GPS Safety Summary

Lead monoxide

Chemical Identity

Name: Lead monoxide
CAS number: 1317-36-8
Molecular formula: OPb

Structure

[IUPAC name: oxolead
BASF brand names: Puristar R9-12 E 315]

For synonyms see end of document

Product Uses

Lead monoxide is mainly used in industrial settings as intermediate and it is applied as adsorbent in the manufacture of other chemicals.

Benefits

BASF’s extensive line of alumina adsorbent products removes contaminants, such as AsH₃, PH₃, COS, and H₂S, from olefin streams. Effluent levels of less than 5 ppbw (parts per billion by weight) in the liquid phase of propylene have been observed. Puristar R9-12 is a high capacity, lead monoxid catalyst for removal of arsine from hydrogen rich cracked gases.
Health Information

Human Health Safety Assessment
Note: The information contained in the table below may be useful to someone handling the concentrated substance such as a manufacturer or transporter. Consumers are not likely to come in contact with the concentrated substance. The data, while verifiable, are not intended to be comprehensive nor replace the data found in the (M)SDS.

<table>
<thead>
<tr>
<th>Effect Assessment</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxicity</td>
<td>Of moderate toxicity after single ingestion and short-term inhalation.</td>
</tr>
<tr>
<td>Irritation</td>
<td>Not irritating to skin and eyes.</td>
</tr>
<tr>
<td>Sensitization</td>
<td>Skin sensitizing effects were not observed in animal studies.</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>Not classified to be mutagenic</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>In long-term animal studies in which the substance was given by inhalation, a carcinogenic effect was not observed.</td>
</tr>
<tr>
<td>Toxicity after repeated exposure</td>
<td>Repeated exposure to large quantities may affect certain organs.</td>
</tr>
<tr>
<td>Toxicity for reproduction</td>
<td>The results of animal studies suggest a fertility impairing effect. The substance caused malformations/developmental toxicity in laboratory animals.</td>
</tr>
</tbody>
</table>

Environmental Information

Environment Safety Assessment
Note: The information in this chapter is intended to provide brief and general information of this substance’s environmental impact. The results in the table below refer to testing performed with the concentrated substance. The data contained in this section explain the relative effect of the concentrated substance on the environment, as defined by certain tests.

<table>
<thead>
<tr>
<th>Effect Assessment</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Toxicity</td>
<td>Acutely very toxic for aquatic organisms. The substance has long lasting adverse effects to aquatic life.</td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>Inorganic substance, therefore biodegradation testing is not applicable.</td>
</tr>
</tbody>
</table>
Bioaccumulation potential

Accumulation is possible.

Physical/Chemical Properties

Phys/Chem Safety Assessment

➢ Lead monoxide is a yellow inorganic powder. It is non-flammable and non-explosive.

Note: The results in the table below refer to testing performed with the concentrated substance. It is not intended to be comprehensive or to replace information found in the (M)SDS.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Melting / freezing point</td>
<td>&gt; 600 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>&gt; 1000 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability</td>
<td>Non-flammable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Non-explosive</td>
</tr>
<tr>
<td>Self-ignition temperature</td>
<td>Not self igniting</td>
</tr>
</tbody>
</table>

Exposure Potential

➢ Workplace exposure: Exposure can occur either in a lead monoxide manufacturing facility or in the various industrial or manufacturing facilities that use lead monoxide. Inhalation exposure should be minimized by use of risk protective equipment (RPE) like particle filters with high efficiency for solid and liquid particles during loading and unloading of the reactor and for cleaning and maintenance operations where exposure to lead monoxide containing dust or powder is possible. Use of air fed RPE is required, if entry to reactors is necessary. Use of protective suit and suitable chemical resistant safety gloves capable of providing protection during prolonged, direct contact are required during loading and unloading of reactors, during cleaning and maintenance and during any other operations where dermal contact is possible. Each manufacturing facility should have a thorough training program for employees and appropriate work processes, as well as safety equipment in place to limit unnecessary exposure. Safety showers and eye-wash stations should be accessible nearby. Workers should follow the recommended safety measures in the extended Safety Data Sheet (eSDS).
Consumer exposure: There is no intended use of lead monoxide in consumer products. Therefore, an exposure for the consumer is negligible.

Environmental exposure: Due to the inorganic nature of the chemical biodegradation is per definition not possible. Lead monoxide is considered to be acutely and chronically very toxic to aquatic life and accumulation of the chemical in organisms via the food chain is possible. In an exposure assessment covering all identified uses it was demonstrated that releases of the substance into the environment are at levels below concentrations that pose an unacceptable risk to aquatic life. Conclusively, all identified uses are safe for the environment based on the scientific facts summarized above and when carried out in compliance with recommended risk management measures and applicable regulations.

Recommended Handling Measures

The recommended safety measures generally apply in contact with the concentrated substance. It is NOT intended to replace the comprehensive guidance found in the (M)SDS, only supplement it. Please refer to the (M)SDS for specific safety and first aid measures.

When using concentrated chemicals always make sure that there is adequate ventilation. Always use appropriate chemical resistant gloves to protect your hands and skin and always wear eye protection such as chemical goggles. Do not eat, drink, or smoke where chemicals are handled, processed, or stored. Wash hands and skin following contact. If the substance gets into your eyes, rinse eyes thoroughly for at least 15 minutes with tap water and seek medical attention. For specific advice please consult the corresponding (Material) Safety Data Sheet of the substance.

All effluent releases that may include the substance must be directed to a (municipal) waste water treatment plant that removes the substance from the final releases to the receiving water.

Regulatory Information / Classification and Labeling

Under GHS substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the (M)SDS. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use.
Note: The hazard statements and symbols presented here refer to the hazard properties of the concentrated substance and are meant to provide a brief overview of the substance’s labeling. It is not intended to be comprehensive or to replace information found in the (M)SDS.

Labeling according to UN GHS
UN GHS is the basis for country specific GHS labeling

Signal word:
Danger

Hazard statements:
H302: Harmful if swallowed.
H332: Harmful if inhaled.
H360: May damage the unborn child. Suspected of damaging fertility.
H373: May cause damage to organs through prolonged or repeated exposure.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.

Additional information

1. IFA GESTIS-database on hazardous substances
   http://www.dguv.de/ifa/en/gestis/stoffdb/index.jsp

2. Information on registered substance (ECHA)

3. BASF Homepage
   http://www.adsorbents.pro/application/olefin_purification.aspx

Most commonly used synonyms
» Lead oxide (PbO)

Disclaimer

This Product Safety Summary is intended to provide a general overview of the chemical substance. It contains basic information and is not intended to provide emergency response information, medical information or treatment information. The summary cannot be relied on to provide in-depth safety and health information. In-depth safety and health information must be obtained from the Material Safety Data Sheet ((M)SDS) for the chemical substance.

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Contact

For further information on this substance or GPS safety summaries in general, please contact: info.gps@basf.com