

## Global Product Strategy (GPS) Safety Summary

### Tertiary Butyl Acetate (*TBAC*)

This GPS Safety Summary is a high-level summary intended to provide the general public with an overview of product safety information on this chemical substance. It is not intended to provide emergency response, medical or treatment information, nor to provide an overview of all safety and health information. This summary is not intended to replace the Safety Data Sheet. For detailed guidance on the use or regulatory status of this substance, please consult the Safety Data Sheet and the Product Stewardship Bulletin (PSB).

#### Chemical Identity

**Name:** Tertiary Butyl Acetate (*TBAC*)  
**Brand names:** Tertiary Butyl Acetate (*TBAC*)  
**Chemical name (IUPAC):** tert-Butyl Acetate  
**CAS number:** 540-88-5  
**EC number:** 208-760-7  
**Molecular formula:** C<sub>6</sub>H<sub>12</sub>O<sub>2</sub>

#### Uses and Applications

*TBAC* is a flammable solvent with a strong camphor-like odor, a medium evaporation rate, medium polarity, low toxicity, and negligible environmental impact. Because it is not an ozone precursor, it is exempt from VOC (Volatile Organic Compound) regulations in the US and Canada. It is also not listed as Hazardous Air Pollutant (HAP). Since its VOC exemption, *TBAC* has mostly found use in industrial coatings, adhesives, cleaners, degreasers, and inks replacing more hazardous or environmentally harmful solvents. *TBAC*'s strong odor and flammability greatly limit its use in consumer products. However, it may find use in consumer products that use other flammable and odorous solvents including automotive aftermarket degreasers, brake-cleaners, adhesives, solvent-based wood coatings, stains, and lacquers, aerosol spray paints, paint strippers, thinners, and nail products (polish and remover).

#### Physical / Chemical Properties

*TBAC* is a clear, colorless liquid with a strong and characteristic odor. It is sparingly (0.8 wt%) soluble in water. It has a flash point of 40°F, which is average compared to other solvents used in industrial and consumer products. The boiling point and freezing points are 98°C (208°F) and -58°C (-72°F), respectively.

#### Health Effects

*TBAC* is slightly toxic following acute inhalation, oral or dermal exposure. Inhalation of high doses may cause symptoms of alcohol intoxication. It is a very slight skin and moderate eye irritant, and it is not a sensitizer. Because of its strong odor, *TBAC* has excellent warning properties. However, overexposure to its vapors or extended skin contact should be avoided.

The table below gives an overview of the health effects assessment results for *TBAC*.

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Slight acute toxicity by the oral, inhalation and dermal routes of exposure
Irritation / corrosion Skin / eye / respiratory tract	Very slight skin and moderate eye irritant
Sensitization	Not expected to be a sensitizer
Toxicity after repeated exposure Oral / inhalation / dermal	Inhalation repeated exposure studies demonstrated target organ effects in male rats by a mechanism not relevant to humans
Genotoxicity / Mutagenicity	Not genotoxic / Not mutagenic
Carcinogenicity	Not expected to be a human carcinogen
Toxicity for reproduction	Not toxic to reproduction

### **Environmental Effects**

The table below gives an overview of the environmental effects assessment results for *TBAC*.

Effect Assessment	Result
Aquatic Toxicity	Not expected to be harmful to aquatic organisms

Fate and behaviour	Result
Biodegradation	Inherently biodegradable
Bioaccumulation potential	Not expected to bioaccumulate.

### **Exposure**

#### Human health

Worker exposure to *TBAC* in manufacturing facilities is low because the process, storage and handling operations are enclosed. However, worker exposure can potentially occur during operations like product transfer, product sampling, or maintenance / repair activities on product containing systems. The risk of accidental exposure should be controlled by selecting and applying the appropriate Risk Management Measures.

Professionals and industrial workers may come into contact with *TBAC* as a component of industrial coatings, adhesives, cleaners, degreasers and inks, and other formulations containing *TBAC*. Exposure should be controlled by selecting and applying the appropriate Risk Management Measures.

Exposure to the general population may occur from use of *TBAC*-containing consumer or industrial products. Because consumers do not regularly use these products, long-term overexposure to *TBAC* is unlikely. However, short term overexposure may occur from use of *TBAC*-containing products in a poorly ventilated area. Symptoms of overexposure may include temporary eye or skin irritation, dizziness, headache, and alcohol impairment.

### Environment

*TBAC* is a trace component of banana extract. The manufacture of *TBAC* is a closed and automated process. Also, transfer (loading and transport) of the product is done with appropriate equipment in appropriate containers to prevent any release from the system.

Environmental releases may occur from industrial operations or accidental spills. If released to the environment, *TBAC* will partition almost exclusively to air, even if accidentally released to water or soil. *TBAC* will not accumulate in sediment or aquatic life. Studies conducted by regulatory agencies show that environmental exposures to *TBAC* from operations are expected to be well below the level of concern for any potential short- or long-term health effects. The environmental impact from *TBAC* releases is expected to be negligible based on the product's uses and its physical, chemical, and toxicological properties.

### Risk Management Measures

*TBAC* and solvent-based products should always be used in a well-ventilated area or with proper respiratory protection such as a mask with organic vapor cartridges. Skin and eye contact should be avoided by using splash-resistant goggles and solvent resistant gloves. For detailed guidance on the use of *TBAC*, the Safety Data Sheet and the Product Safety Bulletin should be consulted.

*TBAC* should be handled like gasoline. Containers should be grounded during transfer to avoid static charge build-up. *TBAC* and *TBAC*-containing products should not be used in the vicinity of an ignition source like water heaters and other household appliances with pilot lights or hot surfaces. *TBAC* should not be used in poorly ventilated areas.

### Spills and Leaks

Do not touch or walk through spilled material. Stop leaks if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed material.

### Regulatory Information / Classification and Labeling

For a detailed overview of the regulatory classification and labeling of this substance, reference is made to the regional Safety Data Sheet, which can be found on the LyondellBasell corporate website.

### Conclusion Statements

- *TBAC* is a useful solvent for industrial and consumer coatings, lacquers, inks, adhesives, cleaners and degreasers.
- *TBAC* is hazardous. The material is flammable and a slight skin and eye irritant. It should be used only in well ventilated areas away from ignition sources and with the recommended eye and skin protection.
- *TBAC* is not expected to be harmful to aquatic organisms, is inherently biodegradable and is not expected to bioaccumulate. *TBAC* is not an ozone precursor or depleter and is not a

greenhouse gas. Its environmental impact is expected to be significantly lower than other solvents.

### **Contact Information within Company**

For further information on this product in general, please consult [www.lyb.com](http://www.lyb.com).

### **Date of issue**

Date of issue: 4 June 2015.

### **Disclaimer**

Before using a product sold by a company of the LyondellBasell family of companies, users should make their own independent determination that the product is suitable for the intended use and can be used safely and legally.

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This product(s) may not be used in:

(i) any U.S. FDA Class I, Health Canada Class I, and/or European Union Class I medical devices, without prior notification to Seller for each specific product and application; or  
(ii) the manufacture of any of the following, without prior written approval by Seller for each specific product and application: U.S. FDA Class II Medical Devices; Health Canada Class II or Class III Medical Devices; European Union Class II Medical Devices; film, overwrap and/or product packaging that is considered a part or component of one of the aforementioned medical devices; packaging in direct contact with a pharmaceutical active ingredient and/or dosage form that is intended for inhalation, injection, intravenous, nasal, ophthalmic (eye), digestive, or topical (skin) administration; tobacco related products and applications, electronic cigarettes and similar devices, and pressure pipe or fittings that are considered a part or component of a nuclear reactor.  
Additionally, the product(s) may not be used in: (i) U.S. FDA Class III Medical Devices; Health Canada Class IV Medical Devices; European Class III Medical Devices; (ii) applications involving permanent implantation into the body; (iii) life-sustaining medical applications; and (iv) lead, asbestos or MTBE related applications. All references to U.S. FDA, Health Canada, and European Union regulations include another country's equivalent regulatory classification.

Users should review the applicable Safety Data Sheet before handling the product.

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*TBAC* is a product of Lyondell Chemical Company.