LEAD (IV) ACETATE

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
LEAD TETRAACETATE

OTHER NAMES

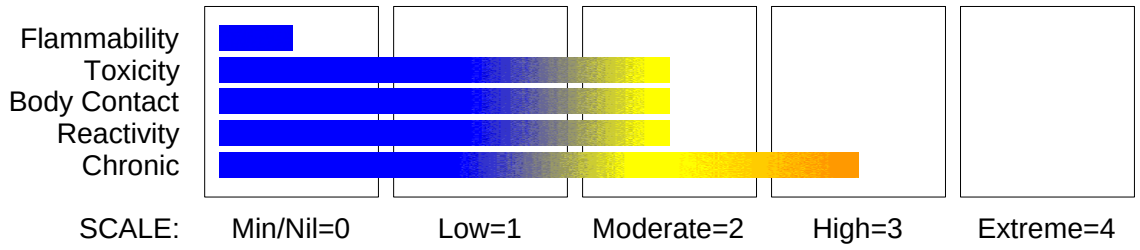
C8-H12-O8-Pb, Pb(CH3COO)4, "lead tetracetate (sic)"

PROPER SHIPPING NAME
OXIDIZING SOLID, TOXIC, N.O.S.

PRODUCT USE
Selective oxidising agent in organic syntheses.

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 (Inhalation) Category 4
Acute Toxicity (Oral) Category 4
Chronic Aquatic Hazard Category 1

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Eye Irritation Category 2A
Organ Damage Category 2
Oxidizing Solid Category 3
Reproductive Toxicity Category 1A
Reproductive Toxicity Category 2
Respiratory Irritation Category 3
Skin Corrosion/Irritation Category 3

EMERGENCY OVERVIEW

HAZARD

DANGER
Determined by using GHS criteria:
H335 H275 H332 H302 H316 H319 H360 H361 H373 H410
May cause respiratory irritation
May intensify fire; oxidizer
Harmful if inhaled
Harmful if swallowed
Causes mild skin irritation
Causes serious eye irritation
May damage the unborn child
Suspected of damaging fertility
May cause damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENTS

Prevention

Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Use only outdoors or in a well ventilated area.
Do not breathe dust/fume/gas/mist/vapours/spray.
Use personal protective equipment as required.
Do not handle until all safety precautions have been read and understood.
Keep away from heat.
Obtain special instructions before use.
Take any precaution to avoid mixing with combustible or incompatible materials.

Response

If exposed or concerned: Get medical attention advice.
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.

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Specific treatment: refer to Label or MSDS.
Get medical advice/attention if you feel unwell.
Call a POISON CENTER or doctor/physician if you feel unwell.
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

Storage

Store away from combustibles and incompatible materials
Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
lead tetraacetate	546-67-8	>98
hydrolyses in water/moisture to give		
lead dioxide	1309-60-0	
acetic acid glacial	64-19-7	

Section 4 - FIRST AID MEASURES

SWALLOWED

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

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· 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.
· 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 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.
· 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 ug/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 ug/dL; stop CaNa2EDTA if blood lead decreases below 40 ug/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):

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.

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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.
· May be violently or explosively reactive.
· Wear breathing apparatus plus protective gloves for fire only.
· Prevent, by any means available, spillage from entering drains or water courses.
· Fight fire from a safe distance, with adequate cover.
· Extinguishers should be used only by trained personnel.
· Use water delivered as a fine spray to control fire and cool adjacent area.
· Avoid spraying water onto liquid pools.
· 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.
· If fire gets out of control withdraw personnel and warn against entry.
· Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD
Will not burn but increases intensity of fire.
Decomposition may produce toxic fumes of: nitrogen oxides (NOx).

Personal Protective Equipment
Breathing apparatus.
Chemical splash suit.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS
· Clean up all spills immediately.
· No smoking, naked lights, ignition sources.
· Avoid all contact with any organic matter including fuel, solvents, sawdust, paper or cloth and other incompatible materials, as ignition may result.
· Avoid breathing dust or vapours and all contact with skin and eyes.
· Control personal contact by using protective equipment.
· Contain and absorb spill with dry sand, earth, inert material or vermiculite.
· DO NOT use sawdust as fire may result.
· Scoop up solid residues and seal in labelled drums for disposal.
· Neutralise/decontaminate area.

MAJOR SPILLS
Pollutant - contain spillage.
· Clear area of personnel and move upwind.
· Alert Fire Brigade and tell them location and nature of hazard.
· May be violently or explosively reactive.
· Wear breathing apparatus and protective gloves.

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· Prevent, by any means available, spillage from entering drains or water courses.
· No smoking, flames or ignition sources.
· Increase ventilation.
· Contain spill with sand, earth or other clean, inert materials.
· NEVER USE organic absorbents such as sawdust, paper or cloth.
· Use spark-free and explosion-proof equipment.
· Collect any recoverable product into labelled containers for possible recycling.
· Avoid contamination with organic matter to prevent subsequent fire and explosion.
· DO NOT mix fresh with recovered material.
· Collect residues and seal in labelled drums for disposal.
· Wash area and prevent runoff into drains.
· Decontaminate equipment and launder protective clothing before storage and re-use.
· If contamination of drains or waterways occurs advise emergency services.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

X	X	X	X	X	0

+: 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.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

· Avoid personal contact and inhalation of dust, mist or vapours.
· Provide adequate ventilation.
· Always wear protective equipment and wash off any spillage from clothing.
· Keep material away from light, heat, flammables or combustibles.
· Keep cool, dry and away from incompatible materials.
· Avoid physical damage to containers.
· DO NOT repack or return unused portions to original containers. Withdraw only sufficient amounts for immediate use.
· Contamination can lead to decomposition leading to possible intense heat and fire.
· When handling NEVER smoke, eat or drink.
· Always wash hands with soap and water after handling.
· Use only good occupational work practice.
· Observe manufacturer's storing and handling directions.

SUITABLE CONTAINER

Keep in sored sealed, evacuated ampolues.

STORAGE REQUIREMENTS

· Store in original containers.
· Keep containers securely sealed as supplied.
· Store in a cool, well ventilated area.
· Keep dry.

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· Store under cover and away from sunlight.
· Store away from flammable or combustible materials, debris and waste. Contact may cause fire or violent reaction.
· Store away from incompatible materials and foodstuff containers.
· DO NOT stack on wooden floors or pallets.
· Protect containers from physical damage.
· Check regularly for leaks.
· Observe manufacturer's storage and handling recommendations.
Avoid contact with strong acids, reducing agents, alcohol and water.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

• lead tetraacetate:	CAS:546- 67- 8 CAS:612524- 90- 0
• lead dioxide:	CAS:1309- 60- 0 CAS:60525- 54- 4
• acetic acid glacial:	CAS:64- 19- 7 CAS:77671- 22- 8

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m3)	Revised IDLH Value (ppm)
lead tetraacetate	100	
lead dioxide	100	
acetic acid glacial		50

ODOUR SAFETY FACTOR (OSF)

OSF=21 ("ACETIC ACID, GLACIAL")
Exposed individuals are NOT reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.
Odour Safety Factor (OSF) is determined to fall into either Class C, D or E.
The Odour Safety Factor (OSF) is defined as:
OSF= Exposure Standard (TWA) ppm/ Odour Threshold Value (OTV) ppm
Classification into classes follows:

Class	OSF	Description
A	550	Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV- TWA for example) is being reached, even when distracted by working activities
B	26- 550	As " A" for 50- 90% of persons being distracted
C	1- 26	As " A" for less than 50% of persons being distracted
D	0.18- 1	10- 50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached
E	<0.18	As " D" for less than 10% of persons aware of being tested

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MATERIAL DATA

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. A particular focus was an assessment of pre -natal blood lead (PbB) levels and post-natal cognitive levels. The fact that lead is a cumulative toxicant which can produce subtle, persistent and apparently permanent effects in the off-spring of lead exposed women is of particular concern. A current view holds that the identification of the PbB levels, that are protective during a working lifetime, is a necessary prerequisite in the recommendation of the TLV because PbB values, rather than workplace air lead concentrations, are more clearly related to adverse health effects.
(see Biological Exposure Index - BEI - in "Advice to Doctor".).

INGREDIENT DATA

LEAD DIOXIDE:

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. A particular focus was an assessment of pre -natal blood lead (PbB) levels and post-natal cognitive levels. The fact that lead is a cumulative toxicant which can produce subtle, persistent and apparently permanent effects in the off-spring of lead exposed women is of particular concern. A current view holds that the identification of the PbB levels, that are protective during a working lifetime, is a necessary prerequisite in the recommendation of the TLV because PbB values, rather than workplace air lead concentrations, are more clearly related to adverse health effects.

(see Biological Exposure Index - BEI - in "Advice to Doctor".).

ACETIC ACID GLACIAL:

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. Present day expectations require that nearly every individual should be protected against even minor sensory irritation and exposure standards are established using uncertainty factors or safety factors of 5 to 10 or more. On occasion animal no -observable-effect-levels (NOEL) are used to determine these limits where human results are unavailable. An additional approach, typically used by the TLV committee (USA) in determining respiratory standards for this group of chemicals, has been to assign ceiling values (TLV C) to rapidly acting irritants and to assign short-term exposure limits (TLV STELs) when the weight of evidence from irritation, bioaccumulation and other endpoints combine to warrant such a limit. In contrast the MAK Commission (Germany) uses a five -category system based on intensive odour, local irritation, and elimination half-life. However this system is being replaced to be consistent with the European Union (EU) Scientific Committee for Occupational Exposure Limits (SCOEL); this is more closely allied to that of the USA.

OSHA (USA) concluded that exposure to sensory irritants can:

· cause inflammation
· cause increased susceptibility to other irritants and infectious agents
· lead to permanent injury or dysfunction
· permit greater absorption of hazardous substances and
· acclimate the worker to the irritant warning properties of these substances thus increasing the risk of overexposure.

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Odour Threshold Value: 0.037-0.15 ppm (detection)
NOTE:Detector tubes for acetic acid, measuring in excess of 1 ppm, are commercially available.
Exposure at or below the TLV-TWA and TLV-STEL is thought to protect the worker against conjunctival, nose and respiratory tract irritation.

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
Rubber Gloves.

OTHER
Rubber apron.
Laboratory coat.
Overalls.

RESPIRATOR

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

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances. If risk of overexposure exists, wear 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	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

Colourless crystals; hydrolysed by water Soluble in hot glacial acetic acid, benzene, chloroform, tetrachloroethane, nitrobenzene. Dissolves in concentrated halogen acids with the formation of haloplumbic acids, H_2PbX_6. Unstable in air turning pink.

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PHYSICAL PROPERTIES
Solid.

Molecular Weight: 443.39
Melting Range (°C): 175- 180
Solubility in water (g/L): Reacts
pH (1% solution): < 7
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): Not available.
Specific Gravity (water=1): 2.228
pH (as supplied): Not applicable
Vapour Pressure (kPa): Negligible
Evaporation Rate: Not applicable
Flash Point (°C): None
Upper Explosive Limit (%): Not applicable
Decomposition Temp (°C): Not available

log Kow (Prager 1995): - 0.31
log Kow (Sangster 1997): - 0.17
log Kow: -0.3- -O.17

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
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.
The substance and/or its metabolites may bind to haemoglobin inhibiting normal uptake of oxygen. This condition, known as "methaemoglobinemia", is a form of oxygen starvation (anoxia).

Symptoms include cyanosis (a bluish discolouration skin and mucous membranes) and breathing difficulties. Symptoms may not be evident until several hours after exposure.

At about 15% concentration of blood methaemoglobin there is observable cyanosis of the lips, nose and earlobes. Symptoms may be absent although euphoria, flushed face and headache are commonly experienced. At 25-40%, cyanosis is marked but little disability occurs other than that produced on physical exertion. At 40-60%, symptoms include weakness, dizziness, lightheadedness, increasingly severe headache, ataxia, rapid shallow respiration, drowsiness, nausea, vomiting, confusion, lethargy and stupor. Above 60% symptoms include dyspnea, respiratory depression, tachycardia or bradycardia, and convulsions. Levels exceeding 70% may be fatal.

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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
Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
Limited 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.
Toxic effects may result from skin absorption.

INHALED
Limited evidence exists, or practical experience predicts, that the material produces irritation of the respiratory system in a significant number of individuals following inhalation.
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 establish a causal relationship between human exposure to the material and subsequent developmental toxic effects in the off-spring.
Principal routes of exposure are by accidental skin and eye contact and inhalation of generated dusts.
Excessive exposure to lead can affect the blood, the nervous system, heart, endocrine organs and the immune system and the digestive system. The synthesis of haemoglobin is inhibited and can result in anaemia. If left untreated, neuromuscular dysfunction, possible paralysis and encephalopathy (brain tissue damage) may result. Other symptoms of overexposure include joint and muscle pain, weakness of the extensor muscles (frequently the hand and wrist), headache, dizziness, abdominal pain, diarrhoea, constipation, nausea , vomiting, blue line on the gums, insomnia and metallic taste. High body levels produce cerebrospinal pressure, brain damage with stupor leading to coma and, in some cases, death. Early symptoms of lead poisoning ("plumbism") include anorexia and loss of weight, constipation, apathy or irritability, occasional vomiting, fatigue, headache, weakness, and a metallic taste in the mouth. Advanced poisonings are characterised by intermittent vomiting, irritability, nervousness, myalgia of the arms and legs (often with wrist and foot drop). Severe poisonings may produce persistent vomiting, ataxia, stupor or lethargy , visual disturbances progressing to optic neuritis and atrophy, hyper- tension, papilloedema, cranial nerve paralysis, delirium, convulsions and coma. Neurological effects include mental retardation, seizures, cerebral palsy and marked muscular contractions that distort the spine, limbs, hips and sometimes the cranial inervated muscles (dystonia musculorum deformans). Industrial exposure has been associated with

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irreversible kidney damage.
Lead is a cumulative poison with adverse effects in pregnancy [NIOSHTIC]
Lead salts have been reported to cross the placenta and induce embryo- and foeto -mortality. They also may have a teratogenic effect (causing birth deformities) in certain animal species. Organometallic lead may not produce these effects. Adverse effects of lead on human reproduction, embryonic and foetal development and postnatal mental development have also been recorded. Foetal exposure to lead may result in birth defects, mental retardation, behavioural disorders and death during the first year of childhood. Paternal effects may include reduced sex drive, impotence, sterility and adverse effects on the sperm which in turn may increase the potential for increased birth defects. Maternal effects may include miscarriage and stillbirth in exposed women, or women whose husbands might be exposed, sterility or decreased fertility, and abnormal menses. Exposure by both parents to lead may exacerbate the reproductive effects.

TOXICITY AND IRRITATION

None available.
unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances

LEAD DIOXIDE:

TOXICITY	IRRITATION
Intraperitoneal(guinea pig)LD50:220 mg/kg	Nil Reported

ACETIC ACID GLACIAL:

TOXICITY	IRRITATION
Oral (human) TDLo: 1.47 mg/kg	Skin (human):50mg/24hr - Mild
Unreport (man) LDLo: 308 mg/kg	Skin (rabbit):525mg (open)- SEVERE
Oral (rat) LD50: 3310 mg/kg	Eye (rabbit): 0.05mg (open)- SEVERE
Inhalation (human) TCLo: 816 ppm/3 min	
Inhalation (rat) LCLo: 16000 ppm/4 hr	
Dermal (rabbit) LD50: 1060 mg/kg	

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

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Section 12 - ECOLOGICAL INFORMATION

Marine Pollutant:Not Determined
No data for lead tetraacetate.
Refer to data for ingredients, which follows:

ACETIC ACID GLACIAL:

Fish LC50 (96hr.) (mg/l):	88, 92
Daphnia magna EC50 (48hr.) (mg/l):	32
Algae IC50 (72hr.) (mg/l):	90
log Kow (Prager 1995):	- 0.31
log Kow (Sangster 1997):	- 0.17
log Pow (Verschueren 1983):	1.8E+0

Prevent, by any means available, spillage from entering drains or water courses.
DO NOT discharge into sewer or waterways.
log Kow: -0.3- -O.17
Half-life (hr) air: 641
Henry's atm m^3 /mol: 1.00E-09
BOD 5 if unstated: 0.34-0.88,36%
BCF: <1
Toxicity Fish: LC50 (96h) 75-88 mg/l
Toxicity invertebrate: cell mult. inhib. 78-4000mg/L
Bioaccumulation: not sig
Degradation Biological: readily degrad
processes Abiotic: Rxn OH*,hydrol
Acetic acid is degraded photochemically in the atmosphere to produce hydroxyl radicals (estimated typical half-life of 22 days).
Physical removal of acetates on atmospheric particulates may occur via wet or dry deposition.
Natural water will neutralise dilute solutions of acetic acid.
Spills of acetic acid on soil will readily biodegrade.
Acetic acid is not expected to bioconcentrate in the aquatic system.
Low concentrations of acetic acid are harmful to fish.
Drinking water standards: none available.
Soil Guidelines: none available.
Air Quality Standards: none available.

Section 13 - DISPOSAL CONSIDERATIONS

· Recycle wherever possible. Special hazards may exist - specialist advice may be required.
· Consult manufacturer for recycling options.
· Consult State Land Waste Management Authority for disposal.
· Incinerate residue at an approved site.
· Decontaminate empty containers.
· Observe all label safeguards until containers are cleaned and destroyed.
· Puncture containers to prevent reuse and bury at an authorised land fill.
For small quantities; dissolve the material in 1. water; 2. acid solution; or 3. oxidise to a water soluble state. Precipitate as a sulfide adjusting the pH to neutral to complete precipitaion. Filter and dispose of solids.

continued...

Section 13 - DISPOSAL CONSIDERATIONS

Destroy excess sulfide with sodium hypochlorite, neutralise and dipose to sewer (local regulation permitting)

Section 14 - TRANSPORTATION INFORMATION

Labels Required: OXIDIZING AGENT,TOXIC
HAZCHEM: 2W

UNDG:

Dangerous Goods Class:	5.1	Subrisk:	6.1
UN Number:	3087	Packing Group:	III

Shipping Name:OXIDIZING SOLID, TOXIC, N.O.S.

Air Transport IATA:

ICAO/IATA Class:	5.1	ICAO/IATA Subrisk:	6.1
UN/ID Number:	3087	Packing Group:	III
ERG Code:	5P		

Shipping name:OXIDIZING SOLID, TOXIC, N.O.S.

Maritime Transport IMDG:

IMDG Class:	5.1	IMDG Subrisk:	6.1
UN Number:	3087	Packing Group:	III
EMS Number:	F- A, S- Q	Marine Pollutant:	Not Determined

Shipping name:OXIDIZING SOLID, TOXIC, N.O.S.

Section 15 - REGULATORY INFORMATION

REGULATIONS

lead tetraacetate (CAS: 546-67-8) is found on the following regulatory lists;
International Agency for Research on Cancer (IARC) Carcinogens
OSPAR List of Chemicals for Priority Action

No data available for lead tetraacetate as CAS: 612524-90-0.

Section 16 - OTHER INFORMATION

continued...

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
lead tetraacetate	546- 67- 8, 612524- 90- 0
lead dioxide	1309- 60- 0, 60525- 54- 4
acetic acid glacial	64- 19- 7, 77671- 22- 8

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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