Chemical Identity

Name: Titanium Trichloride
CAS number: 7705-07-9
Molecular formula: Ti Cl₃

Structure

\[
\begin{array}{c}
\text{Cl}^{-} \\
\text{Cl}^{-} \\
\text{Cl}^{-} \\
\text{Ti}^{2+}
\end{array}
\]

Product Uses

Titanium trichloride is used as an intermediate in industrial settings under strictly controlled and rigorously contained conditions.

Benefits

Titanium trichloride is a component in polyolefin catalysts (Ziegler-Natta). During an activation step the substance is permanently transformed into the catalytically active titanium species.
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>The toxicity of the product is based on its corrosivity. The statement has been derived from products of a similar structure or composition.</td>
</tr>
<tr>
<td>Irritation</td>
<td>Corrosive! Damages skin and eyes. Irritates mucous membranes. The statements have been derived from products of a similar structure or composition.</td>
</tr>
<tr>
<td>Sensitization</td>
<td>Sensitization after skin contact possible. The statement has been derived from products of a similar structure or composition.</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>No mutagenic effect was found in various tests with bacteria and mammalian cell culture. The product has not been fully tested. The statements have been derived in parts from products of a similar structure or composition.</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. The statement has been derived from products of a similar structure or composition.</td>
</tr>
<tr>
<td>Toxicity after repeated exposure</td>
<td>The substance may cause increase in lung mass and lung tissue changes after repeated inhalation. After repeated exposure the prominent effect is local irritation. The statements have been derived from products of a similar structure or composition.</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>With high probability acutely not harmful to aquatic life.</td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>Inorganic product which cannot be eliminated from water by biological purification processes.</td>
</tr>
<tr>
<td>Bioaccumulation potential</td>
<td>Accumulation in organisms is not expected.</td>
</tr>
</tbody>
</table>

Physical/Chemical Properties

Phys/Chem Safety Assessment

- Titanium trichloride is a purple, crystalline solid which is spontaneously flammable in air (pyrophoric) but does not have explosive properties.

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>Decomposition at 440 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Decomposes before boiling</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability</td>
<td>Spontaneously flammable in air (pyrophoric)</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Non explosive</td>
</tr>
<tr>
<td>Self-ignition temperature</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Date of Issue: June 2013
Exposure Potential

- **Workplace exposure:** Titanium trichloride is used as an intermediate in industrial settings under strictly controlled and rigorously contained conditions. Therefore, releases and subsequent worker exposure are unlikely. Nevertheless, workers should follow the recommended safety measures in the extended Safety Data Sheet (eSDS).

- **Consumer exposure:** There is no intended use of titanium trichloride in consumer products. Therefore, a health hazard due to exposure for the consumer is negligible.

- **Environmental exposure:** As described earlier, titanium trichloride is used as an intermediate in chemical syntheses. It is exclusively used in industrial settings and hence releases to the environment are strictly controlled. Though the substance is inorganic and hence not biodegradable, a risk for the environment is considered to be negligible, since no significant releases into the environment are expected. 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:
H250: Catches fire spontaneously if exposed to air.
H314: Causes severe skin burns and eye damage.
H317: May cause an allergic skin reaction.
H330: Fatal if inhaled.
H335: May cause respiratory irritation.

Additional information


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