



LEAD (METAL) POWDER

GHS Safety Data Sheet

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

LEAD

OTHER NAMES

"CI Pigment Metal 4", "lead pigs", "CI 77575", Glover, Omaha, "Omaha & Grant", SI, SO, Pb, "lead sheet", "granular lead", "lead metallic", "lead powder", "lead castings"

PRODUCT USE

Used as a construction material in chemical reaction equipment (tank piping, etc.); manufacture of tetraethyl lead; pigments for paints.

Used in pottery glazes, glass, ceramics, bearing metal and alloys, solder and other lead alloys.

Also used in metallurgy of steel and other metals, cable sheathing, storage batteries, radiation shielding and ammunition.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

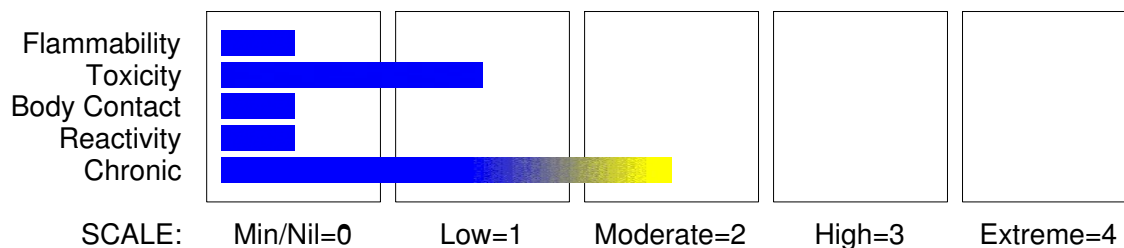
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

HAZARD RATINGS



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Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Carcinogen Category 2



EMERGENCY OVERVIEW

HAZARD

WARNING

Determined by using GHS criteria:

H351

Suspected of causing 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	%
lead	7439-92-1	>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.

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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.
- 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, without delay.

NOTES TO PHYSICIAN

- Gastric acids solubilise lead and its salts and lead absorption occurs in the small bowel.
- Particles of less than 1 μm 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.
- Whole-blood lead is the best measure of recent exposure; free erythrocyte protoporphyrin (FEP) provides the best screening for chronic exposure. Obvious clinical symptoms occur in adults when whole-blood lead exceeds 80 $\mu\text{g/dL}$.
- British Anti-Lewisite is an effective antidote and enhances faecal and urinary excretion of lead. The onset of action of BAL is about 30 minutes and most of the chelated metal complex is excreted in 4-6 hours, primarily in the bile. Adverse reaction appears in up to 50% of patients given BAL in doses exceeding 5 mg/kg . CaNa₂EDTA has also been used alone or in concert with BAL as an antidote. D-penicillamine is the usual oral agent for mobilisation of bone lead; its use in the treatment of lead poisoning remains investigational. 2,3-dimercapto-1-propanesulfonic acid (DMPS) and dimercaptosuccinic acid (DMSA) are water soluble analogues of BAL and their effectiveness is undergoing review. As a rule, stop BAL if lead decreases below 50 $\mu\text{g/dL}$; stop CaNa₂EDTA if blood lead decreases below 40 $\mu\text{g/dL}$ or urinary lead drops below 2 mg/24hrs .

[Ellenhorn & Barceloux: Medical Toxicology]

BIOLOGICAL EXPOSURE INDEX - BEI

These represent the determinants observed in specimens collected from a healthy worker who has been exposed at the Exposure Standard (ES or TLV):

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Section 4 - FIRST AID MEASURES

Determinant	Index	Sampling Time	Comments
1. Lead in blood	30 ug/100 ml	Not Critical	
2. Lead in urine	150 ug/gm creatinine	Not Critical	B
3. Zinc protoporphyrin in blood	250 ug/100 ml erythrocytes OR 100 ug/100 ml blood	After 1 month exposure	B

B: Background levels occur in specimens collected from subjects NOT exposed.

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.

Use fire fighting procedures suitable for surrounding area.

- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water courses.

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

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

Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

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

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.
- 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.

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Section 6 - ACCIDENTAL RELEASE MEASURES

- 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:

lead 100 mg/m³

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

protective action is:

lead 0.25 mg/m³

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

lead 0.15 mg/m³

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

lead 0.05 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 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

- 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.

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Section 7 - HANDLING AND STORAGE

- 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.

STORAGE INCOMPATIBILITY

Avoid storage with strong acids, oxidants, ammonium nitrate, chlorine trifluoride and sodium azide.

STORAGE REQUIREMENTS

Store in original containers.
Store in a well-ventilated area.
Store away from foodstuff containers.
Store away from incompatible materials.
DO NOT store near acids, or oxidising agents.
Protect containers against physical damage.
Keep containers securely sealed.
Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- lead: CAS:7439- 92- 1

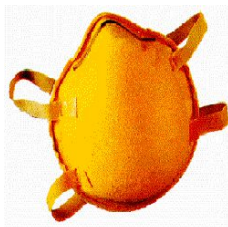
EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m3)	Revised IDLH Value (ppm)
lead	100	

MATERIAL DATA

Not available. Refer to individual constituents.

PERSONAL PROTECTION



EYE

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

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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

Impervious gloves.
Rubber gloves.
Rubber boots.

OTHER

· Overalls.
· Eyewash unit.
· Skin cleansing cream.
Provide adequate ventilation in warehouse or closed storage areas.
General and local exhaust ventilation usually required to maintain airborne dust levels to safety levels.

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.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

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.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Bluish-white, silvery-gray metal; insoluble in hot and cold water;
Malleable, lustrous when freshly cut and tarnishes when exposed to air. Reacts with strong acids like nitric acid, sulphuric or hydrochloric acid. Attacked by water in presence of oxygen. Poor electrical conductor.
Lead fumes are formed at temperatures above 500-700 C.

PHYSICAL PROPERTIES

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

Molecular Weight: 207.19
Melting Range (°C): 327.4
Solubility in water (g/L): Immiscible

Boiling Range (°C): 1740
Specific Gravity (water=1): 11.34
pH (as supplied): Not applicable

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

pH (1% solution): Not applicable.
Volatile Component (%vol): Not applicable.
Relative Vapour Density (air=1): Not applicable
Lower Explosive Limit (%): Not applicable
Autoignition Temp (°C): Not applicable
State: Divided solid

Vapour Pressure (kPa): 0.24 @ 1000 C
Evaporation Rate: Not applicable
Flash Point (°C): Non flammable
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.
Hazardous polymerisation will not occur.
Stable under normal storage conditions.

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).

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.

CHRONIC HEALTH EFFECTS

On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available

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Section 11 - TOXICOLOGICAL INFORMATION

information, however, there presently exists inadequate data for making a satisfactory assessment.

Principal routes of exposure are usually by accidental ingestion and inhalation.

Symptoms of exposure include headache, fatigue, sleep disturbances, abdominal pains and decreased appetite. Overexposure to lead in the form of dust has toxic effects on the lungs and kidneys and on the nervous system resulting in mental disturbances and anaemia.

Skin absorption is not considered to be a significant route of exposure.

Worker exposure to lead must be kept to a minimum, especially in cases where lead is worked at temperatures whereby lead vapours are evolved e.g. metal refining.

Lead is an accumulative poison and exposure even to small amounts can raise the body's content to toxic levels. Potential adverse effects on the offspring of pregnant workers have been cited in the literature.

(Source: NIOSHTIC)

TOXICITY AND IRRITATION

TOXICITY

Oral (woman) TDLo: 450 mg/kg/6 years

Inhalation (human) TCLo: 0.01 mg/m³

WARNING: Lead is a cumulative poison and has the potential to cause

abortion and intellectual impairment to unborn children of pregnant workers.

IRRITATION

Nil Reported

Section 12 - ECOLOGICAL INFORMATION

Hazardous Air Pollutant: Yes

No data for lead.

Section 13 - DISPOSAL CONSIDERATIONS

Recycle wherever possible.

Consult manufacturer for recycling options.

Consult State Land Waste Management Authority for disposal.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None

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

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Section 15 - REGULATORY INFORMATION

REGULATIONS

lead (CAS: 7439-92-1) is found on the following regulatory lists;
International Agency for Research on Cancer (IARC) Carcinogens
OECD Representative List of High Production Volume (HPV) Chemicals
WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water

Section 16 - OTHER INFORMATION

REPRODUCTIVE HEALTH GUIDELINES

Ingredient	ORG	UF	Endpoint	CR	Adeq TLV
lead	0.01 mg/m3	1000	D	NA	-

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).

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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