

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Name: COD2 Mercury-Free COD Reagent 0-1500 ppm Range
Catalog Number: 2565125

HACH LANGE GmbH
Willstätterstrasse 11
40549 Düsseldorf, Germany
+49-(0)211-52880

Emergency Telephone Numbers:
(Poison Information Center Main)
(+49 (0) 6131 19240) 24 HR

SDS Number: M00557

Chemical Name: Not applicable

Chemical Formula: Not applicable

Chemical Family: Not applicable

Use of the substance/preparation: Determination of Chemical Oxygen Demand

CAS No.: Not applicable

Hazard: Causes severe burns. Harmful if inhaled. Recognized carcinogen.

Date of MSDS Preparation:

Day: 7

Month: 01

Year: 2005

Additional Emergency Response Numbers: Austria: +49 (0)6131 19240, Belgium: +32-(0)70-245245, France: +33-(0)1-40370404, Italy: +39-02-66101029, Netherlands: +31-(0)30-2748888, Switzerland: +41-(0)1-2515151

2. COMPOSITION / INFORMATION ON INGREDIENTS

Demineralized Water

EEC Number: 2317912

CAS No.: 7732-18-5

Percent Range: 15,0 - 25,0

Percent Range Units: volume / volume

Ingredient EEC Symbol: Not applicable

Ingredient R phrase(s) (R phrase details given in Heading 16): Not applicable

TLV: Not established

PEL: Not established

EU Occupational Exposure Limits: Not established

Chromic Acid

EEC Number: 2368815

CAS No.: 13530-68-2

Percent Range: 0,1 - 1,0

Percent Range Units: weight / volume

Ingredient EEC Symbol: T - TOXIC

Ingredient R phrase(s) (R phrase details given in Heading 16): R 49 R 52/53

TLV: 0,05 mg/m³ (Cr⁺⁶)

PEL: 0,5 mg/m³ (Cr⁺⁶), Ceiling; Proposed: 1µg Cr⁶/m³, TWA (4 Oct FR Pg 59305).

EU Occupational Exposure Limits: 0,05 mg/m³ (as Cr⁺⁶)

Silver Sulfate

EEC Number: 2336537

CAS No.: 10294-26-5

Percent Range: 0,1 - 1,0

Percent Range Units: weight / volume

Ingredient EEC Symbol: Not applicable

Ingredient R phrase(s) (R phrase details given in Heading 16): Not applicable
TLV: 0,01 mg/m³ (Ag)
PEL: 0,01 mg/m³ (Ag)
EU Occupational Exposure Limits: 0,01 mg/m³

Sulfuric Acid

EEC Number: 2316395
CAS No.: 7664-93-9
Percent Range: 85,0 - 95,0
Percent Range Units: weight / volume
Ingredient EEC Symbol: C - CORROSIVE
Ingredient R phrase(s) (R phrase details given in Heading 16): R 35
TLV: 1 mg/m³ (TWA); 3 mg/m³ (STEL)
PEL: 1 mg/m³
EU Occupational Exposure Limits: 0,1 mg/m³

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: Turbid, light orange liquid
Odor: None
EU Symbols: C - CORROSIVE T - TOXIC
R PHRASES: R 49: May cause cancer by inhalation. R 35: Causes severe burns. R 52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Protective Equipment:

Potential Health Effects:

Eye Contact (EC): Causes severe burns
Skin Contact (EC): Causes severe burns
Skin Absorption (EC): No effects anticipated
Target Organs (SA E): Not applicable
Ingestion (EC): Causes: severe burns May cause: circulatory disturbances diarrhea nausea vomiting rapid pulse and respirations
Target Organs (Ing E): None Reported
Inhalation: Causes: severe burns May cause: difficult breathing mouth soreness teeth erosion
Target Organs (Inh E): Lungs
Medical Conditions Aggravated: Allergies or sensitivity to chromates or chromic acid. Pre-existing: Eye conditions Respiratory conditions Skin conditions
Chronic Effects: Chronic overexposure may cause chronic irritation or inflammation of the lungs erosion of the teeth cancer accumulation of silver in body tissues which causes a slate-gray to bluish discoloration.
Cancer / Reproductive Toxicity Information:
An ingredient of this mixture is: IARC Group 1: Recognized Carcinogen
Sulfuric Acid - The IARC evaluation was based on exposure to the mist or vapor of concentrated sulfuric acid generated during chemical processes. Hexavalent Chromium Compounds
Additional Cancer / Reproductive Toxicity Information: None reported
Toxicologically Synergistic Products: None reported

4. FIRST AID MEASURES

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.
Skin Contact (First Aid): Wash skin with plenty of water for 15 minutes. Remove contaminated clothing. Call physician immediately.
Ingestion (First Aid): Do not induce vomiting. Give large quantities of water. Never give anything by mouth to an unconscious person. Call physician immediately.
Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician.

5. FIRE FIGHTING MEASURES

Flammable Properties: Not Flammable, but reacts with most metals to form flammable hydrogen gas. During a fire, corrosive and toxic gases may be generated by thermal decomposition.

Hazardous Combustion Products: This material will not burn.

Fire / Explosion Hazards: Contact with metals gives off hydrogen gas which is flammable

Static Discharge: None reported.

Mechanical Impact: None reported

Extinguishing Media: Use media appropriate to surrounding fire conditions

Extinguishing Media NOT To Be Used: Not applicable

Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear. Evacuate area and fight fire from a safe distance.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:

Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

Containment Technique: Releases of this material may contaminate the environment. Absorb spilled liquid with non-reactive sorbent material. Stop spilled material from being released to the environment. Dike the spill to contain material for later disposal.

Clean-up Technique: Cover spilled material with an alkali, such as soda ash or sodium bicarbonate. Scoop up slurry into a large beaker. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Dispose of material in an E.P.A. approved hazardous waste facility. Decontaminate the area of the spill with a soap solution.

Evacuation Procedure: Evacuate local area (15 foot radius or as directed by your facility's emergency response plan) when: any quantity is spilled. If conditions warrant, increase the size of the evacuation.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes skin clothing Do not breathe mist or vapors. Wash thoroughly after handling. Use with adequate ventilation. Maintain general industrial hygiene practices when using this product.

Storage: Protect from: light contamination by organic materials (will affect product stability) heat

Special Packaging Instructions: Not applicable

Use of the substance/preparation: Determination of Chemical Oxygen Demand

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Have a safety shower nearby. Use a fume hood to avoid exposure to dust, mist or vapor. Maintain general industrial hygiene practices when using this product.

Personal Protective Equipment:

Eye Protection: chemical splash goggles

Skin / Hand Protection: disposable latex gloves lab coat

Inhalation Protection: laboratory fume hood

Precautionary Measures: Avoid contact with: eyes skin clothing Do not breathe: mist/vapor Wash thoroughly after handling. Use with adequate ventilation. Protect from: light heat organic materials Keep away from: alkalies metals other combustible materials oxidizers reducers

TLV: Not established

PEL: Not established

EU Occupational Exposure Limits: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Turbid, light orange liquid

Physical State: Liquid

Odor: None

pH: < 0,5

Vapor Pressure: Not determined

Vapor Density (air = 1): Not determined

Boiling Point: 105°C (221°F)

Melting Point: Not applicable
Flash Point: Not applicable
Method: Not applicable
Autoignition Temperature: Not applicable
Flammability Limits:
 Lower Explosion Limits: Not applicable
 Upper Explosion Limits: Not applicable
Specific Gravity (water = 1): 1,78
Evaporation Rate (water = 1): Not determined
Volatile Organic Compounds Content: None
Partition Coefficient (n-octanol / water): Not applicable
Solubility:
 Water: Miscible
 Acid: Not determined
 Other: Not determined
Metal Corrosivity:
 Steel: Not determined
 Aluminum: Not determined

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Exposure to light or contamination by organic materials will affect this product's stability.
Reactivity / Incompatibility: May react violently in contact with: acetic acid caustics chlorosulfonic acid oxidizers reducers alkalis Incompatible with: metals
Hazardous Decomposition: Contact with metals may release flammable hydrogen gas. Heating to decomposition releases toxic and/or corrosive fumes of: sulfur oxides
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
 LD50: None reported
 LC50: None reported
 Dermal Toxicity Data: None reported
 Skin and Eye Irritation Data: None reported
 Mutation Data: None reported
 Reproductive Effects Data: None reported
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Ingredient Toxicological Data: Sulfuric Acid: Oral rat LD₅₀ = 2140 mg/kg; Inhalation rat LC₅₀ = 87 ppm /4hr.

An ingredient of this mixture is: IARC Group 1: Recognized Carcinogen
Sulfuric Acid - The IARC evaluation was based on exposure to the mist or vapor of concentrated sulfuric acid generated during chemical processes. Hexavalent Chromium Compounds

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: Sulfuric Acid: The 48-hour TLm in flounder is 100-300 ppm.

13. DISPOSAL CONSIDERATIONS

NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

14. TRANSPORT INFORMATION

I.C.A.O.:

I.C.A.O. Proper Shipping Name: Sulphuric Acid Solution

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ICAO Hazard Class: 8

ICAO Subsidiary Risk: NA

ICAO UN/ID Number: UN1830

ICAO Packing Group: II

I.M.O.:

I.M.O. Proper Shipping Name: Sulphuric Acid Solution

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I.M.O. Hazard Class: 8

I.M.O. Subsidiary Risk: NA

I.M.O. UN Number: UN1830

I.M.O. Packing Group: II

A.D.R.:

A.D.R. Proper Shipping Name: Sulphuric Acid Solution

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A.D.R Hazard Class: 8

A.D.R. Subsidiary Risk: NA

A.D.R. UN-Number:: 1830

A.D.R. Packing Group: II

Additional Information: This product may be shipped as part of a chemical kit composed of various compatible dangerous goods for analytical or testing purposes. This kit would have the following classification: Proper Shipping Name: Chemical Kit Hazard Class: 9 UN Number 3316

15. REGULATORY INFORMATION

National Inventories:

EEC Inventory Status: All ingredients used to make this product are listed on EINECS / ELINCS.

EEC Number: Not applicable

EEC LABEL COPY:

EU Symbols: C - CORROSIVE T - TOXIC

R PHRASES: R 49: May cause cancer by inhalation. R 35: Causes severe burns. R 52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S PHRASES: S 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S 45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S 60: This material and / or its container must be disposed of as hazardous waste. S 61: Avoid release to the environment. Refer to special instructions/Safety data sheets.

16. OTHER INFORMATION

References: 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Association, 1991. IARC Monographs on the Evaluation of the Carcinogenic Risks to Humans. World Health Organization (Volumes 1-42) Supplement 7. France: 1987. List of Dangerous Substances Classified in Annex I of the EEC Directive (67/548) - Classification, Packaging and Labeling of Dangerous Substances, Amended July 1992. Technical Judgment.

R PHRASES: R 49: May cause cancer by inhalation. R 35: Causes severe burns. R 52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Use of the substance/preparation: Determination of Chemical Oxygen Demand

Revision Summary: Updates in Section(s) 14,

Legend:

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|---------------------|---------------------|
| NA - Not Applicable | w/w - weight/weight |
| ND - Not Determined | w/v - weight/volume |
| NV - Not Available | v/v - volume/volume |

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

**THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE.
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