



İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

T.C. dated 13 December 2014, numbered 29204. Prepared in accordance with the 'Regulation on Safety Data Sheets on Hazardous Substances and Mixtures of the Ministry of Environment and Urbanization'

SECTION 1 - DEFINITION OF CHEMICAL SUBSTANCE / PRODUCT AND MANUFACTURER

PRODUCT NAME : İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

USAGE: İZOTUB SPRAY POLYURETHANE KIT A TUBE

COMPANY : CIHAN POLIURETAN İZOLASYON İNŞ. SAN. TİC. LTD. ŞTİ.

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1.2 Identified Uses of the Substance or Mixture and Uses Suggested

Component for polyurethane manufacture.

SECTION 12- HAZARDS IDENTIFICATION:

2.1. Classification of substance and mixture

2.1.1 Classification according to the regulation on classification, labeling and packaging of substances and mixtures

Classification according to Regulation (EC) No 1272/2008:

Acute toxicity - Category 4 - Inhalation - H332

Skin irritation - Category 2 - H315

Eye irritation - Category 2 - H319

Respiratory sensitisation - Category 1 - H334

Skin sensitisation - Category 1 - H317

Carcinogenicity - Category 2 - H351

Specific target organ toxicity - single exposure - Category 3 - H335

Specific target organ toxicity - repeated exposure - Category 2 - H373

For the full text of the H-Statements mentioned in this Section, see Section 16.

Classification according to EU Directives 67/548/EEC or 1999/45/EC:



İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

Carc.Cat.3 - R40

Harmful - R20

Harmful - R48/20

Irritant - R36/37/38

R42/43

For the full text of the R-phrases mentioned in this Section, see Section 16

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008:

Hazard pictograms



Signal word: DANGER

Hazard statements

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335 May cause respiratory irritation.

H351 Suspected of causing cancer.

H373 May cause damage to organs (Respiratory Tract) through prolonged or repeated

Exposure

Precautionary statements



İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

P201 Obtain special instructions before use.

P260 Do not breathe spray.

P271 Use only outdoors or in a well-ventilated area.

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

P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.

P501 Dispose of contents/container to hazardous or special waste collection point

Contains Methylenediphenyl diisocyanate, homopolymer; 4,4'-methylenediphenyl diisocyanate

2.3 Other damages

no data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 This product is a mixture

Cas Number	Ec no	Cons. %	Class, H expressions
39310-05-9	609-645-8	40.0 - 60.0 %	Acute Tox. - 4 - H332 Skin Irrit. - 2 - H315 Eye Irrit. - 2 - H319 Resp. Sens. - 1 - H334 Skin Sens. - 1 - H317 Carc. - 2 - H351 STOT SE - 3 - H335 STOT RE - 2 - H373
101-68-8	202-966-0	40.0 - 60.0 %	Acute Tox. - 4 - H332 Skin Irrit. - 2 - H315 Eye Irrit. - 2 - H319 Resp. Sens. - 1 - H334 Skin Sens. - 1 - H317 Carc. - 2 - H351 STOT SE - 3 - H335 STOT RE - 2 - H373
811-97-2	212-377-0	5.0 - 10.0 %	Press. Gas - Liquefied gas - H280

*Explanations are given in Section 16.

(1) REGULATION ON CLASSIFICATION, LABELING AND PACKAGING OF SUBSTANCES AND MIXTURES

(2) ABOUT CLASSIFICATION, PACKAGING AND LABELING OF HAZARDOUS SUBSTANCES AND PREPARATIONS
REGULATION

(3) (Until 01/06/2015 for substances, until 01/06/2016 for mixtures!)



İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin contact: Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. An MDI skin decontamination study demonstrated that cleaning very soon after exposure is important, and that a polyglycol-based skin cleanser or corn oil may be more effective than soap and water. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands. Suitable emergency safety shower facility should be available in work area.

Eye contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

4.2 Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician: Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome). Maintain adequate ventilation and oxygenation of the patient. May cause respiratory sensitization or asthma-like symptoms. Bronchodilators, expectorants and antitussives may be of help. Treat bronchospasm with inhaled beta2 agonist and oral or parenteral corticosteroids. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. If you are sensitized to diisocyanates, consult your physician regarding working with other respiratory irritants or sensitizers. Exposure may increase "myocardial irritability". Do not administer sympathomimetic drugs such as epinephrine unless absolutely necessary. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.



İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

5. FIRE FIGHTING MEASURES

5.1. Fire extinguishers

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: Do not use direct water stream. May spread fire.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Isocyanates. Hydrogen fluoride. Hydrogen halides. Carbon dioxide.

Unusual Fire and Explosion Hazards: Some components of this product will burn in a fire situation. Container may vent and/or rupture due to fire. Vaporizes quickly at room temperature. Dense smoke is produced when product burns.

5.3. Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Do not use direct water stream. May spread fire. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Move container from fire area if this is possible without hazard. Use water spray to cool fire-exposed containers and fire-affected zone until fire is out.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Keep personnel out of low areas. Keep upwind of spill. Spilled material may cause a slipping hazard. Ventilate area of leak or spill. If available, use foam to smother or suppress. See Section 10 for more specific information. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

6.2. Environmental precautions



İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

6.3. Methods and materials for containment and cleaning up

Contain spilled material if possible. Absorb with materials such as: Dirt. Vermiculite. Sand. Clay. Do NOT use absorbent materials such as: Cement powder (Note: may generate heat). Collect in suitable and properly labeled open containers. Do not place in sealed containers. Suitable containers include: Metal drums. Plastic drums. Polylined fiber pacs. Wash the spill site with large quantities of water. Attempt to neutralize by adding suitable decontaminant solution: Formulation 1: sodium carbonate 5 - 10%; liquid detergent 0.2 - 2%; water to make up to 100%, OR Formulation 2: concentrated ammonia solution 3 - 8%; liquid detergent 0.2 - 2%; water to make up to 100%. If ammonia is used, use good ventilation to prevent vapor exposure. Contact your supplier for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

6.4. References to other sections

References to other sections, if applicable, have been provided in the previous sub-sections.

7.HANDLING AND STORAGE

7.1. Precautions for safe handling

Use only with adequate ventilation. Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Keep container tightly closed. Contents under pressure. Do not puncture or incinerate container. Do not enter confined spaces unless adequately ventilated. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

7.2. Conditions for safe storage, including any incompatibilities

Store in a dry place. Protect from atmospheric moisture. Do not store product contaminated with water to prevent potential hazardous reaction. See Section 10 for more specific information. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact.

Storage stability

Storage temperature: Storage Period:

15 - 25 °C 15 Month

7.3. Specific end uses

See the technical data sheet on this product for further information.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1.Control parameters



İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

Exposure limits are listed below, if they exist

Methylenediphenyl diisocyanate, homopolymer

GB EH40 TWA 0.02 mg/m³ , as -NCO

GB EH40 STEL 0.07 mg/m³ , as -NCO

4,4'-methylenediphenyl diisocyanate

ACGIH TWA 0.005 ppm

GB EH40 TWA SEN

GB EH40 STEL SEN

GB EH40 TWA 0.02 mg/m³ , as -NCO

GB EH40 STEL 0.07 mg/m³ , as -NCO

1,1,1,2-Tetrafluoroethane

US WEEL TWA 1,000 ppm

GB EH40 TWA 4,240 mg/m³ 1,000 ppm

8.2. Exposure controls

Engineering controls: Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations. Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. The odor and irritancy of this material are inadequate to warn of excessive exposure. Lethal concentrations may exist in areas with poor ventilation.

Individual protection measures

Eye/face protection: Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent.

Skin protection

Hand protection: Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Polyethylene. Chlorinated polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Viton. Neoprene. Polyvinyl chloride ("PVC" or "vinyl"). Nitrile/butadiene rubber ("nitrile" or "NBR"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant



IZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Atmospheric levels should be maintained below the exposure guideline. When atmospheric levels may exceed the exposure guideline, use an approved airpurifying respirator equipped with an organic vapor sorbent and a particle filter. For situations where the atmospheric levels may exceed the level for which an air-purifying respirator is effective, use a positive-pressure air-supplying respirator (air line or self-contained breathing apparatus). For emergency response or for situations where the atmospheric level is unknown, use an approved positive-pressure self-contained breathing apparatus or positivepressure air line with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.

Use the following CE approved air-purifying respirator: Organic vapor cartridge with a particulate pre-filter, type AP2.

Environmental exposure controls

See SECTION 7: Handling and storage and SECTION 13: Disposal considerations for measures to prevent excessive environmental exposure during use and waste disposal.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Important Health Safety and Environmental Information

Appearance

Physical state	Liquid.
Color	Yellow
Odor	Characteristic
Odor Threshold	0.4 ppm Based on Literature for MDI. Odor is inadequate warning of excessive exposure.
pH	No test data available
Melting point/range	No test data available
Freezing point	No test data available
Boiling point (760 mmHg)	No test data available
Flash point closed cup	No test data available



İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not applicable to liquids
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	No test data available
Relative Vapor Density (air = 1)	No test data available
Relative Density (water = 1)	No test data available
Water solubility	insoluble, reacts, evolution of CO ₂
Partition coefficient: n-octanol/water	no data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Dynamic Viscosity	Not applicable
Kinematic Viscosity	no data available
Explosive properties	Not explosive
Oxidizing properties	No

Molecular weight no data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

10.1 Reactivity

No available data.

10.2 Chemical Stability

Stable under recommended storage conditions. See Storage, Section 7. Unstable at elevated temperatures.

10.3 Possibility of Hazardous Reactions

Can occur. Elevated temperatures can cause hazardous polymerization.



İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

10.4 Conditions to Avoid

Avoid temperatures above 50°C (122°F) Elevated temperatures can cause container to vent and/or rupture. Exposure to elevated temperatures can cause product to decompose.

10.5 Substances to Avoid

Avoid contact with: Acids. Alcohols. Amines. Ammonia. Bases. Metal compounds. Strong oxidizers. Products based on diisocyanates like TDI and MDI react with many materials to release heat. The reaction rate increases with temperature as well as with increased contact; these reactions can become violent. Contact is increased by stirring or if the other material acts as a solvent. Products based on diisocyanates such as TDI and MDI are not soluble in water and will sink to the bottom, but react slowly at the interface. The reaction forms carbon dioxide gas and a layer of solid polyurea. Reaction with water will generate carbon dioxide and heat.

10.6 Harmful Decomposition Products

Decomposition products depend upon temperature, air supply and the presence of other materials. Toxic gases are released during decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on Toxic Effects

Acute toxicity

Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Observations in animals include: Gastrointestinal irritation.

As product: Single dose oral LD50 has not been determined.

LD50, Rat, > 10,000 mg/kg Estimated.

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

LD50, Rabbit, > 2,000 mg/kg Estimated.

Acute inhalation toxicity

In confined or poorly ventilated areas, vapor can easily accumulate and can cause unconsciousness and death due to displacement of oxygen. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause pulmonary edema (fluid in the lungs.) Effects may be delayed. Decreased lung function has been associated



İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

with overexposure to isocyanates. Excessive exposure may increase sensitivity to epinephrine and increase myocardial irritability (irregular heartbeats). May cause central nervous system effects. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

As product: The LC50 has not been determined.

Skin corrosion/irritation

Prolonged contact may cause skin irritation with local redness.

May stain skin.

Serious eye damage/eye irritation

May cause moderate eye irritation.

May cause slight temporary corneal injury.

Sensitization

Skin contact may cause an allergic skin reaction.

Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization.

May cause allergic respiratory reaction.

MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized.

Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.

Specific Target Organ Systemic Toxicity (Single Exposure)

May cause respiratory irritation. Specific Target Organ Systemic Toxicity (Repeated Exposure) Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/polymeric MDI aerosols.

Carcinogenicity

Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/Polymeric MDI (6 mg/m³) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.

Teratogenicity



İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

In laboratory animals, MDI/polymeric MDI did not cause birth defects; other fetal effects occurred only at high doses which were toxic to the mother. Contains component(s) which did not cause birth defects; however, in laboratory animals, other toxic effects to the fetus have been seen. Did not cause birth defects in laboratory animals.

Reproductive toxicity

No relevant data found.

Mutagenicity

Genetic toxicity data on MDI are inconclusive. MDI was weakly positive in some in vitro studies; other in vitro studies were negative. Animal mutagenicity studies were predominantly negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

COMPONENTS INFLUENCING TOXICOLOGY

Methylenediphenyl diisocyanate, homopolymer

Acute inhalation toxicity

For similar material(s):

4,4'-Methylenediphenyl diisocyanate (CAS 101-68-8). LC50, Rat, 1 Hour, Aerosol, 2.24 mg/l

4,4'-methylenediphenyl diisocyanate

Acute inhalation toxicity

LC50, Rat, 1 Hour, dust/mist, 2.24 mg/l

1,1,1,2-Tetrafluoroethane

Acute inhalation toxicity

LC50, Rat, 4 Hour, vapour, > 1,500 mg/l

12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

12.1 Ecotoxicity

Methylenediphenyl diisocyanate, homopolymer

Acute toxicity to fish



İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species.

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

Based on information for a similar material:

LC50, Danio rerio (zebra fish), static test, 96 Hour, > 1,000 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

Based on information for a similar material:

EC50, Daphnia magna (Water flea), static test, 24 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

Based on information for a similar material:

NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, 1,640 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

Based on information for a similar material:

EC50, activated sludge, static test, 3 Hour, Respiration rates, > 100 mg/l

Toxicity to soil-dwelling organisms

EC50, Eisenia fetida (earthworms), Based on information for a similar material; 14 d, > 1,000 mg/kg

Toxicity to terrestrial plants

EC50, Avena sativa (oats), Growth inhibition, 1,000 mg/l

EC50, Lactuca sativa (lettuce), Growth inhibition, 1,000 mg/l

4,4'-methylenediphenyl diisocyanate

Acute toxicity to fish

The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species.

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).



İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

Based on information for a similar material:

LC50, Danio rerio (zebra fish), static test, 96 Hour, > 1,000 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

Based on information for a similar material:

EC50, Daphnia magna (Water flea), static test, 24 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

Based on information for a similar material:

NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, 1,640 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

Based on information for a similar material:

EC50, activated sludge, static test, 3 Hour, Respiration rates., > 100 mg/l

Toxicity to soil-dwelling organisms

EC50, Eisenia fetida (earthworms), Based on information for a similar material, 14 d, > 1,000 mg/kg

Toxicity to terrestrial plants

EC50, Avena sativa (oats), Growth inhibition, 1,000 mg/l

EC50, Lactuca sativa (lettuce), Growth inhibition, 1,000 mg/l

1,1,1,2-Tetrafluoroethane

Acute toxicity to fish

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 450 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 48 Hour, 980 mg/l

Toxicity to bacteria

EC50, Pseudomonas putida, static test, 6 Hour, Growth inhibition, > 730 mg/l



İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

12.2 Persistence and degradability

Methylenediphenyl diisocyanate, homopolymer

Biodegradability: In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates.

10-day Window: Not applicable

Biodegradation: 0 %

Exposure time: 28 d

Method: OECD Test Guideline 302C or Equivalent

4,4'-methylenediphenyl diisocyanate

Biodegradability: In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates.

10-day Window: Not applicable

Biodegradation: 0 %

Exposure time: 28 d

Method: OECD Test Guideline 302C or Equivalent

12.3 Bioaccumulative potential

Methylenediphenyl diisocyanate, homopolymer

Bioaccumulation: Reacts with water. In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

Bioconcentration factor (BCF): 92 Cyprinus carpio (Carp) 28 d

4,4'-methylenediphenyl diisocyanate

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Reacts with water. In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

Bioconcentration factor (BCF): 92 Cyprinus carpio (Carp) 28 d

1,1,1,2-Tetrafluoroethane



İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

Bioaccumulation: Bioconcentration potential is low ($BCF < 100$ or $\log Pow < 3$).

Partition coefficient: n-octanol/water($\log Pow$): 1.68 Estimated.

12.4 Mobility in soil

Methylenediphenyl diisocyanate, homopolymer

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

4,4'-methylenediphenyl diisocyanate

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

1,1,1,2-Tetrafluoroethane

Potential for mobility in soil is high (K_{oc} between 50 and 150).

Partition coefficient(K_{oc}): 97 Estimated.

12.5 Results of PBT and vPvB assessment

Methylenediphenyl diisocyanate, homopolymer

This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

4,4'-methylenediphenyl diisocyanate

This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

1,1,1,2-Tetrafluoroethane

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects

Product contains no ozone-depleting components.

13. DISPOSAL INFORMATION

13.1 Waste treatment methods

This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 2008/98/EC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required. Do not dump into any sewers, on the ground, or into any body of water. Incineration under



İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

approved, controlled conditions using incinerators suitable or designed for the disposal of hazardous chemical wastes, is the preferred method for disposal. Small quantities of waste may be pretreated for example with polyol, to neutralise prior to disposal. Empty drums should be decontaminated (see Section 6) and either punctured and scrapped or given to an approved drumreconditioner

14. TRANSPORT INFORMATION

Classification for ROAD and Rail transport (ADR/RID):

14.1 UN number UN 3500

14.2 Proper shipping name CHEMICAL UNDER PRESSURE, N.O.S.(1,1,1,2- Tetrafluoroethane)

14.3 Class 2

14.4 Packing group Not applicable

14.5 Environmental hazards Not considered environmentally hazardous based on available data.

14.6 Special precautions for user Hazard identification No: 20

Classification for SEA transport (IMO-IMDG):

14.1 UN number UN 3500

14.2 Proper shipping name CHEMICAL UNDER PRESSURE, N.O.S.(1,1,1,2- Tetrafluoroethane)

14.3 Class 2.2

14.4 Packing group Not applicable

14.5 Environmental hazards Not considered as marine pollutant based on available data.

14.6 Special precautions for user EmS: F-C, S-V

14.7 Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code

Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

14.1 UN number UN 3500

14.2 Proper shipping name Chemical under pressure, n.o.s.(1,1,1,2-Tetrafluoroethane)

14.3 Class 2.2

14.4 Packing group Not applicable



İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

14.5 Environmental hazards Not applicable

14.6 Special precautions for user No data available.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material

15. REGULATORY INFORMATION

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

REACH Regulation (EC) No 1907/2006

This product contains only components that have been either pre-registered, registered, are exempt from registration or are regarded as registered according to Regulation (EC) No. 1907/2006 (REACH). The aforementioned indications of the REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. It is the buyer's/user's responsibility to ensure that his/her understanding of the regulatory status of this product is correct.

Restrictions on the manufacture, placing on the market and use:

The following substance/s contained in this product is/are subject through Annex XVII of REACH regulation to restrictions on the manufacture, placing on the market and use when present in certain dangerous substances, mixtures and articles. Users of this product have to comply with the restrictions placed upon it by the aforementioned provision.

CAS-No.: 101-68-8

Name: 4,4'-methylenediphenyl diisocyanate

Restriction status: listed in REACH Annex XVII

Restricted uses: See Annex XVII to Regulation (EC) no 1907/2006 for Conditions of restriction

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H280 Contains gas under pressure; may explode if heated.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.



İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

H332 Harmful if inhaled.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335 May cause respiratory irritation.

H351 Suspected of causing cancer.

H373 May cause damage to organs through prolonged or repeated exposure.

Full text of R-phrases referred to under sections 2 and 3

R20 Harmful by inhalation.

R36/37/38 Irritating to eyes, respiratory system and skin.

R40 Limited evidence of a carcinogenic effect.

R42/43 May cause sensitisation by inhalation and skin contact.

R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008

Acute Tox. - 4 - H332 - Calculation method

Skin Irrit. - 2 - H315 - Calculation method

Eye Irrit. - 2 - H319 - Calculation method

Resp. Sens. - 1 - H334 - Calculation method

Skin Sens. - 1 - H317 - Calculation method

Carc. - 2 - H351 - Calculation method

STOT SE - 3 - H335 - On basis of test data.

STOT RE - 2 - H373 - Calculation method

Product Literature

Additional information on this product may be obtained by calling your sales or customer service contact.

Revision

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İZOTUP SPRAY POLYURETHANE KIT COMPONENT A ISOCYANATE

SAFETY DATA SHEET SDS

22.06.2021

Legend

ACGIH USA. ACGIH Threshold Limit Values (TLV)

GB EH40 UK. EH40 WEL - Workplace Exposure Limits

SEN Sensitizer

STEL Short-term exposure limit (15-minute reference period)

TWA 8-hour, time-weighted average

US WEEL USA. Workplace Environmental Exposure Levels (WEEL)

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company. Your company urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

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CERTIFICATE OF QUALIFICATION

Chemical evaluation specialist

Certificate No: TÜV 11.25.04 January 2, 2020

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