1. Identification

Name: 1-(tert-Butoxy)-2,3-dimethoxypropane

CAS Number: 172888-77-6

Recommendation for the chemical and restrictions on use

Applications: Research and development only. This product is being sent to you as a Research and Development product as defined by the Toxic Substances Control Act (TSCA) of 1976. Due to TSCA's R&D exemption, this product is not listed on the U.S. EPA's Toxic Substances Control Act inventory.

Restrictions: This product may not be used for commercial purposes or in formulations used for commercial purposes.

Supplier's Details

InKemia Green Chemicals, Inc.
1213 West Loop North Suite 140, Houston, TX 77005
+1 (713) 909-7717
web@inkemiagreenchemicals.com

Emergency contact number

InKemia Green Chemicals, Inc.
Tel: +1 (713) 909-7717
For emergency calls only.

2. Hazards

Classification of the substance or mixture

Classification: Combustible liquid (Category 4), H227.

Label elements

Pictogram: None

Signal word: Warning

Hazard Statements: H227 - Combustible liquid.

Precautionary Statements:

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P235 - Store in a well-ventilated place. Keep Cool
P501 - Dispose of contents/container to an approved waste disposal plant.
Other Hazards
None.

3 – Composition/information on ingredients

Substances

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>1-(tert-Butoxy)-2,3-dimethoxypropane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>(1,1,4t) Glycerol ether.</td>
</tr>
<tr>
<td>CAS Number</td>
<td>172888-77-6</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>C9H20O3</td>
</tr>
<tr>
<td>Molecular Weight (g/mol)</td>
<td>176.260</td>
</tr>
</tbody>
</table>

Hazardous components

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-(tert-Butoxy)-2,3 dimethoxypropane</td>
<td>Flam. Liq. 4; H227</td>
<td>&lt;=97 % wt.</td>
</tr>
</tbody>
</table>

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

Impurities and stabilizing additives  Additivated with 1000 ppm of butylated hydroxytoluene (BHT).

Mixtures  Not applicable.

4 - First-aid measures

Description of first aid measures

General information  Show this Safety Data Sheet to the medical personnel.

Inhalation  Remove from exposure, moving to fresh air. Artificial respiration and oxygen are necessary if not breathing. Consult a physician.

Ingestion  Wash out mouth with water if the person is conscious. Do not induce vomiting. Consult a physician.

Skin contact  Immediately wash skin with soap and copious amounts of water.

Eye contact  Immediately irrigate with copious amounts of water for 15 minutes. Consult a physician.

Protection of first-aiders  First aid personnel should wear appropriate protective equipment during any rescue.
Most important symptoms and effects, both acute and delayed

<table>
<thead>
<tr>
<th>General information</th>
<th>The severity of the symptoms described might vary depending on the concentration and length of exposure.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>No data available.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>No data available.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>May cause irritation.</td>
</tr>
<tr>
<td>Eye contact</td>
<td>No data available.</td>
</tr>
</tbody>
</table>

Indication of immediate medical attention and special treatment need

Notes for the doctor
Treat symptomatically.

5 – Fire-fighting measure

Extinguishing media

Suitable extinguisher media
Dry chemical, carbon dioxide or water fog. Do not use water directly on the fire.

Unsuitable extinguisher media
No data available.

Specific hazards arising from the substance of mixture
Specific hazards
Carbon oxides.

Advice for firefighters

Protective actions during firefighting
Avoid breathing fire gases or vapors. Evacuate area. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. Avoid discharge to the aquatic environment. Control runoff water by containing and keeping it out of sewers and watercourses. If the risk of water pollution occurs, notify appropriate authorities.

Special protective equipment for firefighting
Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Standard Firefighter’s clothing including helmets, protective boots, and gloves provide a basic level of protection for chemical incidents.

6 – Accidental release measures

Personal precautions, protective equipment, and emergency procedures

Personal Precautions
Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk. Do not touch or walk into the spilled material.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**Methods and materials for containment and cleanup**

**Methods for cleaning**

Contain and remove the spillage, soaking up the residue with non-flammable absorbent. Place in an adequate container for immediate disposal. Eliminate sources of ignition. For waste disposal see Section 13.

**Reference to other sections**

For personal protection see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For disposal see section 13.

### 7 – Handling and storage

**Precautions for safe handling**

**Usage precautions**

Wear protective clothing as described in Section 8 of this safety data sheet. Keep container tightly sealed when not in use. Do not handle until all safety precautions have been read and understood. Do not reuse empty containers. For precautions see Section 2. As a TSCA-exempt R&D substance, this product must be used by or directly under the supervision of a technically qualified individual(s) as defined by TSCA.

**Advice on general occupational hygiene**

Promptly wash if in contact with skin. Take off contaminated clothing and wash before reuse. Wash contaminated clothing before reuse.

**Conditions for safe storage, including any Incompatibilities**

**Storage precautions**

Store away from incompatible materials (see Section 10). Keep only in the original container. Keep container tightly closed, in a cool, well-ventilated place. Keep containers upright. Protect containers from damage. Keep in a fresh and dry place, avoiding direct sunlight. Keep container tightly sealed.

**Storage class**

Miscellaneous hazardous material storage. Preferably in a well-ventilated solvent cabinet.
Specific end uses

The identified uses for this product are in Section 1.

8 - Exposure controls/personal protection

Control parameters

Occupational exposure limits:

Contains no substances with occupational exposure limit values.

Protective equipment

Engineering control measures

Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Eye/Face protection

Wear safety glasses with side-shields.

Hand protection

Avoid skin contact. Wear protective clothes and solvent resistant gloves (nitrile).

Other skin and body protection

Use engineering controls to reduce air contamination to permissible exposure level. Wear appropriate clothing to prevent any possibility of liquid contact and repeated or prolonged vapor contact.

Hygiene measures

Wash after use and before eating, smoking and using the toilet. Do not eat, drink or smoke when using this product.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with a multi-purpose combination (US) or type ABEK (EN 14387) 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).

Environmental exposure

Not available.

<table>
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<th>9 – Physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
</tr>
<tr>
<td><strong>Odor threshold</strong></td>
</tr>
<tr>
<td><strong>Melting point/Freezing point, ºC</strong></td>
</tr>
<tr>
<td><strong>Boiling point, ºC</strong></td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
</tr>
<tr>
<td><strong>Upper / lower flammability or and explosive limits</strong></td>
</tr>
<tr>
<td><strong>Vapor pressure @ 20 ºC, kPa</strong></td>
</tr>
<tr>
<td><strong>Vapor density (air=1)</strong></td>
</tr>
<tr>
<td><strong>Relative density @ 25 ºC, g/cm³</strong></td>
</tr>
<tr>
<td><strong>Water miscibility @ 20 ºC, g/L</strong></td>
</tr>
<tr>
<td><strong>Solubility (other)</strong></td>
</tr>
<tr>
<td><strong>Partition coefficient, log Pow @ 25 ºC</strong></td>
</tr>
<tr>
<td><strong>Autoignition temperature, ºC</strong></td>
</tr>
<tr>
<td><strong>Decomposition temperature, ºC</strong></td>
</tr>
<tr>
<td><strong>Dynamic viscosity @ 25 ºC, cP</strong></td>
</tr>
<tr>
<td><strong>Explosive properties</strong></td>
</tr>
<tr>
<td><strong>Oxidizing properties</strong></td>
</tr>
<tr>
<td><strong>Flammability</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10 – Stability and reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reactivity</strong></td>
</tr>
<tr>
<td><strong>Chemical stability</strong></td>
</tr>
<tr>
<td><strong>Possibility of hazardous reactions</strong></td>
</tr>
<tr>
<td><strong>Incompatible materials</strong></td>
</tr>
<tr>
<td><strong>Conditions to avoid</strong></td>
</tr>
<tr>
<td><strong>Hazardous decomposition products</strong></td>
</tr>
</tbody>
</table>
11 – Toxicological information

**Acute toxicity – oral**
Acute toxicity – oral (LD50, mg/kg)  
>3,000

Species  
Rat (EPA-T.E.S.T Estimation)

**Acute toxicity – dermal**
Acute toxicity – dermal (LD50, mg/kg)  
No data available.

**Acute toxicity – inhalation**
Acute toxicity – inhalation (LC50, dust/mist mg/l)  
No data available.

**Skin corrosion/irritation**
Result  
Based on available data the classification criteria are not met.

**Serious eye damage/irritation**
Result  
Based on available data the classification criteria are not met.

**Respiratory sensitization**
Result  
Based on available data the classification criteria are not met.

**Skin sensitization**
Result  
Based on available data the classification criteria are not met.

**Germ cell mutagenicity**
Genotoxicity – in vitro  
Based on available data the classification criteria are not met.

**Carcinogenicity**
IARC  
No component of this product present at levels greater than or equal to 0.1% is identified as human carcinogen by IARC.

ACGIH  
No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP  
No component 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 identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**
Fertility  
No data available.

Development  
No data available.

**Specific target organ toxicity**
Additional information

General information
This product is not classified as hazardous.

Target organs
Not specific target organ known.

12 – Ecological information

Toxicity
Ecotoxicity
Not regarded as dangerous for the environment. However, large or frequent spills may have dangerous effects on the environment.

Acute toxicity

Toxicity to fish
LC50 (96h.) = 763 mg/L (Fathead minnow; EPA-T.E.S.T. Estimation)

Aquatic invertebrates
LC50 (48h.) = 426 mg/L (Daphnia magna; EPA-T.E.S.T. Estimation)

Aquatic plants
IGC50 (48h.) = 568 mg/L (T. pyroformis; EPA-T.E.S.T. Estimation)

Chronic toxicity

Toxicity to fish
No data available.

Aquatic invertebrates
No data available.

Aquatic plants
No data available.

Persistency and biodegradability

Persistency and biodegradability
No data available.

Result: -
Not readily biodegradable.

Biodegradability
Slowly biodegraded (EPI suite estimation).
This product is unlikely to bioaccumulate and/or persist in the environment (BCF<500, logPow=0.75).

Biological oxygen demand(mg/g)
No data available.

Chemical oxygen demand(mg/g)
No data available.

BOD/COD ratio
No data available.

Bioaccumulative potential
No data available.
### Mobility in soil
No data available.

### Results of PBT and vPvB
No data available.

### Other adverse effects
No data available.

## 13 – Disposal considerations

### Waste treatment methods

#### General information
The generation of waste should be minimized or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of safely. When handling waste, the safety precautions applying to the handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues.

#### Disposal methods
Do not empty into drains. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labeled with their contents. Incineration and landfill should only be considered when recycling is not feasible.

## 14 – Transport information

### DOT (US)
- UN number: NA 1993
- Proper shipping name: Combustible liquid, n.o.s. (1-(tert-Butoxy)-2,3-dimethoxypropane)
- Reportable Quantity (RQ):
- Poison Inhalation Hazard: No

(Remark: The combustible liquid classification only applies when shipped in single package sizes >119 gallons).

### IMDG
Not dangerous goods.

### IATA
Not dangerous goods.

### Transport in bulk according to
- Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
- Not applicable.

## 15 – Regulatory information

### US Federal Regulations and state regulations
Components of the product are listed in the quoted regulations. For details, please refer to the regulations directly. This list is not exhaustive; please check for other applicable regulations.

**This product has been classified by hazard criteria of the Controlled Products Regulations, and the SDS contains all the information required by the Controlled Products Regulations.**

**US Federal Regulations**

- **SARA 302 Section 302 (Specific toxic chemical listings)**
  - No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

- **SARA Section 311/312 (Specific toxic chemical listings)**
  - Fire Hazard.

- **SARA Section 313 (Specific toxic chemical listings)**
  - 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.

- **RCRA (hazardous waste code)**
  - None of the ingredients are listed.

- **TSCA (Toxic Substances Control Act)**
  - Not TSCA listed. This product is TSCA certified for research and development uses only.

- **CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)**
  - None of the ingredients are listed.

**US State Regulations**

- **Proposition 65 (California)**
  - **Chemicals are known to cause cancer**
    - None of the chemicals in this product are listed.

  - **Chemicals are known to cause reproductive toxicity for females**
    - None of the chemicals in this product are listed.

  - **Chemicals are known to cause reproductive toxicity for males**
    - None of the chemicals in this product are listed.

**16 – Other information**

**Full text of H-Statements referred to under sections 2 and 3**

- **H227** Combustible liquids
  - **Flam. Liq.** Flammable liquids

**GHS Column Model 2017 Classification**

- **Acute health hazards (single exp)** Negligible
- **Chronic health hazards (repeated exp.)** Negligible
- **Environmental hazards** Negligible
- **Physical-chemical hazards** Low

**Further Information**

www.inkemiagreenchemicals.com  11 (713) 909-7717  1213 West Loop North, Suite #140, Houston, TX 77055
SDS: 1-(tert-Butoxy)-2,3-dimethoxypropane

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