SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

- **Product name**: Lead(II) perchlorate trihydrate
- **Product Number**: 383066
- **Brand**: SIGALD
- **Index-No.**: 082-001-00-6
- **CAS-No.**: 13453-62-8

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

- **Identified uses**: Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

- **Company**: Sigma-Aldrich Inc.
  3050 SPRUCE ST
  ST. LOUIS MO  63103
  UNITED STATES
- **Telephone**: +1 314 771-5765
- **Fax**: +1 800 325-5052

1.4 Emergency telephone

- **Emergency Phone #**: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

- Oxidizing solids (Category 2), H272
- Acute toxicity, Oral (Category 4), H302
- Acute toxicity, Inhalation (Category 4), H332
- Carcinogenicity (Category 1B), H350
- Reproductive toxicity (Category 1A), H360
- Specific target organ toxicity - repeated exposure (Category 2), H373
- Short-term (acute) aquatic hazard (Category 1), H400
- Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements
The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada.
For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Consult a physician. Show this material safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Dry powder Dry sand

5.2 Special hazards arising from the substance or mixture
Hydrogen chloride gas
Lead oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.
5.4  **Further information**
Use water spray to cool unopened containers.

---

**SECTION 6: Accidental release measures**

**6.1  Personal precautions, protective equipment and emergency procedures**
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

**6.2  Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**6.3  Methods and materials for containment and cleaning up**
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

**6.4  Reference to other sections**
For disposal see section 13.

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**SECTION 7: Handling and storage**

**7.1  Precautions for safe handling**

**Advice on safe handling**
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. **Advice on safe handling**
Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

**Advice on protection against fire and explosion**
Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition.

**Hygiene measures**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
For precautions see section 2.2.

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

**Storage conditions**
Keep container tightly closed in a dry and well-ventilated place.

**Storage class**
Storage class (TRGS 510): 5.1A: Strongly oxidizing hazardous materials

**7.3  Specific end use(s)**
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.
SECTION 8: Exposure controls/personal protection

8.1 Control parameters

**Ingredients with workplace control parameters**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead diperchlorate trihydrate</td>
<td>13453-62-8</td>
<td>TWA</td>
<td>0.05 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remarks</td>
<td></td>
<td>Confirmed animal carcinogen with unknown relevance to humans</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PEL</td>
<td>0.05 mg/m³</td>
<td>OSHA Specifically Regulated Chemicals/Carcinogens</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>0.05 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PEL</td>
<td>0.05 mg/m³</td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
</tr>
</tbody>
</table>

**Biological occupational exposure limits**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Parameters</th>
<th>Value</th>
<th>Biological specimen</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead diperchlorate trihydrate</td>
<td>13453-62-8</td>
<td>Lead</td>
<td>200 µg/l</td>
<td>In blood</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8.2 Exposure controls

**Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**Personal protective equipment**

**Eye/face protection**
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Body Protection**
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as
a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a) Appearance</strong></td>
<td>Form: crystalline Color: white</td>
</tr>
<tr>
<td><strong>b) Odor</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>c) Odor Threshold</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>d) pH</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>e) Melting point/freezing point</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>f) Initial boiling point and boiling range</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>g) Flash point</strong></td>
<td>() Not applicable</td>
</tr>
<tr>
<td><strong>h) Evaporation rate</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>i) Flammability (solid, gas)</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>j) Upper/lower flammability or explosive limits</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>k) Vapor pressure</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>l) Vapor density</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>m) Density</strong></td>
<td>2.600 g/cm³</td>
</tr>
<tr>
<td><strong>n) Water solubility</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>o) Partition coefficient: n-octanol/water</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>p) Autoignition temperature</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>q) Decomposition temperature</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>r) Viscosity</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>s) Explosive properties</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>t) Oxidizing properties</strong></td>
<td>The substance or mixture is classified as oxidizing with the category 2.</td>
</tr>
</tbody>
</table>

#### 9.2 Other safety information

No data available
SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Organic materials, Powdered metals

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
LD50 Oral - 500.1 mg/kg
LC50 Inhalation - 4 h - 1.5 mg/l
Dermal: No data available
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
IARC: 2A - Group 2A: Probably carcinogenic to humans (Lead di perchlorate trihydrate)
NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

Reproductive toxicity
May cause congenital malformation in the fetus.
Known human reproductive toxicant

Specific target organ toxicity - single exposure
No data available
Specific target organ toxicity - repeated exposure  
May cause damage to organs through prolonged or repeated exposure.  
**Aspiration hazard**  
No data available

### 11.2 Additional Information
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Stomach - Irregularities - Based on Human Evidence**

**Stomach - Irregularities - Based on Human Evidence**

---

**SECTION 12: Ecological information**

#### 12.1 Toxicity
No data available

#### 12.2 Persistence and degradability
Biodegradability  
**Result:**  
- Not readily biodegradable.

#### 12.3 Bioaccumulative potential
No data available

#### 12.4 Mobility in soil
No data available

#### 12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

#### 12.6 Endocrine disrupting properties
No data available

#### 12.7 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life with long lasting effects.

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**SECTION 13: Disposal considerations**

#### 13.1 Waste treatment methods

**Product**  
Offer surplus and non-recyclable solutions to a licensed disposal company. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

DOT (US)
UN number: 1470  Class: 5.1 (6.1)  Packing group: II
Proper shipping name: Lead perchlorate, solid
Reportable Quantity (RQ): 
1) Marine pollutant: yes Poison Inhalation Hazard: No

IMDG
UN number: 1470  Class: 5.1 (6.1)  Packing group: II  EMS-No: F-H, S-Q
Proper shipping name: LEAD PERCHLORATE, SOLID
Marine pollutant : yes
Marine pollutant : yes

IATA
UN number: 1470  Class: 5.1 (6.1)  Packing group: II
Proper shipping name: Lead perchlorate, solid

SECTION 15: Regulatory information

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

SECTION 16: Other information

Further information
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Version: 6.5  Revision Date: 10/07/2021  Print Date: 01/06/2024