

1 Identification

Product identifier

Product name: (Trimethyl)pentamethylcyclopentadienyltitanium (IV)

Stock number: 43759

CAS Number:
107333-47-1

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

Identified use: SU24 Scientific research and development

Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Alfa Aesar
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency telephone number:

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

2 Hazard(s) identification

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



GHS02 Flame

Flam. Sol. 1 H228 Flammable solid.



GHS07

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H335 May cause respiratory irritation.

Hazards not otherwise classified No information known.

Label elements

GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

Hazard pictograms



GHS02 GHS07

Signal word

Danger

Hazard statements

H228 Flammable solid.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

Precautionary statements

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

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

P280 Wear protective gloves/protective clothing/eye protection/face protection.

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

B4 - Flammable solid

D2B - Toxic material causing other toxic effects



Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH 1 Health (acute effects) = 1

FIRE 3 Flammability = 3

REACTIVITY 1 Physical Hazard = 1

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances

CAS# Description:

107333-47-1 (Trimethyl)pentamethylcyclopentadienyltitanium (IV)

4 First-aid measures

Description of first aid measures

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

Product name: (Trimethyl)pentamethylcyclopentadienyltitanium (IV)

After skin contact
Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.
After eye contact Rinse opened eye for several minutes under running water. Then consult a doctor.
After swallowing Seek medical treatment.
Information for doctor
Most important symptoms and effects, both acute and delayed No further relevant information available.
Indication of any immediate medical attention and special treatment needed No further relevant information available.

(Contd. of page 1)

5 Fire-fighting measures

Extinguishing media
Suitable extinguishing agents In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.
For safety reasons unsuitable extinguishing agents Water
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
Metal oxide fume
Advice for firefighters
Protective equipment:
Wear self-contained respirator.
Wear fully protective impervious suit.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Keep away from ignition sources
Environmental precautions: Do not allow material to be released to the environment without proper governmental permits.
Methods and material for containment and cleaning up:
Keep away from ignition sources.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
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.

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.
Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and receptacles: Store in a cool location.
Information about storage in one common storage facility:
Store away from oxidizing agents.
Store away from air.
Store in the dark.
Store away from water/moisture.
Further information about storage conditions:
Store under dry inert gas.
This product is moisture sensitive.
This product is air sensitive.
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
Protect from humidity and water.
Protect from exposure to light.
Specific end use(s) No further relevant information available.

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: Not required.
Additional information: No data
Exposure controls
Personal protective equipment
General protective and hygienic measures
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes.
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
Check protective gloves prior to each use for their proper condition.
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.

Product name: **(Trimethyl)pentamethylcyclopentadienyltitanium (IV)**

(Contd. of page 2)

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form: Crystalline
Color: Yellow
Odor: Not determined
Odor threshold: Not determined.

pH-value: Not applicable.

Change in condition

Melting point/Melting range: Not determined
Boiling point/Boiling range: Not determined
Sublimation temperature / start: Not determined

Flash point: Not applicable
Flammability (solid, gaseous) Highly flammable.
Ignition temperature: Not determined
Decomposition temperature: Not determined
Auto igniting: Not determined.

Danger of explosion: Not determined.

Explosion limits:

Lower: Not determined
Upper: Not determined

Vapor pressure: Not applicable.
Density: Not determined
Relative density Not determined.
Vapor density Not applicable.
Evaporation rate Not applicable.

Solubility in / Miscibility with

Water: Insoluble
Partition coefficient (n-octanol/water): Not determined.

Viscosity:

dynamic: Not applicable.
kinematic: Not applicable.

Other information No further relevant information available.

10 Stability and reactivity

Reactivity No information known.

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 No dangerous reactions known

Conditions to avoid No further relevant information available.

Incompatible materials:

Air
Oxidizing agents
Water/moisture
Light

Hazardous decomposition products:

Carbon monoxide and carbon dioxide
Metal oxide fume

11 Toxicological information

Information on toxicological effects

Acute toxicity: No effects known.

LD/LC50 values that are relevant for classification: No data

Skin irritation or corrosion: Irritant to skin and mucous membranes.

Eye irritation or corrosion: Causes serious eye irritation.

Sensitization: No sensitizing effects known.

Germ cell mutagenicity: No effects known.

Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

Reproductive toxicity: No effects known.

Specific target organ system toxicity - repeated exposure: No effects known.

Specific target organ system toxicity - single exposure: May cause respiratory irritation.

Aspiration hazard: No effects known.

Subacute to chronic toxicity:

Titanium and titanium compounds are considered physiologically inert. There are no reported cases in the literature where titanium as such has caused human intoxication.

Subacute to chronic toxicity: No effects known.

Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

12 Ecological information

Toxicity

Aquatic toxicity: No further relevant information available.

Persistence and degradability No further relevant information available.

Bioaccumulative potential No further relevant information available.

Mobility in soil No further relevant information available.

Additional ecological information:

General notes:

Do not allow material to be released to the environment without proper governmental permits.

Avoid transfer into the environment.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.




Other adverse effects No further relevant information available.

13 Disposal considerations

Waste treatment methods

Recommendation Consult state, local or national regulations to ensure proper disposal.

(Contd. on page 4)
USA

Product name: (Trimethyl)pentamethylcyclopentadienyltitanium (IV)	
Uncleaned packagings: Recommendation: Disposal must be made according to official regulations.	
(Contd. of page 3)	
14 Transport information	
UN-Number DOT, IMDG, IATA	UN1325
UN proper shipping name DOT	Flammable solids, organic, n.o.s. ((Trimethyl)pentamethylcyclopentadienyltitanium (IV))
IMDG, IATA	FLAMMABLE SOLID, ORGANIC, N.O.S. ((Trimethyl)pentamethylcyclopentadienyltitanium (IV))
Transport hazard class(es) DOT	
	
Class Label Class	4.1 Flammable solids, self-reactive substances and solid desensitised explosives. 4.1 4.1 (F1) Flammable solids, self-reactive substances and solid desensitised explosives
Label IMDG, IATA	4.1
	
Class Label	4.1 Flammable solids, self-reactive substances and solid desensitised explosives. 4.1
Packing group DOT, IMDG, IATA	II
Environmental hazards:	Not applicable.
Special precautions for user	Warning: Flammable solids, self-reactive substances and solid desensitised explosives
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
DOT Marine Pollutant (DOT):	No
UN "Model Regulation":	UN1325, Flammable solids, organic, n.o.s. ((Trimethyl)pentamethylcyclopentadienyltitanium (IV)), 4.1, II
15 Regulatory information	
Safety, health and environmental regulations/legislation specific for the substance or mixture	
GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)	
Hazard pictograms	
 	
GHS02 GHS07	
Signal word Danger	
Hazard statements	
H228 Flammable solid.	
H319 Causes serious eye irritation.	
H335 May cause respiratory irritation.	
Precautionary statements	
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.	
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.	
P280 Wear protective gloves/protective clothing/eye protection/face protection.	
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.	
SARA Section 313 (specific toxic chemical listings) Substance is not listed.	
California Proposition 65	
Prop 65 - Chemicals known to cause cancer Substance is not listed.	
Prop 65 - Developmental toxicity Substance is not listed.	
Prop 65 - Developmental toxicity, female Substance is not listed.	
Prop 65 - Developmental toxicity, male Substance is not 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. Substance is not 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.	
Substance is not listed.	
Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.	
Chemical safety assessment: A Chemical Safety Assessment has not been carried out.	
16 Other information	
Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.	
(Contd. on page 5)	

Product name: (Trimethyl)pentamethylcyclopentadienyltitanium (IV)	
<div>Department issuing SDS: Global Marketing Department</div> <div>Date of preparation / last revision 11/24/2015 / -</div> <div>Abbreviations and acronyms:</div> <div>ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)</div> <div>IMDG: International Maritime Code for Dangerous Goods</div> <div>DOT: US Department of Transportation</div> <div>IATA: International Air Transport Association</div> <div>CAS: Chemical Abstracts Service (division of the American Chemical Society)</div> <div>HMIS: Hazardous Materials Identification System (USA)</div> <div>WHMIS: Workplace Hazardous Materials Information System (Canada)</div> <div>LC50: Lethal concentration, 50 percent</div> <div>LD50: Lethal dose, 50 percent</div> <div>vPvB: very Persistent and very Bioaccumulative</div> <div>ACGIH: American Conference of Governmental Industrial Hygienists (USA)</div> <div>OSHA: Occupational Safety and Health Administration (USA)</div> <div>NTP: National Toxicology Program (USA)</div> <div>IARC: International Agency for Research on Cancer</div> <div>EPA: Environmental Protection Agency (USA)</div>	
(Contd. of page 4)	
USA	