231-847-6
Molecular Formula: CuSO_4

Hazardous ingredients :

Name according to EC Directives : Copper (II) Sulphate
Hazard symbols : Xn R-phrases : 22-36-38
Harmful if swallowed. Irritating to eyes and skin.
Content : 1 - 10 %

3. HAZARDS IDENTIFICATION

According to the evaluative data available, a classification according to categories of danger as specified in Directive 67/548/EEC & laid down in the legislation of the country concerned is not required.



SAFETY DATA SHEET

Catalogue No. : C 12929
Product Name : COPPER SULPHATE

4. FIRST AID MEASURES

After inhalation : fresh air.

After skin contact : Wash off with plenty of water.

After eye contact : Rinse out with plenty of water with the eyelid held wide open.

After swallowing : Make victim drink plenty of water, induce vomiting.

Summon doctor if feeling unwell.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : In adaption to materials stored in the immediate neighbourhood.

Special risks : Combustible. Development of hazardous combustion gases or vapours possible in the event of fire.

The following may develop in event of fire : Sulphur Oxides

Other information : Non-combustible.

6. ACCIDENTAL RELEASE

Environmental-protection measures : Do not allow to enter sewerage system.

Procedures for cleaning/absorption : Take up with liquid- absorbent material (e.g.Chemizorb).

Forward for disposal. Clean up affected area.

Environmental-protection measures : Do not allow to enter sewerage system.



SAFETY DATA SHEET

Catalogue No. : C 12929
Product Name : COPPER SULPHATE

7. HANDLING AND STORAGE

Handling : Cannot be stored in definitely.

Storage : At +15 ° C to +25 ° C. Tightly closed.

In a well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection : Required when vapours/ aerosols are generated.

Eye Protection : Required

Hand Protection : Required

Industrial hygiene : Change contaminated clothing. Wash hands after working with substance.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Solid
Colour	:	Blue
Odour	:	Odourless
pH value at gm/ltr. H ₂ O (20 ° C)	:	~4.2
Melting temperature	:	Not available
Boiling temperature	:	Not available
Ignition temperature	:	Not available
Flash Point	:	Not available
Explosion limit lower	:	Not available
upper	:	Not available
Relative vapour density	:	Not available
Density (20° C)	:	1.02 gm/cm ³
Solubility in Water (20° C)	:	Soluble



SAFETY DATA SHEET

Catalogue No. : C 12929
Product Name : COPPER SULPHATE

10. STABILITY & REACTIVITY

Conditions to be avoided : Heating

Substances to be avoided : Hydroxylamine

Hazardous decomposition products : In the event of fire : Sulphur Oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity : Quantitative data on the toxicity of this product are not available.

Further toxicological information : Hazardous properties cannot be excluded, but are relatively improbable due to the low concentration of the dissolved substance.

12. ECOLOGICAL INFORMATION

Ecotoxic effects : Applicable to the dissolved substance: Biological effects :

Toxic for aquatic organisms. High aquatic toxicity : Fungicidal effect.

Fish toxicity : L.idus LC₅₀ : 0.8 mg/l.(calculated on the pure substance

Further ecologic data : The following applies to copper compounds : biological effects :
toxic for aquatic organisms : copper ions toxic for fish, algae, protozoa and bacteria at
concentrations below 1mg/l. Fish : C.auratus toxic 0,01 mg/l.; mussels : 0.55 mg/l.
lethal in 12 h; oysters: 0,1 mg/l. toxic

Do not allow to enter waters, waste water or soil!



SAFETY DATA SHEET

Catalogue No. : C 12929
Product Name : COPPER SULPHATE

13. DISPOSAL METHOD

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws & regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste.

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

14. TRANSPORT INFORMATION : Not subject to transport regulations.

15. REGULATORY INFORMATION

Labeling according to EC Directives

Symbol : ---

R-phrases : ---

S-phrases : ---

Water pollution class : 1 (slightly polluting substance)
(own classification)



SAFETY DATA SHEET

Catalogue No. : **C 12929**

Product Name : **COPPER SULPHATE**

16. OTHER INFORMATION

Reason for alteration

Specific control parameter

Change in the chapter on toxicology

Change in the chapter on ecology.

The information contained herein is based on the present state of our knowledge.

It characterises the product with regard to the appropriate safety precautions.

It does not represent a guarantee of the properties of the product.



SAFETY DATA SHEET

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

Catalogue No. : L 30329
Product Name : LEAD NITRATE

Manufacturer/supplier identification

Company : NICE Chemicals (P) Ltd., Cochin, India
Tel - 0484 2800212, 2802755

Contact for information : Tel. No.- 0484 2802536 Fax : 0484 2802483
Emergency Telephone No. : 0484 2801583 Telefax No. : 0484 2802483

2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS-No : 10099-74-8 EC-Index No. : 082-001-00-6
Molar Mass : ---- EC-No. : 233-245-9
Molecular Formula : $N_2 O_6 Pb$

3. HAZARDS IDENTIFICATION : May cause harm to the unborn child. Possible risk of impaired fertility.
Also harmful by inhalation and if swallowed. Danger of cumulative effects.

Restricted to professional users. Attention - Avoid exposure - obtain special
instructions before use.

4. FIRST AID MEASURES : After inhalation : Fresh air. If breathing stops : immediately apply mechanical ventilation. If necessary oxygen mask. Immediately summon doctor.

After skin contact : Wash off with plenty of water. Dab with polyethylene glycol 400.
Immediately remove contaminated clothing.

After eye contact : Rinse out with plenty of water for at least 10 minutes with the
eyelid held wide open. Immediately summon eye specialist.



SAFETY DATA SHEET

Catalogue No. : L 30329
Product Name : LEAD NITRATE

After swallowing : Make victim drink plenty of water, induce vomiting. Summon
doctor. Clean skin of vomit.

5. FIRE-FIGHTING MEASURES : Suitable extinguishing media : In adaption to materials stored in the
immediate neighbourhood.
Special risks : Non - combustible. Ambient fire may liberate hazardous vapours.
The following may develop in event of fire : Nitrogen oxides.
Special protective equipment for fire fighting : Do not stay in dangerous zone without
self-contained breathing apparatus.

Other information : Prevent fire-fighting water from entering surface water or
groundwater.

6. ACCIDENTAL RELEASE MEASURES

Person-related precautionary measures: Avoid substance contact. Avoid generation
of dusts; do not inhale dusts.

Environmental-protection measures : Do not allow to enter sewerage system.

Procedures for cleaning/absorption : Take up dry. Forward for disposal.
Clean up affected area.

7. HANDLING AND STORAGE : Handling : No further requirements.

Storage : Tightly closed. Away from combustible
substances. Keep away from sources of ignition and
heat. At +15° C to +25° C



SAFETY DATA SHEET

Catalogue No. : L 30329
Product Name : LEAD NITRATE

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Respiratory protection : Required when dusts are
generated.

Eye protection : Required

Hand protection : Required

Industrial hygiene : Change contaminated clothing.

Wash hands and face after working with substance.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	: Solid
Colour	: White
Odour	: Almost odourless
pH value at 50 ₂ gm/lit. H O (20 ° C)	: 3 - 4
Melting temperature	: Near 470 ° C
Boiling temperature	: Not available
Ignition temperature	: Not available
Flash Point	: Not available
Explosion limit lower	: Not available
upper	: Not available
Relative vapour density	: Not available
Density (20 ° C)	: 4.53 gm/cm ³
Bulk Density	: Near 1850 kg/m ³
Solubility in Water (20 ° C)	: 525 gm/lit.
Thermal decomposition	: >470 ° C

10. STABILITY & REACTIVITY : Conditions to be avoided : No information available

Substances to be avoided : Organic combustible substances, alcohols
esters, ammonium compounds, acetates .



SAFETY DATA SHEET

Catalogue No. : L 30329
Product Name : LEAD NITRATE

Hazardous decomposition products : Nitrous gases

Further information : Strong oxidizing agent, explosible.

11. TOXICOLOGICAL INFORMATION

Acute toxicity : The data available to us do not suffice to permit any industrial-toxicological assessment.

Subacute to chronic toxicity : Pregnant women should not be exposed to the product. Animal experiments suggest that the substance may lead to an impairment of reproductive performance also in man.

Further toxicological information :

The following applies to lead compounds in general : Due to the poor absorbability via the gastrointestinal tract, only very high doses lead to acute cases of intoxication.

After a latency period of several hours, metallic taste, nausea, vomiting, and colics occur, in many instances followed by shock. Chronic uptake causes peripheral muscular weakness ("drop-wrist"), anaemia, and central- nervous disorders. Women of child-bearing age should not be exposed to the substance over longer periods of time (observe critical threshold).

After swallowing : Latency time until onset of action.

After swallowing of large amounts : nausea, vomiting.

After long-term exposure to the chemical: CNS disorders.

Further data : Further hazardous properties cannot be excluded. The product should be handled with the care usual when dealing with chemicals.



SAFETY DATA SHEET

Catalogue No.	:	L 30329
Product Name	:	LEAD NITRATE

12. ECOLOGICAL INFORMATION

Ecotoxic effects : The following applies to lead compounds in general :

biological effects : toxic for aquatic organisms (calc. as free lead) : fish : lethal from 1.4mg/lit. up; *S.gairdnerii* : LC_{50} : 0.14mg/lit./96h; *L.idus* LC_{50} : 546 mg/lit; fish test LC_{50} : 236 mg/lit; bacteria : *Ps.putida* toxic from 1.8 mg/lit.up; algae: *Sc.quadricauda* toxic from 3.7mg/lit. up; *M. aeruginosa* 0.45mg/lit.; protozoa : *E. sulcatum* toxic from 0.02 mg/lit. up; *U.parduczi* toxic from 0.07 mg/lit.; arthropods : *D.magna* LC_{50} : 2.5 mg/lit.; hazard for drinking water. The following applies to nitrates in general: may contribute to the eutrophication of water supplies.
Hazard for drinking water, fish : LC_{50} >500 mg/lit.

Further ecologic data : Do not allow to enter waters,
waste water, or soil!

13. DISPOSAL METHOD : There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws & regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste.

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

14. TRANSPORT INFORMATION

Transport over land

ADR/RID and GGVS/GGVE : GGVS/GGVE class : 5.1 Number and letter : 29b

ADR/RID class : 5.1 Number and letter : 29b



SAFETY DATA SHEET

Catalogue No. : L 30329
Product Name : LEAD NITRATE

Name of material : LEAD NITRATE

Sea Transport IMDG : IMDG class : 5.1 UN No. : 1469 Packing group : II
Ems : 5.1 - 05 MFAG : 110
Correct Technical Name : LEAD NITRATE

Air Transport ICAO-TI
and IATA-DGR : ICAO/IATA class : 5.1/6.1 UN No. : 2291
Packaging group : II
Correct Technical Name : LEAD NITRATE

15. REGULATORY INFORMATION

Labelling according to EC Directives

Symbol : T Toxic

R-phrases : 61-62-20/22-33 May cause harm to the unborn child. Possible risk of impaired fertility. Also harmful by inhalation and if swallowed.
Danger of cumulative effects.

S-phrases : 53-45 Avoid exposure - obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

EC-No. : 233-245-9 EC label

Water pollution class : 2 (polluting substance)



SAFETY DATA SHEET

Catalogue No.	:	L 30329
Product Name	:	LEAD NITRATE

16. OTHER INFORMATION

Reason for alteration

Change in labelling.

Change in the chapter on toxicology.

The information contained herein is based on the present state of our knowledge.

It characterises the product with regard to the appropriate safety precautions.

It does not represent a guarantee of the properties of the product.



SAFETY DATA SHEET

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

Catalogue No. : M31971
Product Name : METHYLENE BLUE AQUEOUS

Manufacturer/supplier identification

Company : NICE Chemicals (P) Ltd., Cochin, India
Tel - 0484 2800212, 2802755

Contact for information : Tel. No.- 0484 2802536 Fax : 0484 2802483
Emergency Telephone No. : 0484 2801583 Tele fax No. : 0484 2802483

2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : 3,7-Bis(dimethylamino)phenamthionium Chloride

CAS-No : Ec-Index No. :
Molar Mass : - EC-No. : 200-515-2
Molecular Formula : -

3. HAZARD INDEX : Harmful if drink.

4. FIRST AID MEASURES :

After skin contact : Wash off with plenty of water. Remove contaminated clothing.

After eye contact : Rinse out with plenty of water with the eyelid held wide open.

After swallowing : Make victim drink plenty of water, induce vomiting, summon doctor.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Water, Foam.



SAFETY DATA SHEET

Catalogue No.	:	M31971
Product Name	:	METHYLENE BLUE AQUEOUS

Special risks : Combustible. Development of hazardous combustion gases or vapours possible in the event of fire.

The following may develop in event of fire : Sulphur oxides, Nitrous gases, Hydrochloric Acid, Chlorine.

Special protective equipment for fire fighting : Do not stay in dangerous zone without suitable chemical protection clothing and self- contained breathing apparatus.

Other information : Contain escaping vapours with water. Prevent fire-fighting water from entering surface water or groundwater.

6. ACCIDENTAL RELEASE MEASURES

Person -related precautionary measures: Avoid generation of dusts; do not inhale dusts.

Procedures for cleaning/absorption: Take up dry. Forward for disposal.

Clean up affected area.

Environmental-protection measures : Do not allow to enter sewerage system.

7. HANDLING AND STORAGE	:	Handling - No further requirements.
		Storage - Tightly closed.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Respiratory protection : Required when dust are generated.

Eye Protection : Required

Hand Protection : Required



SAFETY DATA SHEET

Catalogue No.	:	M31971
Product Name	:	METHYLENE BLUE AQUEOUS

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Industrial hygiene : Change contaminated clothing. Wash hands and face after working with substance.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Liquid
Colour	:	Dark Blue solution
Odour	:	Almost odourless
pH value at 10 ₂ g/l H ₂ O (20° C)	:	-
Melting temperature	:	-
Boiling temperature	:	Not available
Ignition temperature	:	Not available
Flash Point	:	Not available
Explosion limit lower	:	Not available
upper	:	Not available
Relative vapour density	:	Not available
Density	:	Not available
Bulk density	:	-
Solubility in Water (20° C)	:	soluble

10. STABILITY AND REACTIVITY

Conditions to be avoided Heating.

Hazardous decomposition products - in the event of fire : Nitrous gases,
Sulphur Oxides, Hydrochloric Acid, Chlorine.



SAFETY DATA SHEET

Catalogue No.	:	M31971
Product Name	:	METHYLENE BLUE AQUEOUS

11. TOXICOLOGICAL INFORMATION

Acute toxicity : LD₅₀ (oral, rat) : 1180 mg/kg (anhydrous substance)

Further toxicological information :

After swallowing of large amounts : Irritation in the urinary tract.
However, when the product is handled appropriately, hazardous effects are likely to occur.

Further Data : Hazardous properties cannot be excluded. The product should be handled with the care usual when dealing with chemicals.

12. ECOLOGICAL INFORMATION

Ecotoxic effects : Quantitative data on the ecological effect of this product are not available.

Ecotoxic effects : Do not allow to enter waters, waste water or soil !

13. DISPOSAL METHOD

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste.

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

14. TRANSPORT INFORMATION : Not subject to transport regulations.



SAFETY DATA SHEET

Catalogue No.	:	M31971
Product Name	:	METHYLENE BLUE AQUEOUS

15. REGULATORY INFORMATION

Labelling according to EC Directives

Symbol : - -

R-phrases : - -

S-phrases : ----

Water pollution class : 2 (polluting substances) (own classification)

16. OTHER INFORMATION

Reason for alteration :

General update.

The information contained herein is based on the present state of our knowledge.

It characterises the product with regard to the appropriate safety precautions. It

does not represent a guarantee of the properties of the product.



SAFETY DATA SHEET

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

Catalogue No. : M31971
Product Name : METHYLENE BLUE AQUEOUS

Manufacturer/supplier identification

Company : NICE Chemicals (P) Ltd., Cochin, India
Tel - 0484 2800212, 2802755

Contact for information : Tel. No.- 0484 2802536 Fax : 0484 2802483
Emergency Telephone No. : 0484 2801583 Tele fax No. : 0484 2802483

2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : 3,7-Bis(dimethylamino)phenamthionium Chloride

CAS-No : Ec-Index No. :
Molar Mass : - EC-No. : 200-515-2
Molecular Formula : -

3. HAZARD INDEX : Harmful if drink.

4. FIRST AID MEASURES :

After skin contact : Wash off with plenty of water. Remove contaminated clothing.

After eye contact : Rinse out with plenty of water with the eyelid held wide open.

After swallowing : Make victim drink plenty of water, induce vomiting, summon doctor.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Water, Foam.



SAFETY DATA SHEET

Catalogue No.	:	M31971
Product Name	:	METHYLENE BLUE AQUEOUS

Special risks : Combustible. Development of hazardous combustion gases or vapours possible in the event of fire.

The following may develop in event of fire : Sulphur oxides, Nitrous gases, Hydrochloric Acid, Chlorine.

Special protective equipment for fire fighting : Do not stay in dangerous zone without suitable chemical protection clothing and self- contained breathing apparatus.

Other information : Contain escaping vapours with water. Prevent fire-fighting water from entering surface water or groundwater.

6. ACCIDENTAL RELEASE MEASURES

Person -related precautionary measures: Avoid generation of dusts; do not inhale dusts.

Procedures for cleaning/absorption: Take up dry. Forward for disposal.

Clean up affected area.

Environmental-protection measures : Do not allow to enter sewerage system.

7. HANDLING AND STORAGE : Handling - No further requirements.
Storage - Tightly closed.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Respiratory protection : Required when dust are generated.

Eye Protection : Required

Hand Protection : Required



SAFETY DATA SHEET

Catalogue No.	:	M31971
Product Name	:	METHYLENE BLUE AQUEOUS

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Industrial hygiene : Change contaminated clothing. Wash hands and face after working with substance.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Liquid
Colour	:	Dark Blue solution
Odour	:	Almost odourless
pH value at 10 ₂ g/l H ₂ O (20° C)	:	-
Melting temperature	:	-
Boiling temperature	:	Not available
Ignition temperature	:	Not available
Flash Point	:	Not available
Explosion limit lower	:	Not available
upper	:	Not available
Relative vapour density	:	Not available
Density	:	Not available
Bulk density	:	-
Solubility in Water (20° C)	:	soluble

10. STABILITY AND REACTIVITY

Conditions to be avoided Heating.

Hazardous decomposition products - in the event of fire : Nitrous gases,
Sulphur Oxides, Hydrochloric Acid, Chlorine.



SAFETY DATA SHEET

Catalogue No.	:	M31971
Product Name	:	METHYLENE BLUE AQUEOUS

11. TOXICOLOGICAL INFORMATION

Acute toxicity : LD₅₀ (oral, rat) : 1180 mg/kg (anhydrous substance)

Further toxicological information :

After swallowing of large amounts : Irritation in the urinary tract.
However, when the product is handled appropriately, hazardous effects are likely to occur.

Further Data : Hazardous properties cannot be excluded. The product should be handled with the care usual when dealing with chemicals.

12. ECOLOGICAL INFORMATION

Ecotoxic effects : Quantitative data on the ecological effect of this product are not available.

Ecotoxic effects : Do not allow to enter waters, waste water or soil !

13. DISPOSAL METHOD

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste.

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

14. TRANSPORT INFORMATION : Not subject to transport regulations.



SAFETY DATA SHEET

Catalogue No.	:	M31971
Product Name	:	METHYLENE BLUE AQUEOUS

15. REGULATORY INFORMATION

Labelling according to EC Directives

Symbol : - -

R-phrases : - -

S-phrases : ----

Water pollution class : 2 (polluting substances) (own classification)

16. OTHER INFORMATION

Reason for alteration :

General update.

The information contained herein is based on the present state of our knowledge.

It characterises the product with regard to the appropriate safety precautions. It

does not represent a guarantee of the properties of the product.



SAFETY DATA SHEET

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

Catalogue No. : P 40917
Product Name : **PHENOLPHTHALEIN SOLUTION**

Manufacturer / supplier identification

Company : NICE Chemicals (P) Ltd. , Cochin , India
Tel - 0484 2800212 , 2802755
Contact For Information : Tel . No. – 0484 2802536 Fax : 0484 2802483
Emergency Telephone No. : 0484 2801583 Telefax No. : 0484 2802483

2. COMPOSITION / INFORMATION ON INGREDIENTS

Synonyms :
CAS-No : 77-09-8 Ec-Index No. :
Molar Mass: EC-No. : 201-004-7
Molecular Formula : $C_{20}H_{14}O_4$

3 .HAZARDS IDENTIFICATION : According to the evaluative data available, a classification according

to categories of danger as specified in Directive 67/548/EEC and laid down in the legislation of the country concerned is not required

4. FIRST AID MEASURES : After inhalation : fresh air.
After skin contact : wash off with plenty of water .
Remove contaminated clothing
After eye contact : rinse out with plenty of water
With eyelids held open.
After swallowing : make victim drink plenty of water ,
Induce vomiting , summon doctor .

5. FIRE – FIGHTING MEASURES : Suitable extinguishing media : water,
CO₂, foam, powder
Special risks : Combustible .

6. ACCIDENTAL RELEASE MEASURES : person related precautionary measures:
Avoid substance contact, do not inhale dusts.
Procedures for cleaning / absorption:
Take up dry. Forward for disposal. Clean up Affected area.

7. HANDLING AND STORAGE : Handling : No further requirements.

Storage : Tightly closed . Dry.
Storage temperature: No restrictions

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal protective equipment



SAFETY DATA SHEET

Catalogue No.	:	P 40917
Product Name	:	PHENOLPHTHALEIN SOLUTION

Respiratory protection : required when dusts are generated .
Eye protection : required
Hand protection : required.
Protective clothing should be selected for the
Working place depending on concentration and
Quantity of the hazardous substance handled.
The resistance of the protective clothing to
chemicals should be ascertained with the respective supplier.
Industrial hygiene : Change contaminated
clothing . Application of skin protective barrier cream
recommended. Wash hands after working with substance.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Liquid
Colour	:	White
Odour	:	Weak
Boiling temperature	:	not available
PHvalue	:	not available
Ignition temperature	:	Not available
Flash point	:	Not available
Explosion limits lower	:	Not available
Upper	:	Not available
Relative vapour density	:	Not available
Density (20 ⁰ C)	:	Not available
Bulk density	:	~350-450 Kg/m ³
Solubility in		
water (20 ⁰ C)	:	insoluble
Ethanol (20 ⁰ C)	:	~14g/l

10. STABILITY AND REACTIVITY : Conditions to be avoided : no information available.
Substance to be avoided: no information available.
Hazardous decomposition products :
no information available

11. TOXICOLOGICAL INFORMATION : Acute Toxicity
Quantitative data on the toxicity of this product are not available.
Further toxicological information
After skin contact: Irritation.
After eye contact: irritant effect.
After uptake of large quantities: fever, cardiovascular disorders, CNS disorders. The substance has
a laxative effect



SAFETY DATA SHEET

Catalogue No. : P 40917
Product Name : **PHENOLPHTHALEIN SOLUTION**

Further data:

Further hazardous properties cannot be excluded

The product should be handled with the care usual when dealing with the chemicals.

12. ECOLOGICAL INFORMATION

: Ecotoxic effects

Quantitative data on the ecological effect of this product are not available.

Further ecological data

No ecological problems are to be expected when the product is handled and used with due care and attention.

13. DISPOSAL METHOD

: Product : There are no uniform EC regulations for

The disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste.

Packaging : Disposal in compliance with official Regulations. Handle contaminated packaging as In the same way as the substance itself. If not officially specified differently, non – contaminated packaging may be treated like household waste or recycled.

14. TRANSPORT INFORMATION

: Not subject to transport regulations.

15. REGULATORY INFORMATION

:

Labelling according to EC Directives

Symbol :

R- Phrases :

S-phrases :

Water pollution class : 1 (slightly polluting substance)



SAFETY DATA SHEET

Catalogue No.	:	P 40917
Product Name	:	PHENOLPHTHALEIN SOLUTION

16. OTHER INFORMATION

Reason for alteration

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.



SAFETY DATA SHEET

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

Catalogue No. : S 14817
Product Name : STANNOUS CHLORIDE

Manufacturer/supplier identification
Company : NICE Chemicals (P) Ltd., Cochin, India
Tel - 0484 2800212, 2802755

Contact for information : Tel. No.- 0484 2802536 Fax : 0484 2802483
Emergency Telephone No. : 0484 2801583 Tele fax No. : 0484 2802483

2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS-No : 7772-99-8 Ec-Index No. :
Molar Mass : 225-63 EC-No. : 231-868-0
Molecular Formula : $\text{Cl}_2\text{Sn}\cdot 2\text{H}_2\text{O}$

3. HAZARDS IDENTIFICATION

Harmful if swallowed. Irritating to eyes, respiratory system and skin

4. FIRST AID MEASURES

After inhalation : Fresh air. Consult doctor if feeling unwell.
After skin contact : Wash off with plenty of water. Remove contaminated clothing.

After eye contact : rinse out with plenty of water with the eyelid held wide open.
Summon eye specialist if necessary.

After swallowing : Make victim drink plenty of water, induce vomiting,
summon doctor.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : In adaption to materials stored in the
immediate neighbourhood.

Special risks : Development of hazardous combustion gases or vapours possible in
the event of fire. The following may develop in event of fire : HCl, chlorine

Special protective equipment for fire fighting : Do not stay in dangerous zone
without self-contained breathing apparatus.

Other information: Non-combustible. Contain escaping vapours with water.
Prevent fire-fighting water from entering surface water or groundwater.

6. ACCIDENTAL RELEASE MEASURES

Person related precautionary measures : Avoid generation of dusts; do not
inhale dusts.

Procedures for cleaning/absorption : Take up dry. Forward for disposal.
Clean up affected area.



SAFETY DATA SHEET

Catalogue No. : S 14817

Product Name : STANNOUS CHLORIDE

7. HANDLING AND STORAGE

Handling - No further requirements.

Storage - Tightly closed. Dry. At +15° C to 25° C

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Respiratory protection : Required when dusts are generated.

Eye Protection : Required

Hand Protection : Required

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective Supplier

Industrial hygiene: Change contaminated clothing. Apply skin-protective barrier cream. Wash hands and face after working with substance.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Solid
Colour	:	Colourless to white
Odour	:	Odourless
pH value at 100g/l H ₂ O(20°C)	:	~ 1 - 2
Melting temperature	:	40.5° C
Boiling temperature	:	Not available
Ignition temperature	:	Not available
Flash Point	:	Not applicable
Explosion limit lower	:	Not available
upper	:	Not available
Relative vapour density	:	Not available
Density (20° C)	:	2.71 g/cm ³
Bulk density	:	~ 1250 Kg/m ³
Solubility in Water (20° C)	:	1187 gm/l

10. STABILITY AND REACTIVITY

Conditions to be avoided: No information available

Substances to be avoided: halogen-halogen compounds, carbides, hydrazine and derivatives, nitrates, alkali metals, hydrogen peroxides.

Hazardous decomposition products : in the event of fire : chlorine, HCl

11. TOXICOLOGICAL INFORMATION

Acute toxicity : LD₅₀ (oral, rat) : 700 mg/kg (anhydrous substance)

Further toxicological information :

After inhalation of dust : Irritation symptoms in the respiratory tract. Metal-fume fever after inhalation of large quantities.

After skin contact : Irritations



SAFETY DATA SHEET

Catalogue No. : S 14817

Product Name : STANNOUS CHLORIDE

After eye contact : Irritations, mucosal irritations.

12. ECOLOGICAL INFORMATION

Ecotoxic effects : No special data.

Further ecologic data : No ecological problems are to be expected when the product is handled and used with due care and attention.

13. DISPOSAL METHOD

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations.

We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste.

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

14. TRANSPORT INFORMATION

Not subject to transport regulations.

15. REGULATORY INFORMATION

Labeling according to EC Directives

Symbol : Xn Harmful

R-phrases : 22-36/37/38 Harmful if swallowed. Irritating to eyes, respiratory system and skin.

S-phrases : 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Water pollution class : 1 (slightly polluting substance)

16. OTHER INFORMATION

Reason for alteration
General update

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.



SAFETY DATA SHEET

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

Catalogue No. : S 14817
Product Name : STANNOUS CHLORIDE

Manufacturer/supplier identification
Company : NICE Chemicals (P) Ltd., Cochin, India
Tel - 0484 2800212, 2802755

Contact for information : Tel. No.- 0484 2802536 Fax : 0484 2802483
Emergency Telephone No. : 0484 2801583 Tele fax No. : 0484 2802483

2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS-No : 7772-99-8 Ec-Index No. :
Molar Mass : 225-63 EC-No. : 231-868-0
Molecular Formula : $\text{Cl}_2\text{Sn}\cdot 2\text{H}_2\text{O}$

3. HAZARDS IDENTIFICATION

Harmful if swallowed. Irritating to eyes, respiratory system and skin

4. FIRST AID MEASURES

After inhalation : Fresh air. Consult doctor if feeling unwell.
After skin contact : Wash off with plenty of water. Remove contaminated clothing.

After eye contact : rinse out with plenty of water with the eyelid held wide open.
Summon eye specialist if necessary.

After swallowing : Make victim drink plenty of water, induce vomiting,
summon doctor.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : In adaption to materials stored in the
immediate neighbourhood.

Special risks : Development of hazardous combustion gases or vapours possible in
the event of fire. The following may develop in event of fire : HCl, chlorine

Special protective equipment for fire fighting : Do not stay in dangerous zone
without self-contained breathing apparatus.

Other information: Non-combustible. Contain escaping vapours with water.
Prevent fire-fighting water from entering surface water or groundwater.

6. ACCIDENTAL RELEASE MEASURES

Person related precautionary measures : Avoid generation of dusts; do not
inhale dusts.

Procedures for cleaning/absorption : Take up dry. Forward for disposal.
Clean up affected area.



SAFETY DATA SHEET

Catalogue No. : S 14817

Product Name : STANNOUS CHLORIDE

7. HANDLING AND STORAGE

Handling - No further requirements.

Storage - Tightly closed. Dry. At +15° C to 25° C

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Respiratory protection : Required when dusts are generated.

Eye Protection : Required

Hand Protection : Required

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective Supplier

Industrial hygiene: Change contaminated clothing. Apply skin-protective barrier cream. Wash hands and face after working with substance.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Solid
Colour	:	Colourless to white
Odour	:	Odourless
pH value at 100g/l H ₂ O(20°C)	:	~ 1 - 2
Melting temperature	:	40.5° C
Boiling temperature	:	Not available
Ignition temperature	:	Not available
Flash Point	:	Not applicable
Explosion limit lower	:	Not available
upper	:	Not available
Relative vapour density	:	Not available
Density (20° C)	:	2.71 g/cm ³
Bulk density	:	~ 1250 Kg/m ³
Solubility in Water (20° C)	:	1187 gm/l

10. STABILITY AND REACTIVITY

Conditions to be avoided: No information available

Substances to be avoided: halogen-halogen compounds, carbides, hydrazine and derivatives, nitrates, alkali metals, hydrogen peroxides.

Hazardous decomposition products : in the event of fire : chlorine, HCl

11. TOXICOLOGICAL INFORMATION

Acute toxicity : LD₅₀ (oral, rat) : 700 mg/kg (anhydrous substance)

Further toxicological information :

After inhalation of dust : Irritation symptoms in the respiratory tract. Metal-fume fever after inhalation of large quantities.

After skin contact : Irritations



SAFETY DATA SHEET

Catalogue No. : S 14817

Product Name : STANNOUS CHLORIDE

After eye contact : Irritations, mucosal irritations.

12. ECOLOGICAL INFORMATION

Ecotoxic effects : No special data.

Further ecologic data : No ecological problems are to be expected when the product is handled and used with due care and attention.

13. DISPOSAL METHOD

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations.

We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste.

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

14. TRANSPORT INFORMATION

Not subject to transport regulations.

15. REGULATORY INFORMATION

Labeling according to EC Directives

Symbol : Xn Harmful

R-phrases : 22-36/37/38 Harmful if swallowed. Irritating to eyes, respiratory system and skin.

S-phrases : 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Water pollution class : 1 (slightly polluting substance)

16. OTHER INFORMATION

Reason for alteration
General update

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.



SAFETY DATA SHEET

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

Catalogue No. : S 14329
Product Name : STARCH SOLUBLE

Manufacturer/supplier identification
Company : NICE Chemicals (P) Ltd., Cochin, India
Tel - 0484 2800212, 2802755

Contact for information : Tel. No.- 0484 2802536 Fax : 0484 2802483
Emergency Telephone No. : 0484 2801583 Tele fax No. : 0484 2802483

2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS-No : 9005-84-9 Ec-Index No. : ----
Molar Mass : ---- EC-No. : 232-686-4
Molecular Formula : $(C_6H_{10}O_5)_n$

3. HAZARDS INDEX

No evaluative data are available. A classification according to categories of danger as specified in Directive 67/548/EEC & laid down in the legislation of the country concerned can therefore not be made.

4. FIRST AID MEASURES

After inhalation : Fresh air.
After skin contact : Wash off with water.
After eye contact : Rinse out with water.
After swallowing of large amounts : Consult doctor if feeling unwell.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : In adaption to materials stored in the immediate neighbourhood.
Special risk : Combustible. Danger of dust explosion.

6. ACCIDENTAL RELEASE MEASURES

Person related precautionary measures : Avoid generation of dusts.
Procedures for cleaning/absorption : Take up dry. Forward for disposal.
Clean up affected area.

7. HANDLING AND STORAGE

Handling : No further requirements.
Storage : Tightly closed. Dry.
Storage temperature : No restrictions

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Respiratory protection : Required when dusts are generated.
Eye Protection : Required
Hand Protection : Not required
Industrial hygiene : Wash hands after working with substance.



SAFETY DATA SHEET

Catalogue No. : S 14329
Product Name : STARCH SOLUBLE

9. PHYSICAL AND CHEMICAL PROPERTIES :

Form	:	Solid
Colour	:	White
Odour	:	Odourless
pH value at 20g/l H ₂ O (25° C)	:	6.0 - 7.5
Melting temperature	:	Not available
Boiling temperature (23hPa)	:	Not available
Ignition temperature	:	Not available
Flash Point	:	Not available
Explosion limit lower	:	Not available
upper	:	Not available
Relative vapour density	:	Not available
Density	:	Not available
Bulk density	:	~300 kg/m ³
Solubility in Water (90° C)	:	50 gm/l.

10. STABILITY & REACTIVITY

Conditions to be avoided : Strong Heating
Substances to be avoided : Strong oxidizing agents
Hazardous decomposition products : No information available.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity : Quantitative data on the toxicity of this product are not available.
Further toxicological information : Naturally occurring substance. No toxic effects are to be expected when the product handled appropriately. The literature and our own experience have not revealed any hazardous properties.

12. ECOLOGICAL INFORMATION :

Biological degradation : Readily biodegradable.
Ecotoxic effects : Quantitative data on the ecological effect of this product are not available.
Further ecologic data : BOD₃₅ : 0.81 g./gm, 25 °C (sea water) ; ThOD : 1.18gm/gm;
No ecological problems are to be expected when the product is handled and used with due care and attention.

13. DISPOSAL METHOD

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like house-hold waste or recycled.

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. Approved waste disposal companies which will advise you on how to dispose of special waste.



SAFETY DATA SHEET

Catalogue No. : S 14329
Product Name : STARCH SOLUBLE

14. TRANSPORT INFORMATION

Not subject to transport regulations.

15. REGULATORY INFORMATION

Labelling according to EC Directives

Symbol : ----

R-phrases : ----

S-phrases : ----

Water pollution class : 0 (generally nonpolluting substance)
(own classification)

16. OTHER INFORMATION

Reason for alteration

General update

Addition in the chapter ecology

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.



SAFETY DATA SHEET

1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

Catalogue No. : S 39709
Product Name : **SUDAN III**
Manufacturer / supplier identification
Company : NICE Chemicals (P) Ltd. , Cochin , India
Tel - 0484 2800212 , 2802755
Contact For Information : Tel . No. – 0484 2802536 Fax : 0484 2802483
Emergency Telephone No. : 0484 2801583 Telefax No. : 0484 2802483

2. COMPOSITION / INFORMATION ON INGREDIENTS

Synonyms : Sudan Black B
CAS-No : 4197-25-5
Molar Mass : 456.55 EC-No. : 224-087-1
Molecular Formula : $C_{29}H_{24}N_6$

3. HAZARDS IDENTIFICATION

According to the evaluative data available, a classification according to categories of danger as specified in Directive 67/548/EEC and laid down in the legislation of the country concerned is not required.

4. FIRST AID MEASURES

Eye and skin contact : Rinse out with water.
Remove contaminated clothing. After swallowing (large amounts) : Consult doctor if feeling unwell.

5. FIRE – FIGHTING MEASURES

Suitable extinguishing media: In adaption to materials stored in the immediate neighbourhood.
Special risks : Combustible.
The following may develop in event of fire : Nitrous gases.

6. ACCIDENTAL RELEASE MEASURES

Take up dry. Forward for disposal. Clean up affected area .

7. HANDLING AND STORAGE

Handling: No further requirements
Storage: Tightly closed dry at room temperature (+15°C to +25°C)

8. EXPOSURE CONTROLS / PERSONAL PROTECTION :

Personal protective equipment

Respiratory protection : Required when dusts are generated .
Eye protection : Required
Hand protection : Required
Industrial hygiene : Change contaminated clothing. Wash hands after working with substance.



SAFETY DATA SHEET

Catalogue No. : S 39709
Product Name : SUDAN III

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Solid
Colour	:	Brick Red
Odour	:	Odourless
Melting temperature	:	150 – 154°C
Boiling temperature	:	Not available
PHvalue	:	Not available
Ignition temperature	:	Not available
Flash point	:	Not available
Explosion limits lower	:	Not available
Upper	:	Not available
Relative vapour density	:	Not available
Density	:	Not available
Bulk density	:	200 kg/m ³
Solubility in water (20 ⁰ C):		Insoluble
Ethanol (20 ⁰ C):		Soluble
Acetone (20 ⁰ C):		Soluble.

10. STABILITY AND REACTIVITY

Conditions to be avoided : No information available.
Substance to be avoided : No information available.
Hazardous decomposition products :
No information available

11. TOXICOLOGICAL INFORMATION

Very low acute toxicity in animal experiments. No eye-irritant effect in animal experiments. No skin-irritant effect in animal experiments. LD50 (oral, rat) : >15000 mg/kg;
LD50 (iv., mouse) : 63 mg/kg.

12. ECOLOGICAL INFORMATION

No ecological problems are to be expected when the product is handled and used with due care and attention.

13. DISPOSAL METHOD

There are no uniform EC regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste.

Disposal in compliance with official regulations. Handle



SAFETY DATA SHEET

Catalogue No.	:	S 39709
Product Name	:	SUDAN III

Contaminated packaging as in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled .

14. TRANSPORT INFORMATION :

Not subject to transport regulations

15. REGULATORY INFORMATION

Labelling according to EC Directives

Symbol :

R- Phrases :

S-phrases :

Water pollution class : 0 (generally non polluting substance)

16. OTHER INFORMATION

Reason for alteration

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.



SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Catalogue No. : Z 10729
Product Name : ZINC SULPHATE L.R.

Manufacturer/supplier identification Company : NICE Chemicals (P) Ltd., Cochin, India
Tel - 0484 2800212, 2802755

Contact for information : Tel. No.- 0484 2802536 Fax : 0484 2802483
Emergency Telephone No : 0484 2801583 Telefax No. : 0484 2802483

2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : ZINC VITRIOL
CAS-No : 7446-20-0 Ec-Index No. : 030-006-00-9
Molar Mass : 287.54 EC-No. : 231-793-3
Molecular Formula : $O_4SZn \cdot 7H_2O$

3. HAZARDS IDENTIFICATION

Irritating to eyes and skin

4. FIRST AID MEASURES

After inhalation : Fresh air.
After skin contact : Wash off with plenty of water, Remove contaminated clothing.
After eye contact : Rinse out with plenty of water with the eyelid held wide open. Summon eye specialist.
After swallowing : Make victim drink plenty of water, induce vomiting, Summon doctor.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : In adaption to materials stored in the immediate neighbourhood.
Special risks : Development of hazardous combustion gases or vapours possible in the event of fire.



SAFETY DATA SHEET

Catalogue No. : Z 10729

Product Name : ZINC SULPHATE L.R.

The following may develop in event of fire : Sulphur oxides.

Special protective equipment for fire fighting : Do not stay in dangerous zone without self-contained breathing apparatus.

Other information : Non-combustible.

6. ACCIDENTAL RELEASE

Person related precautionary measures : Avoid generation of dusts; do not inhale dusts

Procedures for cleaning/absorption : Take up dry, Forward for disposal, Clean up affected area.

7. HANDLING AND STORAGE

Handling : No further requirements.

Storage : Tightly closed. Dry.

Storage temperature : no restrictions.

8. EXPOSURE CONTROLS/PERSONAL PROTECTIVE EQUIPMENT PROTECTION

Required when dusts are generated. Personal protection

Eye Protection : Required

Hand Protection : Required

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Industrial hygiene : Change contaminated clothing. Application of skin- Protective barrier cream recommended. Wash hands after working with substance



SAFETY DATA SHEET

Catalogue No. : Z 10729
Product Name : ZINC SULPHATE L.R.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	: Solid
Colour	: Colourless to white
Odour	: Odourless
pH value at 50 g/l H ₂ O (20° C)	: ~ 4.6
Melting temperature	: ~ 40° C
Boiling temperature	: Not available
Ignition temperature	: Not available
Flash Point	: Not available
Explosion limit lower	: Not available
Upper	: Not available
Relative vapour density	: Not available
Density (20° C)	: 1.97 g/cm ³
Bulk density	: 800 - 1000 Kg/m ³
Solubility in Water (20° C)	: 960 gm/lt.
Ethanol (20° C)	: Almost insoluble

10. STABILITY & REACTIVITY

Conditions to be avoided: Strong heating.

Substances to be avoided: no information available.

Hazardous decomposition products: in the event of fire: sulphur oxides.

Further information: release water of crystallization when heated.

11. TOXICOLOGICAL INFORMATION :



SAFETY DATA SHEET

Acute Toxicity : LD₅₀ (oral, rat) : 2150 mg/Kg :

Catalogue No. : Z 10729

Product Name : ZINC SULPHATE L.R.

Further toxicological information:

After inhalation of dusts: Damage of : respiratory tract. Inhalation may lead to the formation of oedemas in the respiratory tract.

After skin contact : Irritations., mucosal irritations.

After eye contact : Irritations.

After swallowing : Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract. pain, vomiting, diarrhoea.

After uptake of large quantities : drop on blood pressure, cardiovascular disorders, collapse.

Further data : Further hazardous properties cannot be excluded. The product should be handled with the care usual when dealing with chemicals.

12. ECOLOGICAL INFORMATION

Behavior in environmental compartments :

Evaluation number (FRG) (fish) : 4.4 #valuation number (FRG) (mammal) : 3.0

Ecotoxic effects : Biological effects : Toxic for aquatic organisms. Bactericidal effect. Hazard for drinking water supplies.

Further ecologic data : Aharmful effect on aquatic organisms cannot be excluded in the event of improper handling or disposal

13. DISPOSAL METHOD

There are no uniform EC Regulations for the disposal of chemicals or residues Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws & regulations.

We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste.



SAFETY DATA SHEET

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

Catalogue No. : Z 10729

Product Name : ZINC SULPHATE L.R.

14. TRANSPORT INFORMATION

Not subject to transport regulations

15. REGULATORY INFORMATION

Labelling according to EC Directives

Symbol	:	Xn	Harmful
R-phrases	:	36/38	Irritating to eyes and skin.
S-phrases	:	22-25	Do not breath dust. Avoid contact with eyes.
EC-No.	:	231-793-3	EC label
Water pollution class	:	1	(slightly polluting substance)

16. OTHER INFORMATION :

Reason for alteration

Change in labelling.

General update.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. it does not represent a guarantee of the properties of the product.



SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Catalogue No. : Z 10729
Product Name : ZINC SULPHATE L.R.

Manufacturer/supplier identification Company : NICE Chemicals (P) Ltd., Cochin, India
Tel - 0484 2800212, 2802755

Contact for information : Tel. No.- 0484 2802536 Fax : 0484 2802483
Emergency Telephone No : 0484 2801583 Telefax No. : 0484 2802483

2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : ZINC VITRIOL
CAS-No : 7446-20-0 Ec-Index No. : 030-006-00-9
Molar Mass : 287.54 EC-No. : 231-793-3
Molecular Formula : $O_4SZn \cdot 7H_2O$

3. HAZARDS IDENTIFICATION

Irritating to eyes and skin

4. FIRST AID MEASURES

After inhalation : Fresh air.
After skin contact : Wash off with plenty of water, Remove contaminated clothing.
After eye contact : Rinse out with plenty of water with the eyelid held wide open. Summon eye specialist.
After swallowing : Make victim drink plenty of water, induce vomiting, Summon doctor.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : In adaption to materials stored in the immediate neighbourhood.
Special risks : Development of hazardous combustion gases or vapours possible in the event of fire.



SAFETY DATA SHEET

Catalogue No. : Z 10729

Product Name : ZINC SULPHATE L.R.

The following may develop in event of fire : Sulphur oxides.

Special protective equipment for fire fighting : Do not stay in dangerous zone without self-contained breathing apparatus.

Other information : Non-combustible.

6. ACCIDENTAL RELEASE

Person related precautionary measures : Avoid generation of dusts; do not inhale dusts

Procedures for cleaning/absorption : Take up dry, Forward for disposal, Clean up affected area.

7. HANDLING AND STORAGE

Handling : No further requirements.

Storage : Tightly closed. Dry.

Storage temperature : no restrictions.

8. EXPOSURE CONTROLS/PERSONAL PROTECTIVE EQUIPMENT PROTECTION

Required when dusts are generated. Personal protection

Eye Protection : Required

Hand Protection : Required

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Industrial hygiene : Change contaminated clothing. Application of skin- Protective barrier cream recommended. Wash hands after working with substance



SAFETY DATA SHEET

Catalogue No. : Z 10729
Product Name : ZINC SULPHATE L.R.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	: Solid
Colour	: Colourless to white
Odour	: Odourless
pH value at 50 g/l H ₂ O (20° C)	: ~ 4.6
Melting temperature	: ~ 40° C
Boiling temperature	: Not available
Ignition temperature	: Not available
Flash Point	: Not available
Explosion limit lower	: Not available
Upper	: Not available
Relative vapour density	: Not available
Density (20° C)	: 1.97 g/cm ³
Bulk density	: 800 - 1000 Kg/m ³
Solubility in Water (20° C)	: 960 gm/lt.
Ethanol (20° C)	: Almost insoluble

10. STABILITY & REACTIVITY

Conditions to be avoided: Strong heating.

Substances to be avoided: no information available.

Hazardous decomposition products: in the event of fire: sulphur oxides.

Further information: release water of crystallization when heated.

11. TOXICOLOGICAL INFORMATION :



SAFETY DATA SHEET

Acute Toxicity : LD₅₀ (oral, rat) : 2150 mg/Kg :

Catalogue No. : Z 10729

Product Name : ZINC SULPHATE L.R.

Further toxicological information:

After inhalation of dusts: Damage of : respiratory tract. Inhalation may lead to the formation of oedemas in the respiratory tract.

After skin contact : Irritations., mucosal irritations.

After eye contact : Irritations.

After swallowing : Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract. pain, vomiting, diarrhoea.

After uptake of large quantities : drop on blood pressure, cardiovascular disorders, collapse.

Further data : Further hazardous properties cannot be excluded. The product should be handled with the care usual when dealing with chemicals.

12. ECOLOGICAL INFORMATION

Behavior in environmental compartments :

Evaluation number (FRG) (fish) : 4.4 #valuation number (FRG) (mammal) : 3.0

Ecotoxic effects : Biological effects : Toxic for aquatic organisms. Bactericidal effect. Hazard for drinking water supplies.

Further ecologic data : Aharmful effect on aquatic organisms cannot be excluded in the event of improper handling or disposal

13. DISPOSAL METHOD

There are no uniform EC Regulations for the disposal of chemicals or residues Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws & regulations.

We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste.



SAFETY DATA SHEET

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

Catalogue No. : Z 10729

Product Name : ZINC SULPHATE L.R.

14. TRANSPORT INFORMATION

Not subject to transport regulations

15. REGULATORY INFORMATION

Labelling according to EC Directives

Symbol	:	Xn	Harmful
R-phrases	:	36/38	Irritating to eyes and skin.
S-phrases	:	22-25	Do not breath dust. Avoid contact with eyes.
EC-No.	:	231-793-3	EC label
Water pollution class	:	1	(slightly polluting substance)

16. OTHER INFORMATION :

Reason for alteration

Change in labelling.

General update.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. it does not represent a guarantee of the properties of the product.
