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-----ISO 9001: 2015-----

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION

Product name: 2,2'-Thiodiethanol
Product code: T 1608

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

PHYSICAL HAZARDS Not classified

HEALTH HAZARDS

Skin corrosion/irritation Category 2

Serious eye damage/eye irritation Category 2A

ENVIRONMENTAL HAZARDS Not classified

Label elements

Signal word Warning

Hazard statements Causes skin irritation

Causes serious eye irritation

Precautionary statements

[Prevention] Wash hands and face thoroughly after handling. Wear protective gloves, eye protection. [Response] IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse.

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 or attention.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/mixture: Substance

Components: 2,2'-Thiodiethanol

Percent: >98.0%(GC)

CAS RN: 111-48-8

Synonyms: 2-Hydroxyethyl Sulfide , Thiodiglycol

Chemical Formula: C₄H₁₀O₂S

Notice Through Official Gazettes Reference Number

ENCS: (2)-470

ISHL: Official announcement chemistry substance.

4. FIRST-AID MEASURES

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell. Skin contact: Remove/Take off immediately all contaminated clothing. Gently wash with

plenty of soap and water. If skin irritation or rash occurs: Get medical

advice/attention. Eye contact: 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.

Ingestion: Get medical advice/attention if you feel unwell. Rinse mouth. Protection of first-aiders: A rescuer should wear personal protective equipment, such as rubber gloves and air-tight goggles.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing

media:

Dry chemical, foam, water in large amounts, carbon dioxide. Specific hazards arising from the chemical:

Take care as it may decompose upon combustion or in high temperatures to generate poisonous fume.

Precautions for firefighters: Fire-extinguishing work is done from the windward and the suitable fire-extinguishing method according to the surrounding situation is used. Uninvolved persons should evacuate to a safe place. In case of fire in the surroundings: Remove movable containers if safe to do so. Special protective equipment for firefighters:

6. ACCIDENTAL RELEASE MEASURES

Personal precautions,
protective equipment and
emergency procedures:

Use personal protective equipment. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc. Environmental precautions: Prevent product from entering drains. Methods and materials for containment and cleaning

up: Absorb spilled material in a suitable absorbent (e.g. rag, dry sand, earth, saw-dust). In case of large amount of spillage, contain a spill by bunding. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical measures: Handling is performed in a well ventilated place. Wear suitable protective equipment. Prevent generation of vapour or mist. Wash hands and face

thoroughly after handling. Use a ventilation, local exhaust if vapour or aerosol will be generated. Advice on safe handling: Avoid contact with skin, eyes and clothing. Conditions for safe storage, including any incompatibilities

Storage conditions: Keep container tightly closed. Store in a cool and dark place. Store under inert gas.

Protect from moisture. Store away from incompatible materials such as oxidizing agents. Hygroscopic, Air-sensitive

Packaging material: Comply with laws.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls: Install a closed system or local exhaust as possible so that workers should not be exposed directly. Also install safety shower and eye bath. Control parameters: Not set up

Personal protective equipment

Respiratory protection: Vapor respirator. Follow local and national regulations. Hand protection: Protective gloves.

Eye protection: Safety glasses. A face-shield, if the situation requires. Skin and body protection: Protective clothing. Protective boots, if the situation requires.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state (20 °C): Liquid

Form: Clear

Colour: Colorless - Slightly pale yellow

Odour: No data available

pH: No data available

Melting point/freezing point: No data available

Boiling point/range: 166 °C /2.7kPa

Flash point: 160 °C

Flammability or explosive limits:

Lower: No data available

Upper: No data available

Relative density: 1.19

Solubility(ies):

[Water] No data available

[Other solvents] No data available

10. STABILITY AND REACTIVITY

Reactivity: No data available

Chemical stability: Stable under proper conditions.

Possibility of hazardous

reactions:

No special reactivity has been reported.

Incompatible materials: Oxidizing agents

Hazardous decomposition

products:

Carbon dioxide, Carbon monoxide, Sulfur oxides

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Toxicity to Animals:

Oral LD50 Rat: 1500 mg/kg; Dermal LD50 Rabbit: 2000mg/kg

Inhalation LC50 Rat: > 50mg/L.

Chronic Effects on Humans: CARCINOGENIC EFFECTS: Classified None. by NTP, None. by OSHA, None. by NIOSH.

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant), of inhalation (lung irritant).

Special Remarks on Toxicity

to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Fish: No data available

Crustacea: No data available

Algae: No data available

Persistence / degradability: No data available

*The substance was determined as "Ready biodegradability" under the Chemical Substances Control Law.

Bioaccumulative

potential(BCF):

No data available

Mobility in soil

Log Pow: No data available

Soil adsorption (Koc): No data available

Henry's Law (PaM 3/mol): No data available

Other adverse effects: No data available

13. DISPOSAL CONSIDERATIONS

Recycle to process, if possible. Consult your local regional authorities. You may be able to burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

14. TRANSPORT INFORMATION

Hazards Class: Does not correspond to the classification standard of the United Nations

UN-No: Not listed

Specific precautionary

transport measures and conditions:

15. JAPANESE REGULATORY INFORMATION

Fire Defense Law: Class-4 No.3 petroleum Dangerous grade 3 Water-soluble fluid

Law on the Prohibition of

Chemical Weapons and the

Regulation of Specific

Chemicals:

Designated substance, Class I

SECTION 16: OTHER INFORMATION

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.