

SAFETY DATA SHEET

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

Product Name: Digestion Solution for COD 0-1500 ppm Range
Catalog Number: 2125925

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: M00485

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: Toxic. Causes severe burns. Cumulative poison. 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

Mercuric Sulfate

EEC Number: 2319925

CAS No.: 7783-35-9 Contains Mercury. Dispose Per Local, State or Federal Laws.

Percent Range: 1,0 - 5,0

Percent Range Units: weight / volume

Ingredient EEC Symbol: T+ - VERY TOXIC N - Dangerous for the Environment

Ingredient R phrase(s) (R phrase details given in Heading 16): R 26/27/28 R 33 R 50/53

TLV: 0,05 mg/m³ (Hg)

PEL: 0,1 mg/m³ (Hg)

EU Occupational Exposure Limits: 0,1 mg/m³

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: 0,5 - 3,0
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: 80,0 - 90,0
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: Not determined

EU Symbols: T - TOXIC C - CORROSIVE

R PHRASES: R 49: May cause cancer by inhalation. R 20/21/22: Harmful by inhalation, in contact with skin and if swallowed. R 33: Danger of cumulative effects. 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): Toxic Will be absorbed through the skin. Effects similar to those of ingestion

Target Organs (SA E): Central nervous system Kidneys

Ingestion (EC): Causes: severe burns May cause: abdominal pain circulatory disturbances diarrhea loosening of the teeth nausea vomiting rapid pulse and respirations toxic nephritis (inflammation of the kidneys) shock collapse kidney damage death Toxic

Target Organs (Ing E): Central nervous system Kidneys

Inhalation: Causes: severe burns May cause: difficult breathing mouth soreness teeth erosion Effects similar to those of ingestion. Toxic

Target Organs (Inh E): Central nervous system Kidneys Lungs Teeth

Medical Conditions Aggravated: Pre-existing: Respiratory conditions Eye conditions Skin conditions Allergies or sensitivity to chromates or chromic acid. Allergies or sensitivity to mercury.

Chronic Effects: Chronic overexposure may cause destruction of any tissue contacted difficult breathing mouth soreness erosion of the teeth accumulation of silver in body tissues which causes a slate-gray to bluish discoloration. cancer Chromate and dichromate salts may cause ulceration and perforation of the nasal septum, severe liver damage, central nervous system effects, and lung cancer. Mercury is a general protoplasmic poison; it circulates in the blood and is stored in the liver, kidneys, spleen and bones. Main symptoms are sore mouth, tremors and psychic disturbances.

Cancer / Reproductive Toxicity Information:

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

Additional Cancer / Reproductive Toxicity Information: Contains: an experimental teratogen.
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. May react violently with strong bases. Water.

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. Water runoff can cause environmental damage. Dike and collect water used to fight fire.

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: Mercury and its compounds are extremely toxic! Be extremely careful not to contact the spill or breathe any vapors. Absorb spilled liquid with non-reactive sorbent material. Dispose of all mercury contaminated material at an E.P.A. hazardous waste facility. Dispose of material in an E.P.A. approved hazardous waste facility. Decontaminate area with commercially available mercury absorbing compounds.

Evacuation Procedure: Evacuate general area (50 foot radius or as directed by your facility's emergency response plan) when: any quantity is spilled. Deny access to unnecessary and unprotected personnel. Remain up-wind from spilled material. 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. 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: heat light organic materials Keep away from: alkalis 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: Not determined

pH: < 0,5

Vapor Pressure: Not determined

Vapor Density (air = 1): Not determined

Boiling Point: > 100°C (> 212°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): > 1,0

Evaporation Rate (water = 1): Not determined

Volatile Organic Compounds Content: Not applicable

Partition Coefficient (n-octanol / water): Not applicable

Solubility:

Water: Miscible

Acid: Not determined

Other: Not determined

Metal Corrosivity:

Steel: Corrosive

Aluminum: Corrosive

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: caustics

Hazardous Decomposition: Heating to decomposition releases toxic and/or corrosive fumes of: mercury compounds sulfur oxides

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:

LD50: Oral rat (male) LD₅₀ = 428 mg/kg; Oral rat (female) LD₅₀ = 360 mg/kg.

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; Mercuric Sulfate: Oral rat LD₅₀ = 57 mg/kg, Oral mouse LD₅₀ = 25 mg/kg.

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

12. ECOLOGICAL INFORMATION

Product Ecological Information: --

No ecological data available for this product.

Ingredient Ecological Information: --

No ecological data available for the ingredients of this product.

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: T - TOXIC C - CORROSIVE

R PHRASES: R 49: May cause cancer by inhalation. R 20/21/22: Harmful by inhalation, in contact with skin and if swallowed. R 33: Danger of cumulative effects. 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 53: Avoid exposure - obtain special instructions before use. S 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S 36/37/39: Wear suitable protective clothing, gloves and eye/face protection. S 45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

16. OTHER INFORMATION

References: 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. 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. Outside Testing. Sixth Annual Report on Carcinogens, 1991. U.S. Department of Health and Human Services. Rockville, MD: Technical Resources, Inc. 1991. Technical Judgment. Verschueren, Karel. Handbook of Environmental Data on Organic Chemicals. New York: Van Nostrand Reinhold Co., 1977.

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

Revision Summary: Updates in Section(s) 14,

Legend:

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. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

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