Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
SELENIUM (METAL) POWDER

OTHER NAMES
"Crude selenium metal", "Selenium powder wetted"

PROPER SHIPPING NAME
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(contains selenium)

PRODUCT USE
■ Dangerous POISON. Available ONLY for industrial and manufacturing purposes.
Intermediate source of selenium for purification.

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 1
Acute Toxicity Category 2
Acute Toxicity Category 2
Carcinogen Category 1B
Chronic Aquatic Hazard Category 1
Reproductive Toxicity Category 1A
Reproductive Toxicity Category 2
STOT - RE Category 2

EMERGENCY OVERVIEW

HAZARD
DANGER

Determined by using GHS criteria

H300	Fatal if swallowed.
H310	Fatal in contact with skin.
H330	Fatal if inhaled.

continued...

H350	May cause cancer.
H360	May damage fertility or the unborn child.
H361	Suspected of damaging fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
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.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P262	Do not get in eyes, on skin, or on clothing.
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.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.
P284	Wear respiratory protection.

Response

Code	Phrase
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P302+P350	IF ON SKIN: Gently wash with plenty of soap and water.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P310	Immediately call a POISON CENTER or doctor/physician.
P314	Get medical advice/attention if you feel unwell.
P320	Specific treatment is urgent (see MSDS).
P330	Rinse mouth.
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.

Storage

Code	Phrase
P403+P233	Store in a well- ventilated place. Keep container tightly closed.
P405	Store locked up.

Disposal

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

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
selenium	7782-49-2	70-90
impurities, as		
lead	7439-92-1	3-10
mercury (elemental)	7439-97-6	0.1-1.0
cadmium	7440-43-9	<0.2
arsenic	7440-38-2	<0.1

Section 4 - FIRST AID MEASURES

SWALLOWED

- Give a slurry of activated charcoal in water to drink. NEVER GIVE AN UNCONSCIOUS PATIENT WATER TO DRINK.
- At least 3 tablespoons in a glass of water should be given.
- Although induction of vomiting may be recommended (IN CONSCIOUS PERSONS ONLY), such a first aid measure is dissuaded due to the risk of aspiration of stomach contents. (i) It is better to take the patient to a doctor who can decide on the necessity and method of emptying the stomach. (ii) Special circumstances may however exist; these include non- availability of charcoal and

continued...

the ready availability of the doctor.

NOTE: If vomiting is induced, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

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.
• DO NOT attempt to remove particles attached to or embedded in eye .
• Lay victim down, on stretcher if available and pad BOTH eyes, make sure dressing does not press on the injured eye by placing thick pads under dressing, above and below the eye.
• Seek urgent medical assistance, or transport to hospital.

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.

NOTES TO PHYSICIAN
■ Treat symptomatically.
Copper, magnesium, aluminium, antimony, iron, manganese, nickel, zinc (and their compounds) in welding, brazing, galvanising or smelting operations all give rise to thermally produced particulates of smaller dimension than may be produced if the metals are divided mechanically. Where insufficient ventilation or respiratory protection is available these particulates may produce "metal fume fever" in workers from an acute or long term exposure.
• Onset occurs in 4-6 hours generally on the evening following exposure. Tolerance develops in workers but may be lost over the weekend. (Monday Morning Fever)
• Pulmonary function tests may indicate reduced lung volumes, small airway obstruction and decreased carbon monoxide diffusing capacity but these abnormalities resolve after several months.
Management of chronic selenium intoxication is supportive with elimination of the selenium source. BAL (dimercaprol, 2,3-dimercaptopropanol) and CaNa2EDTA may enhance toxicity.
There are no antidotes to selenious acid toxicity; treatment is expectant (cardiopulmonary monitoring in an intensive care setting) and supportive (intravenous infusion, supplemental oxygen and ventilation as needed).
• Gastric acids solubilise lead and its salts and lead absorption occurs in the small bowel.
• Particles of less than 1 um diameter are substantially absorbed by the alveoli following inhalation.
• Lead is distributed to the red blood cells and has a half-life of 35 days. It is subsequently redistributed to soft tissue & bone-stores or eliminated. The kidney accounts for 75% of daily lead loss; integumentary and alimentary losses account for the remainder.
• Neurasthenic symptoms are the most common symptoms of intoxication. Lead toxicity produces a classic motor neuropathy. Acute encephalopathy appears infrequently in adults. Diazepam is the best drug for seizures.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
■ Metal dust fires need to be smothered with sand, inert dry powders.
DO NOT USE WATER, CO2 or FOAM.
• Use DRY sand, graphite powder, dry sodium chloride based extinguishers, G-1 or Met L-X to smother fire.
• Confining or smothering material is preferable to applying water as chemical reaction may produce flammable and explosive hydrogen gas.
• DO NOT use halogenated fire extinguishing agents.

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FIRE FIGHTING
• Alert Fire Brigade and tell them location and nature of hazard.
• Wear breathing apparatus plus protective gloves in the event of a fire.
• Prevent, by any means available, spillage from entering drains or water courses.
• Use fire fighting procedures suitable for surrounding area.

FIRE/EXPLOSION HAZARD
• DO NOT disturb burning dust. Explosion may result if dust is stirred into a cloud, by providing oxygen to a large surface of hot metal.
• DO NOT use water or foam as generation of explosive hydrogen may result. <</>.
Decomposition may produce toxic fumes of: metal oxides.

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.
• Use dry clean up procedures and avoid generating dust.
Environmental hazard - contain spillage.

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 all means available, spillage from entering drains or water courses.
Environmental hazard - contain spillage.

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.

SUITABLE CONTAINER
• CARE: Packing of high density product in light weight metal or plastic packages may result in container collapse with product release.
• Heavy gauge metal packages / Heavy gauge metal drums.
• Glass container is suitable for laboratory quantities.
• Polyethylene or polypropylene container.
• Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY
• Many metals may incandesce, react violently, ignite or react explosively upon addition of concentrated nitric acid.
Metals exhibit varying degrees of activity. Reaction is reduced in the massive form (sheet, rod, or drop), compared with finely divided forms.
• can react exothermically with oxidising acids to form noxious gases.
• catalyse polymerisation and other reactions, particularly when finely divided.
• Many metals in elemental form react exothermically with compounds having active hydrogen atoms (such as acids and water) to form flammable hydrogen gas and caustic products.
• Elemental metals may react with azo/diazo compounds to form explosive products.
• Some elemental metals form explosive products with halogenated hydrocarbons.
• Reacts with acids producing flammable / explosive hydrogen (H_2) gas.
• Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride.

continued...

- These trifluorides are hypergolic oxidisers. They ignites on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition.
- The state of subdivision may affect the results.
- Avoid strong acids, bases.

Avoid storage with sulfur.

STORAGE REQUIREMENTS
- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry area protected from environmental extremes.
- Store away from incompatible materials and foodstuff containers.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA mg/m³	STEL mg/m³	Notes
India Permissible Levels of Certain Chemical Substances in Work Environment	lead (Lead, inorg, dusts and fumes (as Pb))	0.15		
India Permissible Levels of Certain Chemical Substances in Work Environment	mercury (elemental) (Mercury (as Hg) (i) Alkyl compounds)	0.01	0.03	Skin
India Permissible Levels of Certain Chemical Substances in Work Environment	mercury (elemental) (Mercury (as Hg) (ii) All forms except alkyl vapour)	0.05		Skin
India Permissible Levels of Certain Chemical Substances in Work Environment	cadmium (Cadmium Dusts and Salts (as Cd))	0.05		

The following materials had no OELs on our records
- selenium: CAS:7782- 49- 2
- arsenic: CAS:7440- 38- 2

MATERIAL DATA
SELENIUM, CRUDE:
SELENIUM:
■ There is extensive evidence of selenium poisoning as a result of ingestion of seleniferous grains and other foodstuffs. There have however been no reports of disabling disease or death from industrial exposures.

LEAD:
SELENIUM, CRUDE:
■ The lead concentration in air is to be maintained so that the lead concentration in workers' blood remains below 0.060 mg/100 g of whole blood. The recommended TLV-TWA has been derived following a review of reports of adverse effects on reproduction, blood-pressure and other end-points of toxicity.

MERCURY (ELEMENTAL):

Metallic mercury may also be absorbed via the skin.
NOTE: Detector tubes for mercury vapour, measuring in excess of 0.1 mg/m3, are commercially available.

CADMIUM:
■ The adopted TLVs were recommended to prevent proteinuria, pulmonary oedema and emphysema. Evidence for added risk of carcinoma of the lung and prostate has been reported amongst smelter workers but exposure to other toxic fumes, gases and dusts is a confounding factor.

ARSENIC:
■ Inorganic arsenic compounds appear to produce an increased incidence of skin and lung cancers following their use in medicine, after drinking arsenic-contaminated water, or after occupational exposure. Cancers at other sites have been described but a clear association has yet to be determined.
Use control measures / protective gear to avoid any personal contact. The ES-TWA is based solely on the prevention of systemic

continued...

effects due to inhalation and is not protective against the substantial risk of cancer produced by exposure to inorganic arsenic.

Such surveillance should emphasise
- demography, occupational and medical history and health advice.

PERSONAL PROTECTION

RESPIRATOR
•Type HG-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

EYE
- Safety glasses with unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities, where there is a danger of splashing, or if the material may be under pressure
- Chemical goggles.whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted
- Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection.
- Alternatively a gas mask may replace splash goggles and face shields.

HANDS/FEET
- Elbow length PVC gloves.

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:.
- Protective gloves eg. Leather gloves or gloves with Leather facing.

OTHER
- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.

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
Dark reddish wet powder

PHYSICAL PROPERTIES
Solid.
Does not mix with water.
Sinks in water.

continued...

State	Divided solid	Molecular Weight	78- 96 (pure Se)
Melting Range (°C)	144	Viscosity	Not Applicable
Boiling Range (°C)	685	Solubility in water (g/L)	Immiscible
Flash Point (°C)	Not Applicable	pH (1% solution)	Not applicable
Decomposition Temp (°C)	Not available.	pH (as supplied)	Not applicable
Autoignition Temp (°C)	Not available.	Vapour Pressure (kPa)	Not applicable
Upper Explosive Limit (%)	Not applicable	Specific Gravity (water=1)	4.81
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) 1 Acute Tox. (inhal) 2 Acute Tox. (oral) 2
Skin corrosion/irritation	Not applicable
Serious eye damage/irritation	Not applicable
Respiratory or skin sensitization	Not applicable
Germ cell mutagenicity	Not applicable
Carcinogenicity	Carc. 1B
Reproductive toxicity	Repr. 1A Repr. 2
STOT- single exposure	Not applicable
STOT- repeated exposure	STOT RE 2
Aspiration hazard	Not applicable

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED
■ Severely toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 5 gram may be fatal or may produce serious damage to the health of the individual.
■ Acute effects of selenium poisoning include nervousness, convulsions, drowsiness, frontal headaches, and in extreme cases, death from respiratory depression.
There may also be skin eruptions, tiredness, stomach upset, discolouration of teeth, an odorous garlic breath and loss of hair and nails.

EYE
■ Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn).
Slight abrasive damage may also result.

SKIN
■ Skin contact with the material may produce severely toxic effects; systemic effects may result following absorption and these may be fatal.
■ The material is not thought to be a skin irritant (as classified by EC Directives using animal models).
Abrasive damage however, may result from prolonged exposures.
■ 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 severely toxic effects; these may be fatal.
■ The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models).
Nevertheless inhalation of dusts, or fumes, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.
■ The inhalation of small particles of metal oxide results in sudden thirst, a sweet, metallic foul taste, throat irritation, cough, dry mucous membranes, tiredness and general unwellness.
Headache, nausea and vomiting, fever or chills, restlessness, sweating, diarrhoea, excessive urination and prostration may also occur.
■ Inhalation of dusts, generated by the material, during the course of normal handling, may produce toxic effects.

CHRONIC HEALTH EFFECTS
■ There is sufficient evidence to establish a causal relationship between human exposure to the material and subsequent developmental toxic effects in the off-spring.
■ Substance accumulation, in the human body, is likely and may cause some concern following repeated or long-term occupational exposure.
There is ample evidence that this material can be regarded as being able to cause cancer in humans based on experiments and other information.
Harmful: danger of serious damage to health by prolonged exposure through inhalation.
This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. This has been demonstrated via both short- and long-term experimentation.
There is some evidence that inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population.
There is limited evidence that, skin contact with this product is more likely to cause a sensitisation reaction in some persons compared to the general population.
There is some evidence from animal testing that exposure to this material may result in toxic effects to the unborn baby.
Metallic dusts generated by the industrial process give rise to a number of potential health problems. The larger particles, above 5 micron, are nose and throat irritants. Smaller particles however, may cause lung deterioration. Particles of less than 1.5 micron can be trapped in the lungs and, dependent on the nature of the particle, may give rise to further serious health consequences.
Chronic exposure to selenium and its compounds irritate the bronchi, cause gastrointestinal problems, irritation of the nasopharynx and a persistent foul garlic breath. There is often a metallic taste, pallor, irritability, extreme tiredness after years of exposure. Occasionally kidney and liver damage can occur. Selenium can cause tooth decay.
Lead, in large amounts, can affect the blood, nervous system, heart, glands, immune system and digestive system. Anaemia may occur. If untreated muscles may become paralysed, and there may be brain damage. Symptoms include joint and muscle pain, weakness in the back of the forearm and wrist and in the shin muscles, headaches, dizziness, abdominal pain, diarrhoea or constipation, nausea, vomiting, blue line on gums, sleep disturbance and a metallic taste in the mouth. The pressure in the brain may increase with high doses, and cause brain damage, coma, and death. Early signs include loss of appetite and weight, constipation, tiredness and irritability, headache, weakness. Later there may be vomiting, nervousness, and muscle pains in the arms and legs. Serious cases cause severe vomiting, inco-ordination, stupor, permanent eye damage, high blood pressure, multiple nerve disorders of the head resulting in paralysis and loss of reflexes, delirium, convulsions and coma. The kidneys may become irreversibly damaged, and the nervous system may become affected causing mental retardation, cerebral palsy, and jerks and seizures.

TOXICITY AND IRRITATION
■ Not available. Refer to individual constituents.

CARCINOGEN

selenium	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	3	Not classifiable as to its carcinogenicity to humans
lead	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	2B	Possibly carcinogenic to humans
lead	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	1	Carcinogenic to humans
mercury (elemental)	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	3	Not classifiable as to its carcinogenicity to humans

continued...

cadmium	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	1	Carcinogenic to humans
arsenic	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	1	

REPROTOXIN

lead	ILO Chemicals in the electronics industry that have toxic effects on reproduction	Reduced fertility or sterility	H A si
mercury (elemental)	ILO Chemicals in the electronics industry that have toxic effects on reproduction	Reduced fertility or sterility	H A si
cadmium	ILO Chemicals in the electronics industry that have toxic effects on reproduction	Reduced fertility or sterility	H A si
arsenic	ILO Chemicals in the electronics industry that have toxic effects on reproduction	Reduced fertility or sterility	H s

SKIN

mercury (elemental)	India Permissible Levels of Certain Chemical Substances in Work Environment - Skin	Notes	Skin

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
selenium	No Data Available	No Data Available	LOW	No Data Available
lead	No Data Available	No Data Available	LOW	No Data Available
mercury (elemental)	No Data Available	No Data Available	LOW	No Data Available
cadmium	No Data Available	No Data Available	LOW	No Data Available
arsenic	No Data Available	No Data Available	LOW	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 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.

continued...

- 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: MISCELLANEOUS

HAZCHEM:
2Z

Land Transport UNDG:

Class or division:	9	Subsidiary risk:	None
UN No.:	3077	UN packing group:	III

Shipping Name:ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains selenium)

Air Transport IATA:

ICAO/IATA Class:	9	ICAO/IATA Subrisk:	None
UN/ID Number:	3077	Packing Group:	III
Special provisions:	A97		

Shipping name:ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(contains selenium)

Maritime Transport IMDG:

IMDG Class:	9	IMDG Subrisk:	None
UN Number:	3077	Packing Group:	III
EMS Number:	F- A, S- F	Special provisions:	274 335
Limited Quantities:	5 kg	Marine Pollutant:	Yes

Shipping name:ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(contains selenium)

Section 15 - REGULATORY INFORMATION

REGULATIONS

selenium, crude (CAS:) is found on the following regulatory lists;
"India Hazardous Wastes (Management, Handling and Transboundary Movement) Rules - Schedule 2: List of Wastes Constituents with Concentration Limits","International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs","United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments"

Regulations for ingredients

selenium (CAS: 7782-49-2) is found on the following regulatory lists;
"FisherTransport Information","India Hazardous Wastes (Management, Handling and Transboundary Movement) Rules - Schedule 2: List of Wastes Constituents with Concentration Limits","International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs","Sigma-AldrichTransport Information","United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments","WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water"

lead (CAS: 7439-92-1) is found on the following regulatory lists;
"FisherTransport Information","India Chemical Accidents Rules - Schedule 1: List of Hazardous Chemicals","India Hazardous Wastes (Management, Handling and Transboundary Movement) Rules - Schedule 2: List of Wastes Constituents with Concentration Limits", "India Manufacture, Storage and Import of Hazardous Chemical Rules - Schedule 1: List of Hazardous and Toxic Chemicals","India

continued...

Permissible Levels of Certain Chemical Substances in Work Environment","International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs","International Chemical Secretariat (ChemSec) SIN List (*Substitute It Now!)","OECD List of High Production Volume (HPV) Chemicals","OSPAR National List of Candidates for Substitution – Norway","OSPAR National List of Candidates for Substitution – United Kingdom","Sigma-AldrichTransport Information","United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments","WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water"

mercury (elemental) (CAS: 7439-97-6) is found on the following regulatory lists;

"FisherTransport Information","India Hazardous Wastes (Management, Handling and Transboundary Movement) Rules - Schedule 2: List of Wastes Constituents with Concentration Limits","India Manufacture, Storage and Import of Hazardous Chemical Rules - Schedule 1: List of Hazardous and Toxic Chemicals","India Permissible Levels of Certain Chemical Substances in Work Environment", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs","International Chemical Secretariat (ChemSec) SIN List (*Substitute It Now!)","International Maritime Dangerous Goods Requirements (IMDG Code) - Marine Pollutants", "OECD List of High Production Volume (HPV) Chemicals","Sigma-AldrichTransport Information","United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments","United Nations List of Prior Informed Consent Chemicals","WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water"

cadmium (CAS: 7440-43-9) is found on the following regulatory lists;

"Acros Transport Information","India Chemical Accidents Rules - Schedule 1: List of Hazardous Chemicals","India Hazardous Wastes (Management, Handling and Transboundary Movement) Rules - Schedule 2: List of Wastes Constituents with Concentration Limits", "India Manufacture, Storage and Import of Hazardous Chemical Rules - Schedule 1: List of Hazardous and Toxic Chemicals","India Permissible Levels of Certain Chemical Substances in Work Environment","International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs","International Chemical Secretariat (ChemSec) SIN List (*Substitute It Now!)","OECD List of High Production Volume (HPV) Chemicals","OSPAR List of Chemicals for Priority Action","Sigma-AldrichTransport Information", "United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments","WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water"

arsenic (CAS: 7440-38-2) is found on the following regulatory lists;

"India Hazardous Wastes (Management, Handling and Transboundary Movement) Rules - Schedule 2: List of Wastes Constituents with Concentration Limits","International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs","OECD List of High Production Volume (HPV) Chemicals","Sigma-AldrichTransport Information","United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments","WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water"

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 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

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