LEAD ACETATE

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

<table>
<thead>
<tr>
<th>Product name</th>
<th>LEAD ACETATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Name</td>
<td>lead acetate</td>
</tr>
<tr>
<td>Chemical English Name</td>
<td>lead acetate</td>
</tr>
<tr>
<td>Synonyms</td>
<td>(CH3COO)2Pb.3H2O, 61825042 LEAD ACETATE 10%, C4-H6-O4-Pb.3H2O, LEAD ACETATE TRiHYDRATE, LEAD DIAcETATE, Lead Acetate, Lead Acetate 5%, Lead Acetate Solution, Lead Acetate, TS, Lead(II) acetate trihydrate, Suger of lead, acetic acid, lead (+2) salt trihydrate, lead acetate (II), trihydrate, lead acetate trihydrate, lead diacetate trihydrate, lead(II) acetate 3-hydrate AnalR, lead(II) acetate trihydrate, lead(II) acetate, UNILAB, lead(II) acetate, UNIVAR, plumbous acetate, sugar of Lead</td>
</tr>
<tr>
<td>Proper shipping name</td>
<td>LEAD ACETATE</td>
</tr>
<tr>
<td>Chemical formula</td>
<td>C4H6O4Pb73H2O</td>
</tr>
<tr>
<td>Other means of identification</td>
<td>Not Available</td>
</tr>
<tr>
<td>CAS number</td>
<td>6080-56-4</td>
</tr>
</tbody>
</table>

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses
- Dyeing of textiles, waterproofing, varnishes, lead driers, chrome pigments, gold cyanidation process, insecticide, analytical reagent, hair dye. Manufacture of lead salts. Used in various analytical procedures eg. detection of sulphide, determination of CrO3, MoO3. Astringent and sedative (usually in lotions) for bruises and superficial inflammation.

Details of the manufacturer/importer

| Registered company name | ANPEL Laboratory Technologies (Shanghai) Inc. |
| Address                | No.260 Pu Ting Road, Song Jiang District, Shanghai China |
| Telephone              | 021-54890099 |
| Fax                    | 021-54248311 |
| Website                | www.anpel.com.cn |
| Email                  | shanpel@anpel.com.cn |

Emergency telephone number

| Association / Organisation | Not Available |
| Emergency telephone numbers | 021-57818692 |
| Other emergency telephone numbers | 021-57818692 |

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

<table>
<thead>
<tr>
<th>SUMMARY OF HAZARD IN AN EMERGENCY SITUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid.</td>
</tr>
<tr>
<td>Mixes with water. Combustible.</td>
</tr>
<tr>
<td>Harmful by inhalation and if swallowed.</td>
</tr>
<tr>
<td>Harmful: danger of serious damage to heath by prolonged exposure through inhalation, in contact with skin and if swallowed.</td>
</tr>
<tr>
<td>Danger of cumulative effects.</td>
</tr>
<tr>
<td>Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.</td>
</tr>
<tr>
<td>May cause harm to the unborn child.</td>
</tr>
<tr>
<td>Possible risk of impaired fertility.</td>
</tr>
<tr>
<td>Very toxic to aquatic organisms.</td>
</tr>
<tr>
<td>May cause long-term adverse effects in the aquatic environment. Use appropriate container to avoid environmental contamination.</td>
</tr>
<tr>
<td>Avoid release to the environment. Refer to special instructions/Safety data sheets.</td>
</tr>
</tbody>
</table>
**GHS Classification**

Acute Toxicity (Oral) Category 4, Acute Toxicity (Inhalation) Category 4, Reproductive Toxicity Category 1A, STOT - RE Category 2, Acute Aquatic Hazard Category 1, Chronic Aquatic Hazard Category 1

**Label elements**

GHS label elements

**SIGNAL WORD**

DANGER

**Hazard statement(s)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>H302</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>H332</td>
<td>Harmful if inhaled</td>
</tr>
<tr>
<td>H360</td>
<td>May damage fertility or the unborn child</td>
</tr>
<tr>
<td>H373</td>
<td>May cause damage to organs through prolonged or repeated exposure</td>
</tr>
<tr>
<td>H400</td>
<td>Very toxic to aquatic life</td>
</tr>
<tr>
<td>H410</td>
<td>Very toxic to aquatic life with long lasting effects</td>
</tr>
</tbody>
</table>

**Precautionary statement(s) Prevention**

<table>
<thead>
<tr>
<th>Code</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>P201</td>
<td>Obtain special instructions before use.</td>
</tr>
<tr>
<td>P260</td>
<td>Do not breathe dust/fumes/gas/mist/vapours/spray.</td>
</tr>
<tr>
<td>P271</td>
<td>Use only outdoors or in a well-ventilated area.</td>
</tr>
<tr>
<td>P280</td>
<td>Wear protective gloves/protective clothing/eye protection/face protection.</td>
</tr>
<tr>
<td>P270</td>
<td>Do not eat, drink or smoke when using this product.</td>
</tr>
<tr>
<td>P273</td>
<td>Avoid release to the environment.</td>
</tr>
</tbody>
</table>

**Precautionary statement(s) Response**

<table>
<thead>
<tr>
<th>Code</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>P308+P313</td>
<td>IF exposed or concerned: Get medical advice/attention.</td>
</tr>
<tr>
<td>P314</td>
<td>Get medical advice/attention if you feel unwell.</td>
</tr>
<tr>
<td>P391</td>
<td>Collect spillage.</td>
</tr>
<tr>
<td>P301+P312</td>
<td>IF SWALLOWED: Call a POISON CENTER/doctor/physician/first aider/ if you feel unwell.</td>
</tr>
<tr>
<td>P304+P340</td>
<td>IF INHALED: Remove person to fresh air and keep comfortable for breathing.</td>
</tr>
<tr>
<td>P330</td>
<td>Rinse mouth.</td>
</tr>
</tbody>
</table>

**Precautionary statement(s) Storage**

<table>
<thead>
<tr>
<th>Code</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>P405</td>
<td>Store locked up.</td>
</tr>
</tbody>
</table>

**Precautionary statement(s) Disposal**

<table>
<thead>
<tr>
<th>Code</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>P501</td>
<td>Dispose of contents/container to authorised chemical landfill or if organic to high temperature incineration</td>
</tr>
</tbody>
</table>

**Physical and Chemical Hazard**

<table>
<thead>
<tr>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid. Mixes with water. Combustible.</td>
</tr>
<tr>
<td>Toxic smoke/fumes in a fire.</td>
</tr>
</tbody>
</table>

**Health Hazards**

**Inhaled**

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

**Ingestion**

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

#### Eye

- Repeated or long-term occupational exposure is likely to produce cumulative health effects involving organs or biochemical systems.
- Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.
- Serious damage (clear functional disturbance or morphological change which may have toxicological significance) is likely to be caused by repeated or prolonged exposure. As a rule the material produces, or contains a substance which produces severe lesions. Such damage may become apparent following direct application in subchronic (90 day) toxicity studies or following sub-acute (28 day) or chronic (two-year) toxicity tests.
- There is sufficient evidence to establish a causal relationship between human exposure to the material and subsequent developmental toxic effects in the offspring.
- Exposure to the material may cause concerns for human fertility, generally on the basis that results in animal studies provide sufficient evidence to cause a strong suspicion of impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects, but which are not a secondary non-specific consequence of other toxic effects.
- 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 excess exposure include joint and muscle pain, weakness of the extremities (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, fatique, 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 innervated muscles (dystonia musculorum deformans). Industrial exposure has been associated with irreversible kidney damage.
- Lead is a cumulative poison with adverse effects in pregnancy [NIOSHIC]
- 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.
- The metabolism of lead in humans fits into a three compartment model. The first compartment in which lead has a half-life of about 35 days includes the blood; it receives lead from the gut and delivers it to the urine and the other compartments. The second compartment, in which lead has a similar half-life, includes the soft tissues which contain about half the level found in blood; the soft tissues share Lead with the hair, nails, sweat, saliva, bile and other digestive secretions. The skeleton is the third compartment and contains the vast bulk of the total body burden, has a very long half-life and demonstrates a difference in the ability of the dense and less dense components to accumulate Lead.

#### Environmental Hazards

- Very toxic to aquatic organisms.
- May cause long-term adverse effects in the aquatic environment. Use appropriate container to avoid environmental contamination.
- Avoid release to the environment. Refer to special instructions/Safety data sheets.

#### SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substances</th>
<th>%[weight]</th>
<th>Name</th>
<th>GHS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>6080-56-4</td>
<td>&gt;99</td>
<td>Lead acetate</td>
<td>Acute Toxicity (Oral) Category 4, Acute Toxicity (Inhalation) Category 4, Reproductive Toxicity Category 1A, STOT - RE Category 2, Acute Aquatic Hazard Category 1, Chronic Aquatic Hazard Category 1: H302, H332, H360, H373, H400, H410[1]</td>
</tr>
</tbody>
</table>

**Legend:**

#### Mixtures

#### SECTION 4 FIRST AID MEASURES

**Description of first aid measures**

**Eye Contact**

- 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.
  - Seek medical attention without delay; if pain persists or recur seek medical attention.
  - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact

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

Inhalation

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

Ingestion

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

Advise for rescue team (PPE requirement for rescue personnel)

- 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.
- Vacuum up or sweep up. NOTE: Vacuum cleaner must be fitted with an exhaust micro filter (HEP A type) (consider explosion-proof machines designed to be grounded during storage and use).
- Dampen with water to prevent dusting before sweeping.
- Place in suitable containers for disposal.

Indication of any immediate medical attention and special treatment 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.
- Neuroaesthetic 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-dimercaptopropanesulfonic acid (DMPS) and dimercapto succinic 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 20 ug/dL.

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):

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

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

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

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

Special hazards arising from the substrate or mixture

Fire Incompatibility

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

Advice for firefighters

Fire Fighting

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

Combustible.
Slight fire hazard when exposed to heat or flame.
Heating may cause expansion or decomposition leading to violent rupture of containers.
On combustion, may emit toxic fumes of carbon monoxide (CO).
May emit acrid smoke. May emit corrosive fumes.
Combustion products include:
- carbon monoxide (CO)
- carbon dioxide (CO2)
- metal oxides
- other pyrolysis products typical of burning organic material
May emit poisonous fumes.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

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.
- Vacuum up or sweep up. NOTE: Vacuum cleaner must be fitted with an exhaust micro filter (HEPA type) (consider explosion-proof machines designed to be grounded during storage and use).
- Dampen with water to prevent dusting before sweeping.
- Place in suitable containers for disposal.

Major Spills
- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses.
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Water spray or fog may be used to disperse / absorb vapour.
- Contain or absorb spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- If contamination of drains or waterways occurs, advise emergency services.

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

Measures for Preventing Secondary Contamination
- Refer to section above

Environmental precautions
- See section 12

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storage and handling recommendations contained within this MSDS.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.
- Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions).
- Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame.
- Establish good housekeeping practices.
- Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds.
- Use continuous suction at points of dust generation to capture and minimise the accumulation of dusts. Particular attention should be given to overhead and hidden horizontal surfaces to minimise the probability of a "secondary" explosion. According to NFPA Standard 654, dust layers 1/32 in. (0.8 mm) thick can be sufficient to warrant immediate cleaning of the area.
- Do not use air hoses for cleaning.
- Minimise dry sweeping to avoid generation of dust clouds. Vacuum dust-accumulating surfaces and remove to a chemical disposal area.

Continued...
Vacuums with explosion-proof motors should be used.

Control sources of static electricity. Dusts or their packages may accumulate static charges, and static discharge can be a source of ignition.

Solids handling systems must be designed in accordance with applicable standards (e.g. NFPA including 654 and 77) and other national guidance.

Do not empty directly into flammable solvents or in the presence of flammable vapors.

The operator, the packaging container and all equipment must be grounded with electrical bonding and grounding systems. Plastic bags and plastics cannot be grounded, and antistatic bags do not completely protect against development of static charges.

Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.

Do NOT cut, drill, grind or weld such containers.

In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.

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

(May decompose on exposure to light).

**Conditions for safe storage, including any incompatibilities**

- Glass container is suitable for laboratory quantities
- Lined metal can, lined metal pail/ can.
- Plastic pail.
- Polyliner drum.
- Packing as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

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.

For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.):
- Removable head packaging;
- Cans with friction closures and
- low pressure tubes and cartridges may be used.

Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages *.

- In addition, where inner packagings are glass and contain liquids of packing group I and II there must be sufficient inert absorbent to absorb any spillage *.

* unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.

**Suitable container**

Avoid reaction with oxidising agents

Avoid reaction with soluble sulfates, citrates, tartrates, chlorides, carbonates, alkalies, tannin, phosphates, resorcinol, salicylic acid, phenol, chloral hydrate, sulfites, vegetable infusions, tintucrens, and potassium bromate

---

**SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Control parameters**

- OCCUPATIONAL EXPOSURE LIMITS (OEL)
- INGREDIENT DATA

Not Available

**EMERGENCY LIMITS**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>TEEL-0</th>
<th>TEEL-1</th>
<th>TEEL-2</th>
<th>TEEL-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>lead acetate</td>
<td>7.4 mg/m³</td>
<td>82 mg/m³</td>
<td>920 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Original IDLH</th>
<th>Revised IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>lead acetate</td>
<td>700 mg/m³</td>
<td>100 mg/m³</td>
</tr>
</tbody>
</table>

**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").

**Exposure controls**

- **Appropriate 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. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use. Employers may need to use multiple types of controls to prevent employee overexposure.

- 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;
- fresh-air hoods or masks
- Build-up of electrostatic charge on the dust particle, may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.

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

### Table: Air Speed and Contaminant Type

<table>
<thead>
<tr>
<th>Type of Contaminant</th>
<th>Air Speed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>direct spray, spray painting in shallow booths, drum filling, conveying, crushing dusts, gas discharge (active generation into zone of rapid air motion)</td>
<td>1-2.5 m/s (200-500 f/min.)</td>
</tr>
<tr>
<td>grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion)</td>
<td>2.5-10 m/s (500-2000 f/min.)</td>
</tr>
</tbody>
</table>

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.

### Personal protection

- 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 lenses 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. Lenses 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]

### Eye and face protection

- Chemical goggles.
- Safety glasses with side shields
- Safety goggles

### Skin protection

See Hand protection below

### Hands/feet protection

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

The selection of 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:

- Frequency and duration of contact,
- Chemical resistance of glove material,
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.
- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

### Body protection

See Other protection below

### Other protection

- Overalls.
- Eyewash unit.
- Barrier cream.
- Skin cleansing cream.
Thermal hazards
Not Available

Recommended material(s)

GLOVE SELECTION INDEX

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

LEAD ACETATE Not Available

<table>
<thead>
<tr>
<th>Material</th>
<th>CPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>* CPI - Chemwatch Performance Index</td>
<td></td>
</tr>
<tr>
<td>A: Best Selection</td>
<td></td>
</tr>
<tr>
<td>B: Satisfactory, may degrade after 4 hours continuous immersion</td>
<td></td>
</tr>
<tr>
<td>C: Poor to Dangerous Choice for other than short term immersion</td>
<td></td>
</tr>
</tbody>
</table>

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

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

Respiratory protection

Particulate. (AS/NZS 1716 & 1715, EN 143:000 & 149:001, ANSI Z88 or national equivalent)

<table>
<thead>
<tr>
<th>Required Minimum Protection Factor</th>
<th>Half-Face Respirator</th>
<th>Full-Face Respirator</th>
<th>Powered Air Respirator</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 10 x ES</td>
<td>P1</td>
<td>-</td>
<td>PAPR-P1</td>
</tr>
<tr>
<td>up to 50 x ES</td>
<td>Air-line*</td>
<td>P2</td>
<td>PAPR-P2</td>
</tr>
<tr>
<td>up to 100 x ES</td>
<td>-</td>
<td>P3</td>
<td>-</td>
</tr>
<tr>
<td>100+ x ES</td>
<td>-</td>
<td>Air-line*</td>
<td>-</td>
</tr>
</tbody>
</table>

* - Negative pressure demand  ** - Continuous flow

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>White-Grey or colourless crystals/powder. Slight acetic acid odour. Slowly effloresces. Takes up carbon dioxide from the air and becomes incompletely soluble. Soluble in water, slightly soluble in alcohol, freely soluble in glycerol. Aqueous solutions of lead acetate dissolve lead monoxide.</td>
</tr>
<tr>
<td>Physical state</td>
<td>Divided Solid</td>
</tr>
<tr>
<td>Odour</td>
<td>Not Available</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not Available</td>
</tr>
<tr>
<td>pH (as supplied)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>-H2O, 75</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>200 (Decomposes)</td>
</tr>
<tr>
<td>Flash point (°C)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flammability</td>
<td>Not Available</td>
</tr>
<tr>
<td>Upper Explosive Limit (%)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Lower Explosive Limit (%)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Vapour pressure (kPa)</td>
<td>Negligible</td>
</tr>
<tr>
<td>Solubility in water (g/L)</td>
<td>Miscible</td>
</tr>
<tr>
<td>Vapour density (Air = 1)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Molecular weight (g/mol)</td>
<td>379.35</td>
</tr>
<tr>
<td>Relative density (Water = 1)</td>
<td>2.55</td>
</tr>
<tr>
<td>Partition coefficient n-octanol / water</td>
<td>Not Available</td>
</tr>
<tr>
<td>Auto-ignition temperature (°C)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not Available</td>
</tr>
<tr>
<td>Viscosity (cSt)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not Available</td>
</tr>
<tr>
<td>Surface Tension (dyn/cm or mN/m)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Volatile Component (%vol)</td>
<td>Negligible</td>
</tr>
<tr>
<td>Gas group</td>
<td>Not Available</td>
</tr>
<tr>
<td>pH as a solution(1%)</td>
<td>Not Available</td>
</tr>
<tr>
<td>VOC g/L</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

SECTION 10 STABILITY AND REACTIVITY

Reactivity
See section 7

Chemical stability
- Unstable in the presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Possibility of hazardous reactions
See section 7

Conditions to avoid
See section 7

Incompatible materials
See section 7

Hazardous decomposition products
See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

lead acetate

<table>
<thead>
<tr>
<th>TOXICITY</th>
<th>IRRITATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intraperitoneal (mouse) LD50: 174 mg/kg</td>
<td>NI reported</td>
</tr>
<tr>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

Continued...
**LEAD ACETATE**

Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen

[National Toxicology Program: U.S. Dep. of Health & Human Services 2002]

---

**CMR STATUS**

Not Applicable

---

### SECTION 12 ECOLOGICAL INFORMATION

#### Toxicity

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Endpoint</th>
<th>Test Duration</th>
<th>Effect</th>
<th>Value</th>
<th>Species</th>
<th>BCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>lead acetate</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Lead is primarily an atmospheric pollutant that enters soil and water as fallout, a process determined by physical form and particle size. Lead in the form of alkyls has been introduced to the environment primarily from leaded petrol. These are converted to water-soluble lead compounds of high toxicity and availability to plants. Such compounds easily leach from soil to contaminate water sources close to highways. Lead that has entered the aquatic system from run-off or as fallout of insoluble precipitates is found in sediments. The biological methylation of inorganic lead by lake sediment micro-organisms has been demonstrated although its significance is not entirely clear. Other forms of soluble or insoluble lead may also enter the environment and undergo bioaccumulation through a series of biological incidents.

Acetic acid and its salts (the acetates) can be grouped together because of their close structural relationships, their natural occurrence in plants and animals, and their fundamental role in cell metabolism, particularly in the tricarboxylic acid cycle (also known as the citric acid or Kreb’s cycle), which is where humans get their energy.

- 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 - the biodegradation rate for acetic acid after 14 days under aerobic conditions is 74 days.
- In invertebrates the toxicity of acetic acid (EC50 = 50-450 mg/L, depending on test species) -under static conditions, the 48 hour EC50 value for acetic acid is 65 mg/L for aquatic invertebrates (the test media was not neutralised). When the test solutions are neutralised, to form acetates, the static 48 hour EC50 for acetic acid is 6000 mg/L. In renewal systems with aquatic invertebrates, 48 hour EC50s for acetic acid are 100 mg/L and 180 mg/L.
- Fish LC50 (96 h): 75-88 mg/L.
- 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.

DO NOT discharge into sewer or waterways.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

#### Persistence and degradability

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Persistence: Water/Soil</th>
<th>Persistence: Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td>No Data available for all ingredients</td>
<td>No Data available for all ingredients</td>
</tr>
</tbody>
</table>

#### Bioaccumulative potential

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Bioaccumulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td>No Data available for all ingredients</td>
</tr>
</tbody>
</table>

#### Mobility in soil

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td>No Data available for all ingredients</td>
</tr>
</tbody>
</table>
SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

- Containers may still present a chemical hazard/danger when empty.
- Return to supplier for reuse/recycling if possible.
- Otherwise:
  - If container cannot 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. In some areas, certain wastes must be tracked. A Hierarchy of Controls seems to be common - the user should investigate:
  - Reduction
  - Reuse
  - Recycling
  - Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. In most instances the supplier of the material should be consulted.

- 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.

SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant

Land transport (UN)

- UN number: 1616
- Packing group: III
- UN proper shipping name: LEAD ACETATE
- Environmental hazard: No relevant data
- Transport hazard class(es):
  - Class: 6.1
  - Subrisk: Not Applicable
- Special precautions for user:
  - Special provisions: Not Applicable
  - Limited quantity: 5 kg

Air transport (ICAO-IATA / DGR)

- UN number: 1616
- Packing group: III
- UN proper shipping name: Lead acetate
- Environmental hazard: No relevant data
- Transport hazard class(es):
  - ICAO/IATA Class: 6.1
  - ICAO / IATA Subrisk: Not Applicable
  - ERG Code: 6L
- Special precautions for user:
  - Cargo Only Packing Instructions: 677
  - Cargo Only Maximum Qty / Pack: 200 kg
  - Passenger and Cargo Packing Instructions: 670

Continued...
LEAD ACETATE

Sea transport (IMDG-Code / GGVS) See

- **UN number**: 1616
- **Packing group**: III
- **UN proper shipping name**: LEAD ACETATE
- **Environmental hazard**: No relevant data
- **Transport hazard class(es)**: IMDG Class 6.1
  - IMDG Subrisk: P
- **Special precautions for user**: EMS Number: F-A, S-A
  - Special provisions: Not Applicable
  - Limited Quantities: 5 kg

Inland waterways transport (ADNR / River Rhine): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

- **UN number**: Not Available
- **Packing group**: Not Available
- **UN proper shipping name**: Not Available
- **Environmental hazard**: No relevant data
- **Transport hazard class(es)**: Not Available

**Precautions for Transport**

- Transportation precautions:
  - Documentation covering all dangerous goods carried on the vehicle
  - The transport unit must be placarded and marked in accordance with relevant transporting requirements.
  - Personal protective equipment must be in sufficient quantities and suitable for use by the driver of the vehicle and where required for escape purposes, any other persons travelling in the vehicle.
  - Toxic substances can have subsidiary risks of Class 3, 4, 5 or 8, and dangerous goods of Classes 1, 3, 4, 5, and 8 can have a subsidiary risk of Class 6.1. The hazards associated with subsidiary risks must be taken into account.
  - Likely to be incompatible however refer to SDS for further details:
    - Class 2.1, 3, 4.1, 4.2, 4.3
  - Incompatible for transport with foodstuffs (including stock feed).
  - If applicable, use appropriate types of segregation devices to isolate incompatible dangerous goods:
  - Routes for road vehicles should avoid heavily populated or environmentally sensitive areas, congested crossings or a concentration of people
  - Vehicle exhaust or hot engine components must be shielded to ensure cargo temperatures cannot be raised.

**Suitable Containers**

See section 7

**SECTION 15 REGULATORY INFORMATION**

Safety, health and environmental regulations / legislation specific for the substance or mixture

- lead acetate (6080-56-4) is found on the following regulatory lists
  - “China Inventory of Existing Chemical Substances”, “China List of Dangerous Goods (GB 12268-2005) (Chinese)”

**SECTION 16 OTHER INFORMATION**

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net/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. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

**Definitions and abbreviations**

- **PC - TWA**: Permissible Concentration-Time Weighted Average
- **PC - STEL**: Permissible Concentration-Short Term Exposure Limit

Continued...
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit,
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL: No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

Disclaimer
The information in the SDS applies only for the specified product and does not include mixtures of this product with other substances and mixtures. The SDS provides product safety information for personnel trained to use this product only.

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