

MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Vanadium oxyisopropoxide

Synonyms: Triisopropyl vanadate, Triisopropoxyvanadium(V) oxide

Product Code: 5818

General Use: Catalyst

Product Description: Not Available

MSDS Number: 5818US060405

MANUFACTURER: Company Name: NICHIA CORPORATION

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EMERGENCY TELEPHONE NUMBER:

United States: 717-285-2323 (NICHIA AMERICA CORPORATION)

International: +1-81-3-3456-3784 (NICHIA CORPORATION TOKYO OFFICE)

2. COMPOSITION/ INFORMATION ON INGREDIENTS

Chemical Composition:

Component	Chemical name	Wt%	CAS Registry#
VO(O-iC ₃ H ₇) ₃	Triisopropyl vanadate	100	5588-84-1

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Causes eye burns. Flammable liquid and vapor. Harmful if swallowed. Causes skin and respiratory tract irritation. May be harmful if absorbed through skin or if inhaled. Moisture sensitive.

POTENTIAL HEALTH EFFECTS:

Inhalation: Causes respiratory tract irritation. May be harmful if inhaled.

Eye: Causes eye burns.

Skin: Causes skin irritation. May be harmful if absorbed through the skin. Triisobutyl vanadate, a very similar chemical, has a dermal LD50 (rabbit) = 1930 mg/k.

Ingestion: Harmful if swallowed. May cause severe irritation of the digestive tract.

Hydrolyzes in the presence of water and body fluids to isopropanol, which can cause

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headache, nausea, narcosis, and mental depression.

POTENTIAL ENVIRONMENTAL EFFECTS: No information available.

4. FIRST AID MEASURES

INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration.

If breathing is difficult, give oxygen. Get medical aid.

EYE: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.

SKIN: In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid. Wash clothing before reuse.

INGESTION: If swallowed, do NOT induce vomiting. Get medical aid immediately.

If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person..

PROTECTION TO FIRST-AIDERS: Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

Flashpoint : 69.5 deg C (157.1 deg F)

EXTINGUISHING MEDIA: DO NOT USE WATER!

Use dry chemical, dry sand, or carbon dioxide.

FIREFIGHTING INSTRUCTIONS: Wear full fire-fighting turn-out gear (full bunker gear) and respiratory protection (self-contained breathing apparatus).

6. ACCIDENTAL RELEASE MEASURES

LAND SPILL: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Use a spark-proof tool. Isolate area and deny entry.

WATER SPILL: Dike spill. Prevent material from entering sewers, waterways, or low areas.

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7. HANDLING AND STORAGE

HANDLING: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Ground and bond containers when transferring material.

Use spark-proof tools and explosion proof equipment. Keep away from heat, sparks and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Avoid breathing vapor or mist. Do not get in eyes. Avoid contact with skin and clothing.

STORAGE: Keep away from sources of ignition. Store in a cool, dry place. Store in a tightly closed container. Flammables-area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING LIMIT VALUE: Not Established.

EXPOSURE CONTROLS:

OCCUPATIONAL EXPOSURE CONTROLS

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Personal Protection

Respiratory Protection: Follow the OSHA respirator regulations found in 29 CFR 1910.134.

Use a NIOSH/MSHA approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Eye Protection: Safety glasses are required.

Skin Protection: Protective gloves are recommended.

Environmental Exposure Controls: No information available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical State: Liquid

Color: Pale Yellow

Odor: alcohol-like

pH: No information available.

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Vapour Pressure: 133.32pa(59°C)

Flash Point: 69.5°C

Flammability: No information available.

Specific Gravity: 1.038g/cm³@20°C

Solubility in Water: 0.2wt% @25°C

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Not available.

STABILITY: Stable under normal temperatures and pressures. Will hydrolyze in mildly exothermic manner in the presence of water to form isopropanol and vanadic acids.

MATERIALS TO AVOID: Ignition sources, exposure to moist air or water.

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, vanadium oxide (VO_x) gases.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity: No information available.

Very similar chemical, triisobutyl vanadate, CAS 19120-62-8, has oral LD50 (rat) = 293 mg/kg and is corrosive to rabbit eyes.

(Oral, Dermal, Inhalation)

Eye Irritation: No information available.

Skin Irritation: No information available.

Sensitization: No information available.

Mutagenicity: No information available.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA: No information available.

PERSISTENCE AND DEGRADABILITY: No information available.

BIOACCUMULATIVE POTENTIAL: No information available.

13. DISPOSAL CONSIDERATIONS

Comply with all federal, state and local regulations.

Do not dump this material into sewers, on the ground or into any body of water.

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14. TRANSPORT INFORMATION

US DEPARTMENT OF TRANSPORTATION (DOT)

Hazardous Materials: VANADIUM COMPOUNDS, N.O.S

LAND TRANSPORT

ADR, RID

Class: 6.1

Packing Group(PG): III

UN Number: 2810

Proper Shipping Name: TOXIC LIQUID, ORGANIC, N.O.S.

SEA TRANSPORT

IMDG

Class: 6.1

Packing Group(PG): III

UN Number: 2810

Proper Shipping Name: TOXIC LIQUID, ORGANIC, N.O.S.

Marine Pollutant: Not applicable

AIR TRANSPORT

ICAO/IATA

Class: 6.1

Packing Group(PG): III

UN Number: 2810

Proper Shipping Name: TOXIC LIQUID, ORGANIC, N.O.S.

SEA TRANSPORT

15. REGULATORY INFORMATION

TSCA STATUS: This product on TSCA INVENTORY.

Refer to any other federal, state and local regulations.

16. OTHER INFORMATION

This information is furnished without warranty, express or implied, except that it is accurate to the best knowledge of NICHIA Corporation.

MATERIAL SAFETY DATA SHEET

It relates only to the specific product designated herein, and does not relate to use in combination with any other material or process. NICHIA Corporation assumes no legal responsibility for use or reliance upon this information.