

Safety Data Sheets

1. Identification of the substance/mixture and of the company/undertaking

Product identifier :

Product name : Titanium(IV) isopropoxide

Product code(SDS NO) :45040jis_E-1

Details of the supplier of the safety data sheet

Manufacturer/Supplier :JUNSEI CHEMICAL CO., LTD.

Address :1-6, Ohmano-Cho, Koshigaya, Saitama 343-0844, Japan

Competent section :Quality Assurance Department

Telephone number :+81-48-986-6161

FAX :+81-48-989-2787

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2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

PHYSICAL HAZARDS

Flammable liquids : Category 3

HEALTH HAZARDS

Serious eye damage /eye irritation : Category 2A

(Note) GHS classification without description : Not applicable/Out of classification/Not classifiable

Label elements



Signal word :Warning

HAZARD STATEMENT

Flammable liquid and Vapor

Causes serious eye irritation

PRECAUTIONARY STATEMENT

Prevention

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

Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Wash contaminated parts thoroughly after handling.

Wear protective gloves and face protection.

Wear eye protection/face protection.

Response

In case of fire: Use appropriate media other than water for extinction.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF IN EYES: 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.

Storage

Store in well-ventilated place. Keep cool.

Disposal

Dispose of contents/container in accordance with local/national regulation.

Physical and Chemical hazards

Flammable liquid. Vapor/air mixture may explode.

3. Composition/information on ingredients**Substance/Preparation :****Substances**

Common name, synonyms : Tetraisopropyl titanate

Ingredient name: Titanium(IV) isopropoxide

content(%): 98.0 <

Chemical formula: $C_{12}H_{28}O_4Ti$

Chemicals No, Japan: 2-228; 2-2150

CAS No.: 546-68-9

MW: 284.23

ECNO: 208-909-6

4. First-aid measures**Descriptions of first-aid measures****IF INHALED**

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.

IF ON SKIN (or hair)

Take off immediately all contaminated clothing. Rinse skin with water/shower.

If skin irritation or rash occurs: Get medical advice/attention.

IF IN EYES

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.

IF SWALLOWED

Rinse mouth.

Call a POISON CENTER or doctor/physician if you feel unwell.

5. Fire-fighting measures**Extinguishing media****Suitable extinguishing media**

In case of fire, use water mist, foam, dry powder, CO₂.

Specific hazards arising from the substance or mixture

Containers may explode when heated.

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control or dilution water may cause pollution.

Advice for firefighters**Specific fire-fighting measures**

Evacuate non-essential personnel to safe area.

Cool container with water spray.

Special protective equipment and precautions for fire-fighters

Wear fire/ flame resistant/retardant clothing.

Wear cold insulating gloves/face shield/eye protection.

Firefighters should wear self-contained breathing apparatus with full face piece operated

positive pressure mode.

6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Ventilate area after material pick up is complete.

Wear proper protective equipment.

Environmental precautions

Avoid release to the rivers, lakes, ocean, groundwater.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Preventive measures for secondary accident

Collect spillage.

7. Handling and storage

Precautions for safe handling

Preventive measures

(Protective measures against fire & explosion)

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

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Exhaust/ventilator

Exhaust/ventilator should be available.

Safety treatments

Avoid contact with skin.

Avoid contact with eyes.

Avoid breathing dust, vapor, mist, or gas.

Safety Measures/Incompatibility

Wear protective gloves, protective clothing or face protection.

Wear protective gloves and face protection.

Wear eye protection/face protection.

Use personal protective equipment as required.

When using do not eat, drink or smoke.

Conditions for safe storage, including any incompatibilities

Recommendation for storage

Keep cool . Protect from sunlight.

Store in well-ventilated place. Keep container tightly closed.

8. Exposure controls/personal protection

Exposure controls

Appropriate engineering controls

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

Individual protection measures

Respiratory protection

Wear positive pressure self-contained breathing apparatus (SCBA).

Hand protection

Wear protective gloves.

Eye protection

Wear eye/face protection.

Safety and Health measures

Wash ... thoroughly after handling.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical properties

Appearance :liquid

Color :colorless~pale yellow

odour data N.A.

pH data N.A.

Phase change temperature

Initial Boiling Point/Boiling point :220°C

Melting point/Freezing point :15.0~19.0°C (Freezing point)

Decomposition temperature data N.A.

Flash point : (c.c.)46°C

Auto-ignition temperature data N.A.

Explosive properties data N.A.

Vapor pressure :0.0975mmHg (21°C)

Relative Vapor Density (Air=1) :9.8

Specific gravity/Density :0.9711 (20°C/4°C)

Solubility

Solubility in water :hydrolysis

Solubility in solvent :sol in ethanol.

n-Octanol /water partition coefficient data N.A.

10. Stability and Reactivity

Reactivity

Runaway polymerization will not occur.

Chemical stability

Stable under normal storage/handling conditions.

Flammable.

Conditions to avoid

Contact with incompatible materials.

Open flames. Heat.

Moisture.

Incompatible materials

Acids, Oxidizing agents, water

Hazardous decomposition products

Carbon oxides

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[GHS Cat. Japan, base data]

rat LD50=7460 mg/kg (IUCLID, 2000)

Acute toxicity (Dermal)

[GHS Cat. Japan, base data]

rat LD50 >16 g/kg (IUCLID, 2000)

Irritant properties

Serious eye damage /irritation

[GHS Cat. Japan, base data]

rabbit: moderate irritating (IUCLID, 2000)

No Allergenic and sensitizing effects data available

No Mutagenic effects data available

No Teratogenic effects data available

No Carcinogenic effects data available

No reproductive toxicity data available

No STOT-single/repeated exposure data available

No Aspiration hazard data available

12. Ecological Information**Toxicity**

No Aquatic toxicity data available

No Persistence and degradability data available

No Bioaccumulative potential data available

13. Disposal considerations**Waste treatment methods**

Dispose of contents/container in accordance with local/national regulation.

14. Transport Information**UN No, UN CLASS**

UN number :2413

UN proper shipping name :TETRAPROPYL ORTHOTITANATE

Transport hazard class(es) :3

Packing group :III

ERG GUIDE NO :128

15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

US major regulations**TSCA**

Titanium tetraisopropoxide

Other regulatory information

We are not able to check up the regulatory information in regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Regulatory information with regard to this substance in your country or in your region should be examined by your own responsibility.

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

16. Other information**GHS classification and labelling**

Flam. Liq. 3 : H226 Flammable liquid and Vapor

Eye Irrit. 2A : H319 Causes serious eye irritation

Reference Book

Globally Harmonized System of classification and labelling of chemicals, (4th ed., 2011), UN

Titanium(IV) isopropoxide, JUNSEI CHEMICAL CO., LTD., 45040jis_E-1, 01/12/2014

Recommendations on the TRANSPORT OF DANGEROUS GOODS 18th edit., 2013 UN
Classification, labelling and packaging of substances and mixtures (table 3-1 ECNO 6182012)
2012 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2014 TLVs and BEIs. (ACGIH)

<http://monographs.iarc.fr/ENG/Classification/index.php>

Supplier's data/information

Chemical Risk Information Platform (CHRIP)(NITE) <http://www.safe.nite.go.jp/japan/db.html>

GHS Classification Guidance for Enterprises 2013 Revised Edition (August, 2013, METI)

Other information

This information contained in this data sheet represents the best information currently available to us. However, no warranty is made with respect to its completeness and we assume no liability resulting from its use. It is advised to make their own tests to determine the safety and suitability of each such product or combination for their own purposes.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data