Global Product Safety Summary  
**tertiary butyl acrylate**

### Chemical Identity

**Name:** tertiary butyl acrylate  
**Synonym:** 2-Propenoic acid, tertiary butyl ester  
**CAS number:** 1663-39-4  
**Molecular formula:** C\textsubscript{7}H\textsubscript{12}O\textsubscript{2}  

**Structure:**

![Structure of tertiary butyl acrylate](image)

**IUPAC name:** tertiary-butyl acrylate  
**BASF brand names:**  
TBA  
tertiary butylacrylate  

For synonyms see end of document

### Product Uses

Acrylate esters, the family of chemicals to which tert-butyl acrylate belongs, are used primarily as reactive building blocks to produce coatings and inks, adhesives, sealants, textiles, and plastics. The acrylate esters typically are present only in trace amounts (as residual monomer) in the finished product. Specifically, tert-butyl acrylate is used in the following applications:

- **Adhesives:** for use in construction and pressure-sensitive adhesives as a co-monomer.
- **Coatings:** monomers used to produce polymers for architectural, decorative, industrial, paper and roof coatings.
- **Leather:** to produce different polymer finishes, particularly nubuck and suede.
- **Plastics:** for the manufacture of a variety of plastics.
- **Fibers:** in the manufacture of fibers of both woven and non-woven textiles as a copolymer. The fibers are in turn used for e.g. the manufacture of textiles.
Tert-butyl acrylate is not sold for direct consumer use, but is used as a raw material to make a variety of goods used by consumers or construction personnel, including those listed above. Tert-butyl acrylate can be present in trace amounts as residual monomer in consumer products, including paints.

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>Moderately toxic in contact with skin or if swallowed. High vapor concentrations could cause serious adverse effects to the lungs which may result in death.</td>
</tr>
<tr>
<td>Oral / inhalation / dermal</td>
<td></td>
</tr>
<tr>
<td>Irritation / corrosion</td>
<td>Contact may cause skin irritation. May cause irritation to upper respiratory tract (nose and throat).</td>
</tr>
<tr>
<td>Skin / eye/ respiratory tract</td>
<td></td>
</tr>
<tr>
<td>Sensitization</td>
<td>May cause an allergic skin reaction.</td>
</tr>
<tr>
<td>Toxicty after repeated exposure</td>
<td>After repeated exposure the predominant effect is local irritation. The substance may cause damage to the olfactory epithelium after repeated inhalation.</td>
</tr>
<tr>
<td>Oral / inhalation / dermal</td>
<td></td>
</tr>
<tr>
<td>Genotoxicity / Mutagenicity</td>
<td>Based on the available test data, not expected to cause genetic effects.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Did not cause cancer in long term animal studies. Data from studies of the structural analogue butyl acrylate.</td>
</tr>
</tbody>
</table>
Toxicity for reproduction

No indications of a reproductive effect were seen in an OECD screening tests. Similar materials did not cause birth defects in laboratory animals. No adverse effects were seen in the fetus at doses that were not toxic to the mother. Similar materials did not cause reproductive effects in laboratory animals. In addition, no effects were seen on reproductive organs in long-term animal studies.

Acrylate esters, including tert-butyl acrylate, have a very strong, unpleasant odor that may be bothersome. However, the smell of acrylates does not necessarily indicate a health hazard.

Like any reactive chemical, tert-butyl acrylate can create hazards if not handled properly. Tert-butyl acrylate is toxic if inhaled or moderately toxic if swallowed and with skin contact. Tert-butyl acrylate causes irritation to skin and the respiratory tract. Repeated skin contact may cause allergic reactions. Animal studies have not indicated that tert-butyl acrylate causes cancer or reproductive toxicity.

Environmental Information

Environmental 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>Toxic for aquatic organisms.</td>
</tr>
<tr>
<td></td>
<td>Toxic to aquatic life with long lasting effects.</td>
</tr>
<tr>
<td>Fate and behavior</td>
<td>Result</td>
</tr>
<tr>
<td>Biodegradation</td>
<td>Moderately biodegradable.</td>
</tr>
<tr>
<td>Bioaccumulation potential</td>
<td>Not expected to bioaccumulate.</td>
</tr>
</tbody>
</table>

Date of Issue: December 2011


**PBT / vPvB conclusion**

Not considered to be either PBT nor vPvB

In contact with water, Tert-butyl acrylate will hydrolyse very slowly, also photodegradation in air will proceed slowly. Tert-butyl acrylate was not biodegradable in a OECD 310 - Screening test. Based on an experimental log Pow and calculated BCF, there is no indication of bioaccumulation potential. Adsorption of tert-butyl acrylate to the solid soil phase is not expected.

Tert-Butyl acrylate is toxic to aquatic organisms (fish, algae, invertebrates).

**Physical/Chemical Properties**

**Phys/Chem Safety Assessment**

Tert.-butyl acrylate is a colorless volatile liquid (evaporates easily) with an ester-, fruit- like odor.

*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>Liquid (at room temperature)</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>fruit-like</td>
</tr>
<tr>
<td>Density</td>
<td>0.87 g/cm³ @ 20°C</td>
</tr>
<tr>
<td>Melting / boiling point</td>
<td>-69°C / 119.2 °C @ atmospheric pressure</td>
</tr>
<tr>
<td>Flammability</td>
<td>Highly flammable upon ignition. The substance has no pyrophoric properties and does not liberate flammable gases on contact with water.</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Non-explosive</td>
</tr>
<tr>
<td>Self-ignition temperature</td>
<td>400 °C</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>20 hPa @ 23.4°C</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>128.169</td>
</tr>
<tr>
<td>Water solubility</td>
<td>approx. 2 g/L @ 20°C</td>
</tr>
<tr>
<td>Flash point</td>
<td>14 °C (cc)</td>
</tr>
<tr>
<td>Octanol-water partition coefficient (LogKow)</td>
<td>2.32 @ 25°C</td>
</tr>
</tbody>
</table>
Exposure Potential

Tert.-butyl acrylate is used in the production of industrial and consumer products.

Workplace exposure
Exposure can occur either in a tert-butyl acrylate manufacturing facility or in the various industrial or manufacturing facilities that use tert-butyl acrylate. It is produced, distributed, stored and reacted in closed systems. Those working with tert-butyl acrylate in manufacturing operations could be exposed during maintenance, sampling, testing, manual transfer, or other procedures. Workplace exposure is controlled by the use of proper industrial handling procedures and safety equipment.

Consumer exposure
Tert-butyl acrylate is not sold for direct consumer use, but it is used as a raw material to make a variety of goods used by consumers or construction personnel and could be present in trace amounts as residual monomer in consumer products, including paints.

Environmental Exposure
Potential releases into the environment are limited and for the most part occur only during production and processing, typically via wastewater and exhaust gases. If accidentally released to surface water, it rapidly biodegrades and will not persist in the environment and will not accumulate in the food chain. 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.

Industrial Manufacturing and Processing
In industrial manufacturing and processing applications, it is always important to obtain a current Safety Data Sheet from your supplier (leave), follow the guidance provided and comply with applicable regulations.
Acrylates and products containing them should always be handled in well ventilated areas. Each manufacturing facility should have a thorough training program for employees, appropriate work processes, and safety equipment in place to limit unnecessary exposure.
In the event of a spill, the focus is on containing the spill to prevent contamination of soil, ditches, sewers, or surface or ground water. Only trained and properly protected personnel should be involved in clean-up operations.

**Professional Applications**
Before using any chemical product, the user should be properly trained in safe handling procedures for that product. This means that they should always contact the supplier of the product being used to obtain the most current safe handling advice and follow all instructions and warnings.

**Consumer Applications**
Tert.-butyl acrylate is not sold for direct consumer use, but it is used as a raw material to make a variety of goods used by consumers and could be present in trace amounts as residual monomer.
It is important to read and follow all warnings and instructions on the product label or packaging.

**Regulatory Information / Classification and Labelling**
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. Nevertheless these regulations may vary by state or country.

*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 labelling. It is not intended to be comprehensive or to replace information found in the (M)SDS.*

**Signal word: Danger**

**Hazard pictogram:**
UN GHS is the basis for country specific labeling.
Hazard statements:
H225: Highly flammable liquid and vapour.
H302: Harmful if swallowed.
H312: Harmful in contact with skin.
H331: Toxic if inhaled.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H335: May cause respiratory irritation.
H411: Toxic to aquatic life with long lasting effects.
H401: Toxic to aquatic life

*based on available toxicological and ecotoxicological data, different the current EU CLP Annex VI classification

Additional information


Most commonly used synonyms

tert.-Butylacrylate
TBA
Propenoic acid, tert.-butylester
Acrylic acid tert.-butyl ester

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