



[Bismuth Titanium Isopropoxide](#)

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| | |
|----------------------|---|
| Linear Formula | C ₂₁ H ₄₉ BiO ₇ Ti ₃ |
| Pubchem CID | 22621345 |
| MDL Number | MFCD01865878 |
| EC No. | N/A |
| IUPAC Name | bismuth(3+); propan-2-olate; titanium(4+) |
| Beilstein/Reaxys No. | N/A |
| SMILES | CC(C)[O-].CC(C)[O-].CC(C)[O-].CC(C)[O-].CC(C)[O-].CC(C)[O-].CC(C)[O-].[Ti+4].[Bi+3] |
| Inchl Identifier | InChI=1S/7C3H7O.Bi.Ti/c7*1-3(2)4;/h7*3H,1-2H3;/q7*-1;+3;+4 |
| Inchl Key | PCMLXKRUPMSXCB-UHFFFAOYSA-N |

| | |
|-----------------------|---|
| Signal Word | Danger |
| Hazard Statements | H225-H319-H336 |
| Hazard Codes | F, Xi |
| Risk Codes | N/A |
| Safety Statements | N/A |
| Transport Information | UN 1219, 3/PG II |
| GHS Pictograms | <p>GHS07 Exclamation Point</p>  <p>GHS02 Flame</p>  |

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SAFETY DATA SHEET

Date Accessed: 05/28/2024

Date Revised: 01/15/2022

SECTION 1. IDENTIFICATION

Product Identifiers: All applicable American Elements product codes for CAS #338391-61-0

Relevant identified uses of the substance:
Scientific research and development

Supplier details:

American Elements
10884 Weyburn Ave.
Los Angeles, CA 90024
Tel: +1 310-208-0551
Fax: +1 310-208-0351

Emergency telephone number:
Domestic, North America +1 800-424-9300
International +1 703-527-3887

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture in
accordance with 29 CFR 1910 (OSHA HCS)

GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

GHS07

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

Hazards not otherwise classified No data available

GHS label elements, including precautionary
statements



Hazard pictograms

GHS02 GHS07

Signal word Danger

Hazard statements

H225 Highly flammable liquid and vapor.

H319 Causes serious eye irritation.

H336 May cause drowsiness or dizziness.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot
surfaces. No smoking.

P261 Avoid breathing
dust/fume/gas/mist/vapors/spray.

P303+P361+P353 If on skin (or hair): Take off
immediately all contaminated clothing. Rinse skin with
water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with
water for several minutes. Remove contact lenses, if
present and easy to do. Continue rinsing.

P405 Store locked up.

P501 Dispose of contents/container in accordance
with local/regional/national/international regulations.

WHMIS classification

B2 - Flammable liquid

D2B - Toxic material causing other toxic effects

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH

FIRE

REACTIVITY

1

3

1

Health (acute effects) = 1

Flammability = 3

Physical Hazard = 1

Other hazards

Results of PBT and vPvB assessment

PBT: N/A

vPvB: N/A

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization: Mixtures

Dangerous components:

67-63-0 2-Propanol Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336 95.0%

338391-61-0 Bismuth titanium isopropoxide Flam. Liq. 2, H225; Flam. Sol. 1, H228; Skin Irrit. 2, H315; Eye Irrit. 2A, H319 5.0%

Additional information None known.

SECTION 4. FIRST AID MEASURES

Description of first aid measures

If inhaled:

Supply patient with fresh air. If not breathing, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

In case of skin contact:

Immediately wash with soap and water; rinse thoroughly.

Seek immediate medical advice.

In case of eye contact:

Rinse opened eye for several minutes under running water. Consult a physician.

If swallowed:

Seek medical treatment.

Information for doctor

Most important symptoms and effects, both acute and delayed:

No data available

Indication of any immediate medical attention and special treatment needed:

No data available

SECTION 5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing agents Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released:

Carbon monoxide and carbon dioxide

Titanium oxides

Bismuth oxide

Advice for firefighters

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

Environmental precautions: Do not allow product to enter drains, sewage systems, or other water courses.

Methods and materials for containment and cleanup:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Ensure adequate ventilation.

Prevention of secondary hazards: Keep away from ignition sources.

Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7. HANDLING AND STORAGE

Handling

Precautions for safe handling

Handle under dry protective gas.

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Information about protection against explosions and fires:

Protect against electrostatic charges.
Fumes can combine with air to form an explosive mixture.
Keep ignition sources away.
Conditions for safe storage, including any incompatibilities
Requirements to be met by storerooms and receptacles: Store in a cool location.
Information about storage in one common storage facility:
Store away from water/moisture.
Store away from oxidizing agents.
Further information about storage conditions:
Store under dry inert gas.
This product is moisture sensitive.
Keep container tightly sealed.
Store in cool, dry conditions in well-sealed containers.
Protect from humidity and water.
Specific end use(s) No data available

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
Control parameters
Components with limit values that require monitoring at the workplace:
67-63-0 2-Propanol (95.0%)
PEL (USA) Long-term value: 980 mg/m³, 400 ppm
REL (USA) Short-term value: 1225 mg/m³, 500 ppm
Long-term value: 980 mg/m³, 400 ppm
TLV (USA) Short-term value: 984 mg/m³, 400 ppm
Long-term value: 492 mg/m³, 200 ppm
BEI
EL (Canada) Short-term value: 400 ppm
Long-term value: 200 ppm
EV (Canada) Short-term value: 400 ppm
Long-term value: 200 ppm
Ingredients with biological limit values:
67-63-0 2-Propanol (95.0%)
BEI (USA) 40 mg/L
Medium: urine
Time: end of shift at end of workweek
Parameter: Acetone (background, nonspecific)
Additional information: No data
Exposure controls
Personal protective equipment

Follow typical protective and hygienic practices for handling chemicals.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Do not inhale dust / smoke / mist.
Avoid contact with the eyes and skin.
Maintain an ergonomically appropriate working environment.
Breathing equipment: Use suitable respirator when high concentrations are present.
Protection of hands:
Impervious gloves
Inspect gloves prior to use.
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.
Eye protection: Safety glasses
Body protection: Protective work clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties
Appearance:
Form: Liquid
Color: Pale yellow
Odor: No data available
Odor threshold: No data available.
pH: No data available.
Melting point/Melting range: -90 °C (-130 °F)
Boiling point/Boiling range: No data available
Sublimation temperature / start: No data available
Flash point: 12 °C (54 °F) (IPA)
Flammability (solid, gas) No data available.
Ignition temperature: 455 °C (851 °F)
Decomposition temperature: No data available
Autoignition: Product is not selfigniting.
Danger of explosion: Product is not explosive.
However, formation of explosive air/vapor mixtures is possible.
Explosion limits:
Lower: 2 Vol %
Upper: 12 Vol %
Vapor pressure at 20 °C (68 °F): 48 hPa (36 mm Hg)
Density at 20 °C (68 °F): 0.785 g/cm³ (6.551 lbs/gal)
Relative density No data available.
Vapor density No data available.
Evaporation rate No data available.
Solubility in / Miscibility with
Water: Not miscible or difficult to mix
Partition coefficient (n-octanol/water): No data

available.
Viscosity:
Dynamic: No data available.
Kinematic: No data available.
Solvent content:
Organic solvents: 95.0 %
Solids content: 5.0 %
Other information No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity No data available
Chemical stability Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided:
Decomposition will not occur if used and stored according to specifications.
Possibility of hazardous reactions Reacts with strong oxidizing agents
Conditions to avoid No data available
Incompatible materials:
Water/moisture
Oxidizing agents
Hazardous decomposition products:
Carbon monoxide and carbon dioxide
Titanium oxides
Bismuth oxide

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects
Acute toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.
LD/LC50 values that are relevant for classification:
67-63-0 2-Propanol
Oral LD50 5045 mg/kg (rat)
Dermal LD50 12800 mg/kg (rabbit)
Inhalative LC50/8H 12560 ppm/8H (rat)
Skin irritation or corrosion: Causes skin irritation.
Eye irritation or corrosion: Causes serious eye irritation.
Sensitization: No sensitizing effects known.
Germ cell mutagenicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for components in this product.
Carcinogenicity:
IARC-3: Not classifiable as to carcinogenicity to humans.
ACGIH A4: Not classifiable as a human carcinogen:

Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.
Reproductive toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for components in this product.
Specific target organ system toxicity - repeated exposure: No effects known.
Specific target organ system toxicity - single exposure:
May cause drowsiness or dizziness.
May cause respiratory irritation.
Aspiration hazard: No effects known.
Subacute to chronic toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.
Additional toxicological information:
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

SECTION 12. ECOLOGICAL INFORMATION

Toxicity
Aquatic toxicity: No data available
Persistence and degradability No data available
Bioaccumulative potential No data available
Mobility in soil No data available
Additional ecological information:
Do not allow undiluted product or large quantities to reach groundwater, water courses, or sewage systems.
Avoid transfer into the environment.
Results of PBT and vPvB assessment
PBT: N/A
vPvB: N/A
Other adverse effects No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Recommendation Consult official regulations to ensure proper disposal.
Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

SECTION 14. TRANSPORT INFORMATION

UN-Number
DOT, IMDG, IATA UN1219
UN proper shipping name
DOT Isopropanol (Isopropyl alcohol)
IMDG, IATA ISOPROPANOL (ISOPROPYL ALCOHOL)
Transport hazard class(es)
DOT
Class 3 Flammable liquids.
Label 3
Class 3 (F1) Flammable liquids
Label 3
IMDG, IATA
Class 3 Flammable liquids.
Label 3
Packing group
DOT, IMDG, IATA II
Environmental hazards:
Marine pollutant (IMDG): No
Special precautions for user Warning: Flammable liquids
EMS Number: F-E,S-D
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code N/A
Transport/Additional information:
DOT
Marine Pollutant (DOT): No
UN "Model Regulation": UN1219, Isopropanol (Isopropyl alcohol), 3, II

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture
GHS label elements, including precautionary statements
Hazard pictograms
GHS02 GHS07
Signal word Danger
Hazard statements
H225 Highly flammable liquid and vapor.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P261 Avoid breathing

dust/fume/gas/mist/vapors/spray.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

National regulations

This product is not listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory. Use of this product is restricted

to research and development only. This product must be used by or directly under the supervision of a technically qualified individual as defined by TSCA.

This

product must not be used for commercial purposes or in formulations for commercial purposes.

Some or all of the components of this product are not listed on the Canadian Domestic Substances List (DSL) or the Canadian Non-Domestic Substances List (NDSL).

SARA Section 313 (specific toxic chemical listings)

67-63-0 2-Propanol 95.0%

California Proposition 65

Prop 65 - Chemicals known to cause cancer

None of the ingredients are listed.

Prop 65 - Developmental toxicity

None of the ingredients are listed.

Prop 65 - Developmental toxicity, female

None of the ingredients are listed.

Prop 65 - Developmental toxicity, male

None of the ingredients are listed.

Information about limitation of use: For use only by technically qualified individuals.

Other regulations, limitations and prohibitive regulations

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.

None of the ingredients are listed.

The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.

None of the ingredients is listed.

Annex XIV of the REACH Regulations (requiring Authorisation for use)

None of the ingredients is listed.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2022 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.
