SAFETY DATA SHEET

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SECTION I. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product name **DI ISOPROPYL ETHER**

Synonyms: Diisopropyl ether; DIPE; 2-Isopropoxypropane

Product use As a Solvent in chemical processes, in coatings, inks, cleaners, cosmetics, Paints lacquers and printing inks; perfumery, insecticides and food flavorings.

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SECTION II- IDENTIFICATION OF HAZARDS

Hazard Identification: Flammable liquid and vapor. Vapor may cause flash fire. May form peroxides during prolonged storage. May cause drowsiness or dizziness, Causes eye irritation, repeated exposure may cause skin dryness or cracking.

Signal word: **Danger**

Labeling:

Hazard statement:

H225 Highly flammable liquid and vapors
H336 May cause drowsiness or dizziness

Supplemental hazard: May form explosive peroxides. Repeated exposure may cause skin dryness or cracking.

Precautionary statement

P102 Keep out of reach of children
P210 Keep away from heat / sparks/ open flames/ hot surfaces. – No smoking
P261 Avoid breathing dust/fume/gas/mist/vapors/spray
P280 Wear protective gloves/protective clothing/eye protection/face protection
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
P233 Keep container tightly closed.
P243 Take precautionary measurements against static discharge.

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

Hazard Symbol:

R phrases

R11 Highly Flammable
R19 May form explosive peroxides
R67 Vapors may cause drowsiness and dizziness

Safety Phrases

S2 Keep out of the reach of children
S16 Keep away from sources of ignition - No smoking
S24/25 Avoid contact with skin and eyes
S29 Do not empty into drains
S33 Take precautionary measures against static discharges.

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SECTION III – COMPOSITION/ INFORMATION ON INGREDIENTS

Name	Cas no	Ec no	%
Di isopropyl ether	108-20-3	203-560-6	100

SECTION IV- FIRST AID MEASURES

Skin contact: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes.

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. Get medical aid.

Inhalation: Remove patient from contaminated area. Lay patient down. Keep warm and rested. Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. Apply artificial respiration if breathing is difficult, if by mouth to mouth use rescuer protection (pocket mask etc,). Perform CPR if necessary. Take hospital, or doctor, without delay.

Ingestion: Do not induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water. Do not give anything by mouth to an unconscious person. If vomiting appears imminent or occurs, hold patient's head down; lower than their hips to help avoid possible aspiration of vomitus. Seek medical advice.

Note to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION V - FIRE-FIGHTING MEASURES

Fire hazard: Highly flammable liquid & vapors. May form flammable mixtures with air. Vapors are heavier than air and may travel along the ground; distant ignition and flash back are possible. Avoid all ignition sources.

Fire extinguishing media: Use water spray to cool fire-exposed containers. Use water spray, dry chemical, carbon dioxide, or chemical foam.

Special fire fighting procedure: Wear full body body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or water course. Consider evacuation. Use water delivered as a fine spray to control fire and cool adjacent area. Avoid spraying water onto liquid pools. DO NOT approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire. Equipment should be thoroughly decontaminated after use.

Unusual fire explosion hazards: Heat may cause the containers to explode. Solvent vapors may form explosive mixtures with air. May travel considerable distance to source of ignition and flash back. May ignite at high temperature. Vapors are heavier than air and may spread near ground to sources of ignition.

Autoignition Temperature: 443 ^{0}C (829 ^{0}F) **Flash Point:** -28 ^{0}C (-18 ^{0}F)

Explosion Limits: Lower: 1.1 Vol % **Explosion Limits:** Upper: 21 Vol %

SECTION VI - ACCIDENTAL RELEASE MEASURES

Personal precautions: Avoid breathing vapors and contact with skin and eyes. Control personal contact by using protective equipment.

Environment precautions: Do not allow to enter soil, waterways and open bodies of water.

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Cleaning methods: Collect spilled material if possible in suitable and properly labeled container. Ground & bound all the containers and handling equipment. Pump with explosion proof equipment. Prevent runoff into drains. Contaminated equipment must be cleaned immediately with water. Dispose of in accordance with local regulations.

SECTION VII- HANDLING AND STORAGE

Precautions for safe handling: Keep away from heat, sparks and flame**.** Avoid all personal contact, including inhalation. Wear protective clothing. Use in a well-ventilated area. DO NOT enter confined spaces until atmosphere has been checked. Avoid contact with incompatible materials. When handling, Do not eat, drink or smoke. Keep containers securely sealed when not in use. Electrically bond & ground all containers and equipment before transfer or use of material. Avoid physical damage to containers. Launder contaminated clothing before re-use. Use good occupational work practice. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained. Containers, even those that have been emptied, may contain explosive vapors. Do not cut, drill, grind, weld or perform similar operations on or near containers. This product is a poor conductor of electricity and can become electro statically charged, even in bonded or grounded equipment. If sufficient charge is accumulated, ignition of flammable mixtures can occur.

Storage: Store in tightly closed containers in cool, dry, isolated and well ventilated areas away from heat, sources of ignition and incompatibles. Store away from oxidizing agents. Keep containers closed at all times – check regularly for leaks. Do not eat, drink or smoke in areas of use or storage. Store with all precautions required for handling flammable liquids. Electrically earth all containers. Maintain good housekeeping.

SECTION VIII- EXPOSURE CONTROL/ PERSONAL PROTECTIVE EQUIPMENT

Exposure Limits: TWA (ACGIH): 250ppm **STEL:** 310 ppm **OSHS PELs**: 500 ppm TWA; 2100 mg/m3 TWA

Ventilation: Local exhaust ventilation and/or mechanical (general) exhaust are recommended where vapors are likely to be generated. All such equipment must be intrinsically safe. An approved Self contained breathing apparatus (SCBA) may be required in some situations.

Personal protective equipment

Eye protection: Avoid eye contact by wearing chemical goggles with side shields or face shield whenever exposed to vapor or mist or if there is a risk of splashing liquid in the eyes.

Skin protection: Avoid skin contact by the use of approved chemical resistant gloves Impervious (rubber, neoprene, PVC, etc.) hand gloves, aprons.

Respiration protection: None should be needed under normal circumstances. In high vapor concentrations or in suspected oxygen deficient atmospheres, such as empty vessels or confined spaces, use air supplied hood Use suitable respiratory protective device in case of insufficient ventilation. Maintain good ventilation in the area. Suggested MSHA/NIOSH approved respirator where vapors concentrations is more.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice.

Protective measures: Eye wash facility and emergency shower.

Smoking and other dusts: Smoking must be prohibited in all areas where product is being used.

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SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Form: Volatile liquid

Color: Colorless

Odor: Sweet odor

pH: Not available

Boiling point: 68°C

Freezing point: - 86 ^{0}C

Flammability: Flammable

Flash point: - 28 °C (-18 ^{0}F)

Specific gravity (Water=1): 0.72

Vapor Pressure: 150 mmHg @ 25 ^{0}C

Vapor Density (air=1): 3.5

Solubility in water: 0.65 %

Solvent solubility: Alcohol, ether, acetic acid

Molecular weight: 102.2 g/mol

SECTION X - STABILITY AND REACTIVITY DATA

Chemical stability: Stable under normal conditions of use.

Reactivity: May form explosive peroxides

Hazardous Polymerization: Will not occur

Conditions to avoid: Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

Incompatible Materials: Acids, oxidizing materials, halo carbons

Thermal decomposition: Depends upon temperature, air supply and the presence of other material mainly emits oxides of carbon other pyrolysis products.

SECTION XI - TOXICOLOGICAL INFORMATION

Toxicity data: 161700 mg/m3 inhalation-rat LC50; 20 ml/kg skin-rabbit LD50; 5880 mg/kg oral-rat LD50

Irritation: 363 mg open skin-rabbit mild

Local effects: Irritant: skin

Potential health effects:

Ingestion: Swallowing concentrated chemical may cause severe internal injury. May cause nausea, headache, dizziness and intoxication. Ingestion of large amounts may cause unconsciousness, nausea, vomiting. headache. drowsiness, dizziness, disorientation, vertigo, narcotic effect. Harmful: danger of serious damage to health by prolonged exposure if swallowed.

Eye: Extreme irritation of eyes and mucous membranes, including burning and tearing. Risk of corneal damage.

Skin: Repeated exposure may cause skin dryness or cracking. Acts as a defeating agent on skin. May cause cracking of skin, and eczema.

Inhalation: Vapors may irritate the respiratory system and cause coughing, asthmatic breathing and breathlessness. Prolonged inhalation of high concentrations may damage respiratory system. Central nervous system depression. Vapors may cause headache, fatigue, dizziness and nausea.

SECTION XII - ECOLOGICAL INFORMATION

Ecotoxicity: Moderately toxic to aquatic life.

Fish toxicity: 91700 ug/L 96 hour(s) LC50 (Mortality) Fathead minnow (Pimephales promelas)

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SECTION XIII - DISPOSAL INFORMATION

Waste from Residues / Unused Products: Dispose of in accordance with local regulations

Contaminated Packaging Empty containers should be taken to local recyclers for disposal

SECTION XIV - TRANSPORTATION INFORMATION

Labels Required:		Flammable Liquid	Irritant
Land Transport UNDG:			
Class or division:	**3**	**Subsidiary risk:**	**None**
UN No.:	**UN 1159**	**UN packing group:**	**II**
Shipping Name: Diisopropyl ether			
Transport IATA:			
Hazard Class	**3**	**ICAO/IATA Subrisk:**	**None**
UN/ID Number:	**UN 1159**	**UN packing group:**	**II**
Special provisions:	**None**		
Shipping Name: Diisopropyl ether			
Maritime Transport IMDG:			
IMDG Class:	**3**	**IMDG Subrisk**	**None**
UN Number:	**UN 1159**	**Packing Group:**	**II**
Special provisions:	**None**		
Shipping Name: Diisopropyl ether			

SECTION XV - REGULATORY INFORMATION

Chemical Inventories: The chemical Substance Diisopropyl acetate (CAS: 108-20-3) is listed on following chemical inventories: AICS (Australia), Canada (DSL), China (IECSC-SEPA), Japan (ENCS), Korea (KECI), PICCS (Philippines), TSCA (US)

SECTION XVI - MISCELLANEOUS INFORMATION

DISCLAIMER: The data presented here is based on information we believe to be reliable but unknown risks may be present. We disclaim liability for damage or injury which results from the use of the above data and nothing contained therein shall constitute a guarantee or a warranty (including warranty of Merchantibility or fitness for a particular purpose) or representation (including freedom from Patentability) by us with respect to the accuracy or completeness of the data, the product described or their use for any specific purpose as known to us. The final determination of the suitability of information, the manner of use of information or product and potential infringement of patents is the sole responsibility of the user.

ABBREVIATIONS USED: NA - NOT APPLICABLE, NH - NON HAZARDOUS, CI - CONTENT INSIGNIFICANT.

ISSUED BY SAFETY DEPARTMENT