

HYDRAZINE SULPHATE

GHS Safety Data Sheet

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

HYDRAZINE SULPHATE

OTHER NAMES

N₂H₄.H₂SO₄, N₂-H₆-S-O₄, "hydrazine monosulphate monosulfate", "hydrazinium sulphate sulfate", "hydrazonium sulfate", "hydrazine sulphate (1:1)", "hydrazine sulfate (1:1)"

PROPER SHIPPING NAME

CORROSIVE SOLID, TOXIC, N.O.S.(contains hydrazine sulfate)

PRODUCT USE

■ Reducing agent.

Manufacture of chemicals, reducing agent in textile treatments, catalyst in making acetate fibres; component of fluxes. Analysis of minerals, determination of arsenic in metals; separation of polonium from tellurium; fungicide. Also used as germicide.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V.Ind.Estate,

248, Worli Road,

Mumbai- 400030, India

www.sdfine.com

Telephone: 91- 22 24959898/99

Fax: 91- 22 2493 7232

Email: technical@sdfine.com

Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity Category 3

Acute Toxicity Category 3

Acute Toxicity Category 3

Carcinogen Category 1B

Chronic Aquatic Hazard Category 1

Metal Corrosion Category 1

Serious Eye Damage Category 1

Skin Corrosion/Irritation Category 1B

Skin Sensitizer Category 1



EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by using GHS criteria

H290

May be corrosive to metals.

H301

Toxic if swallowed.

H311

Toxic in contact with skin.

H314

Causes severe skin burns and eye damage.

H317

May cause an allergic skin reaction.

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Section 2 - HAZARDS IDENTIFICATION

H318	Causes serious eye damage.
H331	Toxic if inhaled.
H350	May cause cancer.
H410	Very toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention

Code	Phrase
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P234	Keep only in original container.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash ... thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well- ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.

Response

Code	Phrase
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P310	Immediately call a POISON CENTER or doctor/physician.
P311	Call a POISON CENTER or doctor/physician.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P330	Rinse mouth.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P391	Collect spillage.

Storage

Code	Phrase
P403+P233	Store in a well- ventilated place. Keep container tightly closed.
P405	Store locked up.
P406	Store in corrosive resistant container or with a resistant inner liner.

Disposal

Code	Phrase
P501	Dispose of contents/container to ...

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
hydrazine sulfate	10034-93-2	> 99

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.
- 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.

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Section 4 - FIRST AID MEASURES

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.

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.
- Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema.
- Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs).
- As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested.
- Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered.

NOTES TO PHYSICIAN

■ Treat symptomatically.

In poisonings involving hydrazine:

Correction of early hypoglycaemia, with large parenteral doses of pyridoxine appears to suppress convulsions and other neurological effects.

In man, hydrazine-induced hyperexcitability and coma may respond to massive doses of pyridoxine but there is no evidence that liver necrosis or damage can be prevented or corrected by this antidote.

GOSSELIN, SMITH & HODGE: Clinical Toxicology of Commercial Products, 5 th Ed.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

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

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.

FIRE/EXPLOSION HAZARD

- Non combustible.
 - Not considered a significant fire risk, however containers may burn.
- Decomposition may produce toxic fumes of: nitrogen oxides (NO_x), sulfur oxides (SO_x).
May emit corrosive fumes.

FIRE INCOMPATIBILITY

■ None known.

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up waste regularly and abnormal spills immediately.
- Avoid breathing dust and contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.

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Section 6 - ACCIDENTAL RELEASE MEASURES

- Use dry clean up procedures and avoid generating dust.

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.

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.
- Avoid contact with moisture.

SUITABLE CONTAINER

- Glass container is suitable for laboratory quantities.
- Lined metal can, lined metal pail/ can.
- Plastic pail.
- Polyliner drum.
- Packing as recommended by manufacturer.

For low viscosity materials

- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure. <</>.

STORAGE INCOMPATIBILITY

- Inorganic reducing agents react with oxidizing agents to generate heat and products that may be flammable, combustible, or otherwise reactive. Their reactions with oxidizing agents may be violent.
- Incidents involving interaction of active oxidants and reducing agents, either by design or accident, are usually very energetic and examples of so-called redox reactions.
- Dangerous goods of other classes.

Avoid with alkali metals, ammonia, fluorine and metallic oxides.

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.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- hydrazine sulfate:

CAS:10034- 93- 2

MATERIAL DATA

HYDRAZINE SULFATE:

■ Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations.

It is the goal of the ACGIH (and other Agencies) to recommend TLVs (or their equivalent) for all substances for which there is evidence of health effects at airborne concentrations encountered in the workplace.

At this time no TLV has been established, even though this material may produce adverse health effects (as evidenced in animal experiments or clinical experience).

NOTE: The ACGIH occupational exposure standard for Particles Not Otherwise Specified (P.N.O.S) does NOT apply.

PERSONAL PROTECTION

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HYDRAZINE SULPHATE



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], [AS/NZS 1336 or national equivalent].

HANDS/FEET

- Wear chemical protective gloves, e.g. PVC.
- Wear safety footwear or safety gumboots, e.g. Rubber.

NOTE:

- The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.
- Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:

OTHER

- Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area. [AS/NZS ISO 6529:2006 or national equivalent]
- Employees engaged in handling operations involving carcinogens should be provided with, and required to wear and use half-face filter-type respirators with filters for dusts, mists and fumes, or air purifying canisters or cartridges. A respirator affording higher levels of protection may be substituted. [AS/NZS 1715 or national equivalent]
- Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely.
- Prior to each exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers must be identified with suitable labels. For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood.
- Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.
- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.

ENGINEERING CONTROLS

■ Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Odourless white crystalline powder.

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Mixes with water.

Corrosive.

Toxic or noxious vapours/gas.

State	DIVIDED SOLID	Molecular Weight	130.14
Melting Range (°C)	254	Viscosity	Not Applicable
Boiling Range (°C)	Decomposes.	Solubility in water (g/L)	Miscible
Flash Point (°C)	Not applicable	pH (1% solution)	< 7
Decomposition Temp (°C)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°C)	Not applicable	Vapour Pressure (kPa)	Not applicable
Upper Explosive Limit (%)	Not applicable	Specific Gravity (water=1)	1.37
Lower Explosive Limit (%)	Not applicable	Relative Vapour Density (air=1)	Not applicable.
Volatile Component (%vol)	Not applicable	Evaporation Rate	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.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

Health hazard summary table:

Acute toxicity	Acute Tox. (dermal) 3 Acute Tox. (inhal) 3 Acute Tox. (oral) 3
Skin corrosion/irritation	Skin Corr. 1 B
Serious eye damage/irritation	Eye Dam. 1
Respiratory or skin sensitization	Skin Sens. 1
Germ cell mutagenicity	Not applicable
Carcinogenicity	Carc. 1B
Reproductive toxicity	Not applicable
STOT- single exposure	Not applicable
STOT- repeated exposure	Not applicable
Aspiration hazard	Not applicable

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.
- The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.
- Sulfates are not well absorbed orally, but can cause diarrhoea.
- In animals, hydrazine and its derivatives cause convulsions, nervous system changes, muscle spasms and seizures, fever, and other symptoms, and in severe cases, causes failure of breathing and death.

EYE

- The material can produce chemical burns to the eye following direct contact.
- Vapours or mists may be extremely irritating.
- If applied to the eyes, this material causes severe eye damage.

SKIN

- Skin contact with the material may produce toxic effects; systemic effects may result following absorption.
 - The material can produce chemical burns following direct contact with the skin.
 - Open cuts, abraded or irritated skin should not be exposed to this material.
 - 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.

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INHALED

- Inhalation of dusts, generated by the material, during the course of normal handling, may produce toxic effects.
 - 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.
- If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.
- Symptoms of inhalation of hydrazine (and some of its derivatives) may include nausea and headache.
- Central nervous system (CNS) excitement may lead to convulsions, and, in severe cases, breathing stoppage and death.

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.
- Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population.
- There is ample evidence that this material can be regarded as being able to cause cancer in humans based on experiments and other information.
- Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.
- There is some evidence that inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population.
- When given by mouth, hydrazine induced tumours in animal testing. A study of 423 men involved in the manufacture of hydrazine revealed three stomach, one prostate and one neurogenic cancer.
- When administered orally hydrazine sulfate induced pulmonary adenomas and adenocarcinomas, hepatomas and hepatocarcinomas in mice of both sexes.

TOXICITY AND IRRITATION

- The following information refers to contact allergens as a group and may not be specific to this product.
- Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.
- The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
- 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.
- Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen
[National Toxicology Program: U.S. Dep.

Section 12 - ECOLOGICAL INFORMATION

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
This material and its container must be disposed of as hazardous waste.
Avoid release to the environment.
Refer to special instructions/ safety data sheets.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
hydrazine sulfate	No Data Available	No Data Available	No Data Available	No Data Available

Section 13 - DISPOSAL CONSIDERATIONS

- 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

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Section 13 - DISPOSAL CONSIDERATIONS

- store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
- Where possible retain label warnings and MSDS and observe all notices pertaining to the product.
- Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area.
- A Hierarchy of Controls seems to be common - the user should investigate:
- Reduction.
 - DO NOT allow wash water from cleaning or process equipment to enter drains.
 - It may be necessary to collect all wash water for treatment before disposal.
 - In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
 - Where in doubt contact the responsible authority.
 - 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



Labels Required: CORROSIVE, TOXIC

HAZCHEM: 2X

Land Transport UNDG:

Class or division:	8	Subsidiary risk:	6.1
UN No.:	2923	UN packing group:	III
Shipping Name: CORROSIVE SOLID, TOXIC, N.O.S. (contains hydrazine sulfate)			

Air Transport IATA:

ICAO/IATA Class:	8	ICAO/IATA Subrisk:	6.1
UN/ID Number:	2923	Packing Group:	III
Special provisions:	A3A803		

Shipping name: CORROSIVE SOLID, TOXIC, N.O.S. (contains hydrazine sulfate)

Maritime Transport IMDG:

IMDG Class:	8	IMDG Subrisk:	6.1
UN Number:	2923	Packing Group:	III
EMS Number:	F- A, S- B	Special provisions:	223 274
Limited Quantities:	5 kg	Marine Pollutant:	Yes
Shipping name: CORROSIVE SOLID, TOXIC, N.O.S. (contains hydrazine sulfate)			

Section 15 - REGULATORY INFORMATION

REGULATIONS

hydrazine sulfate (CAS: 10034-93-2) is found on the following regulatory lists;
"FisherTransport Information", "Sigma-AldrichTransport Information"

Section 16 - OTHER INFORMATION

- Classification of the preparation and its individual components has drawn on official and authoritative sources using available literature references.

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether

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Section 16 - OTHER INFORMATION

the reported Hazards are Risks in the workplace or other settings.

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: 12-Mar-2018