

**SAFETY DATA SHEET**

According to 1907/2006/EC, Article 31

Revision number: 2

Revision date: 01/08/2019

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifiers**

Product name: Zirconium(IV) Butoxide (ca. 80% in 1-Butanol)
Product code: Z0016

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Reagents.

1.3 Details of the supplier of the safety data sheet**Supplier:**

TCI EUROPE N.V.
 Boerenveldseweg 6
 Haven 1063
 B-2070 Zwijndrecht
 Telephone: +32(0)3 735 07 00
 E-mail: sales-eu@tcichemicals.com

1.4 Emergency telephone number: +32(0)70 245 245

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture**

Flammable liquids	Category 3
Acute toxicity (Oral)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity - Single exposure [Category 3]	Respiratory tract irritation, Narcotic effects
Specific target organ toxicity - Repeated exposure [Category 1]	Central nervous system, Auditory system

2.2 Label elements**Pictograms or hazard symbols****Signal word**

Danger

Hazard statements

H226-Flammable liquid and vapour.
 H302-Harmful if swallowed.
 H315-Causes skin irritation.
 H318-Causes serious eye damage.
 H372-Causes damage to organs through prolonged or repeated exposure : Central nervous system
 Auditory system
 H335-May cause respiratory irritation.

Precautionary statements

H336-May cause drowsiness or dizziness.
 P260-Do not breathe mist, vapours or spray.
 P280-Wear protective gloves, face protection.
 P302+P352+P332+P313+P362+P364-IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse.
 P304+P340+P312-IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell.
 P305+P351+P338+P310-IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
 P370+P378-In case of fire: Use dry chemical or dry sand to extinguish.

2.3 Other hazards**Results of PBT and vPvB assessment**

PBT: Not applicable
vPvB: Not applicable

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components:	Zirconium(IV) Butoxide (ca. 80% in 1-Butanol)
Percent:
CAS RN:	1071-76-7
EC-No:	213-995-3
Synonyms:	Zirconium(IV) Tetrabutoxide (ca. 80% in 1-Butanol)
Chemical Formula:	C ₁₆ H ₃₆ O ₄ Zr
Hazardous composition:	Chemical name: 1-Butanol Conc.: < 20% CAS RN:71-36-3 EC No.: 200-751-6 Flam. Liq. 3, Acute Tox. 4, Skin Irrit. 2, Eye Dam. 1, STOT SE 3 H226: Flammable liquid and vapour. H302: Harmful if swallowed. H335: May cause respiratory irritation. H315: Causes skin irritation. H318: Causes serious eye damage. H336: May cause drowsiness or dizziness. Chemical name: Zirconium(IV) Butoxide Conc.: > 80% CAS RN:1071-76-7 EC No.: 213-995-3 Flam. Liq. 3, Skin Irrit. 2, Eye Dam. 1, STOT SE 3 H226: Flammable liquid and vapour. H315: Causes skin irritation. H318: Causes serious eye damage. H335: May cause respiratory irritation. H336: May cause drowsiness or dizziness.

SECTION 4: First aid measures

4.1 Description of first aid measures

Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact:	Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.
Eye contact:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion:	Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.
Protection of first-aiders:	A rescuer should wear personal protective equipment, such as rubber gloves and air-tight goggles.

4.2 Most important symptoms and effects, both acute and delayed

No data available

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:	Dry chemical, foam, water spray, carbon dioxide.
Unsuitable extinguishing media:	Solid streams of water

5.2 Special hazards arising from the substance or mixture

Carbon dioxide, Carbon monoxide

5.3 Advice for firefighters

Fire-extinguishing work is done from the windward and the suitable fire-extinguishing method according to the surrounding situation is used. Uninvolved persons should evacuate to a safe place. In case of fire in the surroundings: Keep containers cool by spraying with water. Eliminate all ignition sources if safe to do so. When extinguishing fire, be sure to wear personal protective equipment

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use extra personal protective equipment (self-contained breathing apparatus). Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc

6.2 Environmental precautions

Prevent product from entering drains

6.3 Methods and materials for containment and cleaning up

Absorb spilled material in dry sand or inert absorbent before recovering it into an airtight container. In case of large amount of spillage, contain a spill by bunding. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations. Remove all sources of ignition. Fire-extinguishing devices should be prepared in case of a fire. Use spark-proof tools and explosion-proof equipment.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling	Handling is performed in a well ventilated place. Wear suitable protective equipment. Prevent generation of vapour or mist. Keep away from heat/sparks/open flame/hot surfaces. -No smoking. Take measures to prevent the build up of electrostatic charge. Use explosion-proof equipment. Wash hands and face thoroughly after handling. Use a closed system if possible. Use a ventilation, local exhaust if vapour or aerosol will be generated. Avoid contact with skin, eyes and clothing.
7.2 Conditions for safe storage, including any incompatibilities	Keep container tightly closed. Store in a cool, dark and well-ventilated place. Store under inert gas. Protect from moisture. Store locked up. Store away from incompatible materials such as oxidizing agents. Moisture-sensitive
7.3 Specific end use(s)	No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters	No data available (1-Butanol) ACGIH TLV(TWA):20 ppm ACGIH TLV(CL):50 ppm (skin) OSHA PEL(TWA):100 ppm
8.2 Exposure controls	Install a closed system or local exhaust. Also install safety shower and eye bath.
Respiratory protection:	Half or full facepiece respirator, self-contained breathing apparatus(SCBA), supplied air respirator, etc. Use respirators approved under appropriate government standards and follow local and national regulations.
Hand protection:	Impervious gloves.
Eye protection:	Safety goggles. A face-shield, if the situation requires.
Skin and body protection:	Impervious protective clothing. Protective boots, if the situation requires.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties	
Physical state (20°C):	Liquid
Form:	Clear
Colour:	Very pale yellow - Yellow
Odour:	Alcoholic
pH:	No data available
Melting point/freezing point:	No data available (1-Butanol) -90°C
Boiling point/range:	No data available (1-Butanol) 118°C
Flash point:	38°C
Evaporation rate(Butyl Acetate=1):	No data available
Flammability(solid, gas):	No data available
Flammability or explosive limits:	
Lower:	1.4%
Upper:	11.2%
Vapour pressure:	No data available.
Vapour density:	No data available
Relative density:	1.06
Solubility(ies):	
[Water]	No data available
[Other solvents]	No data available
Partition coefficient: n-octanol/water:	No data available
Autoignition temperature:	No data available
Decomposition temperature:	No data available
Dynamic Viscosity:	No data available
Kinematic viscosity:	No data available
9.2 Other safety information	No data available

SECTION 10: Stability and reactivity

10.1 Reactivity	No data available
10.2 Chemical stability	Stable under proper conditions.
10.3 Possibility of hazardous reactions	No special reactivity has been reported.
10.4 Conditions to avoid	Spark, Open flame, Static discharge
10.5 Incompatible materials	Oxidizing agents
10.6 Hazardous decomposition products	Carbon dioxide, Carbon monoxide

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute Toxicity:	No data available (1-Butanol) orl-hmn LDLo:428 mg/kg orl-rat LD50:790 mg/kg skn-rbt LD50:3400 mg/kg ihl-rat LC50:24000 mg/m ³ /4H
Skin corrosion/irritation:	No data available (1-Butanol) skn-rbt 20 mg/24H MOD
Serious eye damage/irritation:	No data available (1-Butanol) eye-rbt 2 mg SEV
Respiratory or skin sensitization:	No data available
Germ cell mutagenicity:	No data available (1-Butanol) sln-ham-Ing 100 mmol/L sln-asn 7000 ppm
Carcinogenicity:	
IARC =	No data available
NTP =	No data available
Reproductive toxicity:	No data available
STOT-single exposure:	No data available
STOT-repeated exposure:	No data available
Aspiration hazard:	No data available

SECTION 12: Ecological information

12.1 Toxicity	
Fish:	No data available
Crustacea:	No data available
Algae:	No data available
12.2 Persistence and degradability	No data available
12.3 Bioaccumulative potential	No data available
12.4 Mobility in soil	
Log Pow:	No data available
Soil adsorption (Koc):	No data available
Henry's Law (PaM ³ /mol):	No data available
12.5 Results of PBT and vPvB assessment	
PBT:	Not applicable
vPvB:	Not applicable
12.6 Other adverse effects	No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Recycle to process, if possible. Consult your local regional authorities. You may be able to burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

SECTION 14: Transport information

14.1 UN number	1120
14.2 UN proper shipping name	
ADR/RID	Butanols solution
IMDG/IMO	Butanols solution
ICAO/IATA	Butanols solution
14.3 Transport hazard class(es)	
ADR/RID	3: Flammable liquid
IMDG/IMO	3: Flammable liquid
ICAO/IATA	3: Flammable liquid
14.4 Packaging group	
ADR/RID	III
IMDG/IMO	III
ICAO/IATA	III
14.5 Environmental hazards	
Marine pollutant	-
14.6 Special precautions for user	No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture	
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No.1907/2006	Not listed
15.2 Chemical safety assessment	A chemical safety assessment has not been carried out.

SECTION 16: Other information

Prepared by:	TCI EUROPE N.V.
Issue date:	01/08/2019

This SDS was prepared sincerely on the basis of the information we could obtained, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority. The products are supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling, sufficient care should be taken, in addition to the safety measures suitable for the situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set up on each user's own responsibility.

End of Safety Data Sheet