

Designer Molecules, Inc.

Safety Data Sheet

Product: U-471
MSDS ID: R1228

Revised Date: 01/02/25
Replaces Date: 04/24/23

1. General Information

Product Code: R1228
Trade Name(s): U-471
Product Type: TMDI Dimethacrylate Urethane
Recommended Use: Thermoset resin
Restrictions: None identified

Company: Designer Molecules, Inc.
10080 Willow Creek Rd.
San Diego, CA 92131
Telephone: 858-348-1122

Emergency phone number (spill, leak, fire, exposure or accident):
US Domestic (800) 535-5053 (INFOTRAC) Includes Canada and Mexico
International +1 (352) 323-3500
China Specific (86) 400-120-0761
Germany Specific (49) 0800-181-2924
Australia Specific (61) 1-300-366-961

2. Hazards Identification

EMERGENCY OVERVIEW:

OSHA Hazards:

Harmful by ingestion, Harmful by skin absorption, Irritant.

Other hazards which do not result in classification:

Possible sensitizer.

GHS Classification:

Acute toxicity, Oral (Category 4)
Acute toxicity, Dermal (Category 4)
Skin Irritation (Category 2)

GHS Label Elements, including precautionary statements:



Signal Word: **Warning**

H302: Harmful if swallowed.
H312: Harmful in contact with skin.
H315: Causes skin irritation.

P264: Wash thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
P280c: Wear protective gloves/protective clothing.
P302+P352: IF ON SKIN: Wash with plenty of soap and water.
P363: Wash contaminated clothing before reuse.
P280d: Wear protective gloves.
P332+P313: If skin irritation occurs: Get medical advice/attention.
P362: Take off contaminated clothing and wash before reuse.

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HMIS Classification:

Health Hazard: 2
Flammability: 1
Physical Hazards: 2

NFPA Rating:

Health Hazard: 2
Fire: 1
Reactivity Hazard: 2

POTENTIAL HEALTH EFFECTS:

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

EYE CONTACT: Causes eye irritation

SKIN CONTACT: Harmful if absorbed through skin. Causes skin irritation.

SWALLOWING: Harmful if swallowed.

3. Composition/ Information On Ingredients

Synonyms: Trimethylhexyl Diisocyanate Dimethacrylate Urethane, R1228, H1228

COMPONENT	CAS#	CONCENTRATION
TMDI Dimethacrylate Urethane	72869-86-4	> 90%

4. First Aid Measures

GENERAL ADVICE:

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If swallowed:

Do not induce vomiting. Give person large amounts of water. Get immediate medical attention.

In case of skin contact:

Wash area with soap and water. Consult a physician.

If inhaled:

Remove person to fresh air. If breathing has stopped, perform artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

In case of eye contact:

Flush with water for 15 minutes as a precaution.

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5. Fire and Explosion Hazard Data

Conditions of flammability:

Will burn.

Suitable extinguishing media:

Alcohol-resistant form, dry chemical or carbon dioxide.

Special protective equipment for firefighters:

Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products:

Hazardous combustion products formed under fire conditions. Nature of decomposition products not known.

6. Accidental Release Measures

Personal Precautions:

Wear personal protective equipment. Avoid dust formation. Avoid breathing dust, vapors, mist or gas. Ensure adequate ventilation.

Environmental precautions:

Do not let product enter drains.

Methods and materials for containment and cleaning up:

Pick-up and arrange for disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. Handling and Storage

Precautions for safe handling:

Avoid contact with skin eyes. Avoid formation of dust and aerosols. Keep container closed. Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage:

Store at +5°C or colder away from light and incompatible materials identified in the *Stability and Reactivity Section*.

8. Exposure Controls and Personal Protection Measures

Contains no substances with occupational exposure limit values

Personal protective equipment:

Respiratory protection:

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

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Hand protection:

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good manufacturing practices. Wash and dry hands.

Eye protection:

Safety glasses with side shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin and body protection:

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

9. Physical / Chemical Characteristics

Appearance:

Physical State:	Liquid
Color:	Clear, pale yellow
Odor:	None to slight
Odor threshold:	no data available

Other properties:

pH:	no data available
Melting Point:	no data available
Boiling Point:	no data available
Flash Point:	> 93°C (> 200°F) (estimated)
Ignition temperature	no data available
Autoignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapor Pressure:	no data available
Specific Gravity (H ₂ O=1):	no data available
Solubility in water:	no data available
n-Octanol/water partition coefficient:	no data available
Evaporation rate (BuAc=1):	< 1
Volatile organic content:	<0.1 g/L

10. Reactivity Hazard Data

Chemical stability:

Unstable/reactive upon depletion of inhibitor.

Conditions to avoid:

Elevated temperatures in the presence of initiators, direct sunlight, ultraviolet radiation, inert gas blanketing.

Materials to avoid:

Strong oxidizing, strong reducers, free radical initiators, inert gases, oxygen scavengers.

Hazardous decomposition products:

Acrid smoke-fumes/carbon monoxide/carbon dioxide and perhaps other toxic vapors may be released during a fire involving this product.

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Possibility of hazardous reactions:

No data available.

11. Toxicological Information

Acute Toxicity:

Oral LD50

No data available

Inhalation LC50

No data available

Dermal LD50

No data available

Other information on acute toxicity

No data available

Skin Corrosion/irritation:

No data available

Serious eye damage/eye irritation:

No data available

Respiratory or skin sensitization:

Prolonged or repeated exposure may cause allergic reactions in certain individuals.

Germ cell mutagenicity:

No data available

Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity:

No data available

Teratogenicity:

No data available

Specific target organ toxicity – single exposure (Globally Harmonized System)

No data available

Specific target organ toxicity – repeated exposure (Globally Harmonized System)

No data available

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Aspiration hazard

No data available

Potential health effects:

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	Harmful if swallowed.
Skin	Harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

Signs and Symptoms of Exposure:

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

Synergistic effects:

No data available

Additional Information:

RETCS: Not available

12. Ecological Information

Toxicity:

No data available

Persistence and degradability:

No data available

Bioaccumulation potential:

No data available

Mobility in soil:

No data available

PBT and vPvP assessment:

No data available

Other adverse effects:

No data available

13. Disposal Considerations

Product:

Contaminated product/soil/water may be RCRA/OSHA hazardous waste due to potential for internal heat generation. After excess inhibitor offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging:

Reuse of empty drums or containers is not recommended. Employees should be advised of the potential hazards due to residual material associated with empty containers. Dispose of all empty containers in accordance with federal, state and local regulations

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14. Transport Information

DOT (US):

Not dangerous goods

IMDG:

Not dangerous goods

IATA:

Not dangerous goods

15. Regulatory Information

TSCA Status:

Listed.

OSHA Hazards:

Harmful by ingestion. Harmful by skin absorption. Irritant.

SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards:

Acute health hazard

CALIFORNIA PROPOSITION 65:

This product does not contain any chemicals that are known to the State of California to cause cancer, birth defects or other reproductive harm.

16. Other Information

The opinions expressed herein are those of qualified experts within Designer Molecules Inc. We believe that the information contained herein is current, as of the date of this MSDS. Because the use of this information and of these opinions, and the conditions of use of this product, are not within the control of Designer Molecules Inc., it is the user's legal obligation to determine the conditions of safe use of this product.