

SAFETY DATA SHEET

Preparation Date: 3/30/2015

Revision Date: 10/13/2015

Revision Number: G2

1. IDENTIFICATION

Product identifier

Product code: D2371
Product Name: 1,3-DIOXOLANE

Other means of identification

Synonyms: 1,3-Dioxacyclopentane
1,3-Dioxolan
Dioxolan [Czech]
Dioxolane
Ethylene glycol formal
Formal glycol
Glycol formal
Glycol methylene ether
Glycolformal

CAS #: 646-06-0
RTECS # JH6760000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: Solvent.
Uses advised against No information available

Supplier: Spectrum Chemical Mfg. Corp
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000

Order Online At: <https://www.spectrumchemical.com>

Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious eye damage/eye irritation	Category 2A
Flammable liquids	Category 2

Label elements

Danger

Hazard statements

Causes serious eye irritation
Highly flammable liquid and vapor



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Causes mild skin irritation
May be harmful if swallowed

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
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
Wear protective gloves
Wear eye/face protection

In case of fire: Use CO₂, dry chemical, or foam to extinguish.

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

Precautionary Statements - Storage

Store in a well-ventilated place. Keep cool

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %	Trade Secret
1,3-Dioxolane 646-06-0	646-06-0	100	*

4. FIRST AID MEASURES

First aid measures

General Advice:

Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126).

Skin Contact:

Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention. If skin irritation persists, call a physician.

Eye Contact:

Flush eyes with water for 15 minutes. Get medical attention if irritation occurs.

Inhalation:

Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

Ingestion:

Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

Most important symptoms and effects, both acute and delayed

Symptoms

May cause skin irritation. Causes serious eye irritation. May cause digestive tract irritation. Ingestion may cause nausea, vomiting, and diarrhea. Central nervous system effects. May affect the liver. It may affect the kidneys.

Indication of any immediate medical attention and special treatment needed

Notes to Physician:

Treat symptomatically

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media:

Carbon dioxide (CO₂). Dry chemical. Water spray mist or foam. Alcohol-resistant foam.

Unsuitable Extinguishing Media:

Do not use a solid (straight) water stream as it may scatter and spread fire.

Specific hazards arising from the chemical

Hazardous Combustion Products:

Carbon monoxide; carbon dioxide

Specific hazards:

Flammable
May be ignited by heat, sparks or flames
Container explosion may occur under fire conditions or when heated
Vapor may travel considerable distance to source of ignition and flash back
Vapors may form explosive mixtures with air
Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas (sewers, basements, tanks)
Fire may produce irritating, corrosive and/or toxic gases

Special Protective Actions for Firefighters

Specific Methods:

Water mist may be used to cool closed containers. For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out.

Special Protective Equipment for Firefighters:

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Remove all sources of ignition. Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use spark-proof tools and explosion-proof equipment. In case of large spill, water spray or vapor suppressing foam may be used to reduce vapors, but may not prevent ignition in closed spaces.

Environmental precautions Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Absorb spill with inert material (e.g. vermiculite, dry sand or earth). In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Use clean non-sparking tools to collect absorbed material. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Remove all sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from incompatible materials.

Safe Handling Advice

Wear personal protective equipment. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Do not breathe vapors or spray mist. Do not ingest. When using do not smoke. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store in a segregated and approved area. Store away from incompatible materials.

Incompatible Materials:

Oxidizing agents. Lithium Perchlorate.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
1,3-Dioxolane 646-06-0	None	None	20 ppm TWA	None

Canada

Components	Alberta	British Columbia	Ontario	Quebec
1,3-Dioxolane 646-06-0	20 ppm TWA 61 mg/m ³ TWA	20 ppm TWA	20 ppm TWA	None

Australia and Mexico

Components	Australia	Mexico
1,3-Dioxolane 646-06-0	None	None

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Goggles

Skin and body protection: Chemical resistant apron. Long sleeved clothing. Gloves.

Respiratory protection: Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

Hygiene measures: Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

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Physical state: Liquid.	Appearance: No information available	Color: Clear. Colorless.
Odor: Ether-like.	Taste No information available	Molecular/Formula weight: 74.08
Formula: C3-H6-O	Flammability: No information available	Flash point (°C): -3
Flashpoint (°C/°F): 2 °C/ 35 °F -3 °C/27 °F	Flash Point Tested according to: Open cup Closed cup	Autoignition Temperature (°C/°F): 274 °C/525 °F
Lower Explosion Limit (%): 2.1%	Upper Explosion Limit (%): 20.5%	pH: No information available
Melting point/range(°C/°F): -95 °C/-139 °F	Boiling point/range(°C/°F): 74-78 °C/165.2-172.4 °F	Decomposition temperature(°C/°F): No information available
Bulk density: No information available	Density (g/cm3): No information available	Specific gravity: 1.06
Vapor pressure @ 20°C (kPa): 10.53	Evaporation rate: No information available	Vapor density: 2.6
VOC content (g/L): 1060	Odor threshold (ppm): No information available	Partition coefficient (n-octanol/water): -0.37
Viscosity: No information available	Miscibility: Miscible with water	Solubility: Soluble in Acetone Soluble in Ethanol Soluble in Ether Soluble in Water

10. STABILITY AND REACTIVITY

Reactivity

Reactive with oxidizing agents
Potentially explosive reaction with lithium perchlorate

Chemical stability

Stability: Stable under recommended storage conditions

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Heat. Ignition sources. Incompatible materials.

Incompatible Materials: Oxidizing agents. Lithium Perchlorate.

Hazardous decomposition products: Carbon monoxide. Carbon dioxide. When heated to decomposition it emits acrid smoke and irritating fumes.

Other Information

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:

Ingestion. Skin. Inhalation.

Acute Toxicity

Component Information

1,3-Dioxolane - 646-06-0

LD50/oral/rat = 3 g/kg Oral LD50 Rat

LD50/oral/mouse = 3200 mg/kg

LD50/dermal/rat = 15 g/kg Dermal LD50 Rat

LD50/dermal/rabbit = 8480 mg/kg Dermal LD50 Rabbit

LC50/inhalation/rat = 20650 mg/m³ Inhalation LC50 Rat 4 h

LC50/inhalation/mouse = 10500 mg/m³2h

Other LD50 or LC50 information = 5200 mg/kg oral LD50 Rabbit

Product Information

LD50/oral/rat =

VALUE- Acute Tox Oral = 3000 mg/kg

LD50/oral/mouse =

Value - Acute Tox Oral = 3200mg/kg

LD50/dermal/rabbit

VALUE-Acute Tox Dermal = 8480mg/kg

LD50/dermal/rat

VALUE -Acute Tox Dermal = 15000mg/kg

LC50/inhalation/rat

VALUE-Vapor = 20650mg/m³

VALUE-Gas = No information available

VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse

VALUE-Vapor = 10500 mg/m³ 2h

VALUE - Gas = No information available

VALUE - Dust/Mist = No information available

Symptoms

Skin Contact:

May cause skin irritation. Mild skin irritation. It may be absorbed through the skin.

Eye Contact:

Causes serious eye irritation.

Inhalation

May cause irritation of respiratory tract. May cause dyspnea (difficulty breathing or shortness of breath). May affect behavior/central nervous system (somnolence). It may affect the liver.

Ingestion

Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea
May affect respiration (respiratory depression)
May affect behavior/central nervous system (general anesthetic)
May affect the kidneys

Aspiration hazard No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity Prolonged or repeated ingestion may cause loss of appetite. Prolonged or repeated ingestion may cause weight loss. Prolonged or repeated ingestion may affect the kidneys. Prolonged or repeated ingestion may affect the liver. Prolonged or repeated ingestion may affect the blood (changes in platelet count). Prolonged or repeated ingestion may affect the blood (changes in white blood cell count). Prolonged or repeated ingestion may affect the thymus gland. Prolonged or repeated ingestion may affect the spleen. Prolonged or repeated inhalation may affect metabolism (weight loss). Prolonged or repeated inhalation may affect behavior/central nervous system (ataxia). Prolonged or repeated inhalation may affect the blood (changes in white blood cell count). Prolonged or repeated inhalation may affect the brain. Prolonged or repeated inhalation may affect the kidneys. Prolonged or repeated inhalation may affect the spleen.

Sensitization: No information available

Mutagenic Effects: May affect genetic material

Carcinogenic effects: Not considered carcinogenic

Components	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Prohibited Carcinogenic Substances	Australia - Notifiable Carcinogenic Substances
1,3-Dioxolane	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

Reproductive toxicity No data is available

Reproductive Effects: No information available
Developmental Effects: No information available
Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available
STOT - repeated exposure No information available
Target Organs: Kidneys. Central nervous system.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: Aquatic environment.

1,3-Dioxolane - 646-06-0

Freshwater Fish Species Data: 12000 (9871-14588) mg/l LC50 48 hours Cyprinodon variegatus (Sheepshead minnow)
10000 (8294-12057) mg/l LC50 96 hours Cyprinodon variegatus (Sheepshead minnow)

Water Flea Data: 7650 (6955-8414) mg/l EC50 24 hours Daphnia magna
6950 (6203-7787) mg/l EC50 48 hours Daphnia magna

1,3-Dioxolane - 646-06-0

Persistence and degradability: No information available

Bioaccumulative potential: Potential for bioconcentration in aquatic organisms is low.

Mobility: It is expected to have very high mobility based on estimated Koc.

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
1,3-Dioxolane	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN1166
Proper Shipping Name: Dioxolane
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: II
ERG No: 127
Marine Pollutant: No data available
DOT RQ (lbs): No information available

TDG (Canada)

UN-No: UN1166
Proper Shipping Name: Dioxolane
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: II
Description: No information available

ADR

UN-No: UN1166
Proper Shipping Name: Dioxolane
Hazard Class: 3
Packing Group: II
Subsidiary Risk: No information available
Classification Code: No information available
Description: No information available
CEFIC Tremcard No: No information available

IMO / IMDG

UN-No: UN1166
Proper Shipping Name: Dioxolane

14. TRANSPORT INFORMATION

Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: II
Description: No information available
IMDG Page: No information available
Marine Pollutant: No information available
EMS: F-E
MFAG: No information available
Maximum Quantity: No information available

RID

UN-No: UN1166
Proper Shipping Name: Dioxolane
Hazard Class: 3
Subsidiary Risk: 3
Packing Group: II
Classification Code: No information available
Description: No information available

ICAO

UN-No: UN1166
Proper Shipping Name: Dioxolane
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: II
Description: No information available

IATA

UN-No: UN1166
Proper Shipping Name: Dioxolane
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: II
ERG Code: 3L
Description: No information available

15. REGULATORY INFORMATION

International Inventories

Components	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
1,3-Dioxolane	Present	Present KE-12027	Present	Present (5)-500	Present	Not present	Present 211-463-5

U.S. Regulations

1,3-Dioxolane

Massachusetts RTK: Present
New Jersey RTK Hazardous Substance List: 0791
Pennsylvania RTK: Present

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
1,3-Dioxolane	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting <i>de minimis</i>
1,3-Dioxolane	None	None	None	None	None

U.S. TSCA

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
1,3-Dioxolane	Not Applicable	01/03/1983 01/03/1993

Canada

WHMIS hazard class:
B2 Flammable liquid

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Components	WHMIS Ingredient Disclosure List -
1,3-Dioxolane	1 %

Inventory

Components	Canada (DSL)	Canada (NDSL)
1,3-Dioxolane	Present	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
1,3-Dioxolane	Not listed	Not listed

EU Classification

R-phrase(s)

R11 - Highly flammable.

S -phrase(s)

S 2 - Keep out of the reach of children.

S16 - Keep away from sources of ignition - No smoking.

Components	Classification	Concentration Limits:	Safety Phrases
1,3-Dioxolane	F; R11	No information	S2 S16

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

F - Highly flammable.

**16. OTHER INFORMATION**

Preparation Date: 3/30/2015
Revision Date: 10/13/2015
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet