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HI 93754F-25
Reagent Tube for COD Test (25 vials)
Safety Data Sheet
According to Regulation (EC) No. 1907/2006

Revision Date: 2008-12-01
Reason for Revision: REACH Compliance and General Update

SECTION 1: IDENTIFICATION OF THE PRODUCT AND COMPANY

Product Name: Reagent for COD Test (25 vials)

Additional Product Codes: COD-LR.ISO

Application: LR COD Analysis: 0 to 150 mg/L, in Accordance with ISO 15705

Company Information (USA):
Hanna Instruments, Inc.
584 Park East Dr, Woonsocket, Rhode Island, USA 02895

Technical Service Contact Information:
1-800-426-6287 (8:30AM - 5:00PM ET)
+1-401-766-4260 (8:30AM - 5:00PM ET)

USA Emergency Contact Information: 1-800-424-9300 (Chemtrec 24Hr. Emergency)

International Emergency Contact Information: +1-703-527-3887 (Chemtrec 24Hr. Emergency)

E-mail Address: tech@hannainst.com

SECTION 2: HAZARD IDENTIFICATION

Toxic by inhalation, in contact with skin and if swallowed. Danger of cumulative effects. Causes severe burns. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SECTION 3: COMPOSITION AND COMPONENT INFORMATION

Component:	Sulfuric Acid	Mercury (II) Sulfate
EC-No.:	231-639-5	231-992-5
CAS-No.:	7664-93-9	7783-35-9
Hazard:	C	T+, N
Phrases:	R: 35	R 26/27/28-33-50/53
Content:	> 50% - <90%	> 0.5 - < 2%

SECTION 4: FIRST AID MEASURES

After Inhalation: Remove to fresh air. Summon doctor.

After Skin Contact: Wash effected area with plenty of water. Immediately remove contaminated clothing.

After Eye Contact: Rinse out immediately with plenty of water and seek medical advice.

After Swallowing: Drink plenty of water (if necessary several liters), avoid vomiting (risk of perforation!). Immediately seek medical advice. Do not attempt to neutralize.

General Information: Remove contaminated, soaked clothing immediately and dispose of safely.

SECTION 5: FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:

Water spray, Carbon Dioxide, Dry Chemical Powder, Appropriate Foam.

Special Risks:

Non-combustible. Hydrogen may form upon contact with metals (danger of explosion!) Development of hazardous combustion gases or vapors possible in the event of fire. The following may develop in event of fire: Sulfur Oxides, Mercury Vapors

Special Protective Equipment:

Do not stay in dangerous zone without suitable chemical protection clothing and self-contained breathing apparatus.

Additional Information:

Product itself is non-combustible. Cool container with spray water from a safe distance. Contain escaping vapors with water. Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions:

Take up with liquid-absorbent material. Clean up affected area and dispose according to local regulation.

Environmental Precautions:

Do not discharge into the drains/surface waters/groundwater.

Additional Notes:

Render harmless: neutralize with diluted sodium hydroxide solution or by throwing on lime, lime sand, or sodium carbonate.

SECTION 7: HANDLING AND STORAGE

Handling:

Avoid generation of vapors/aerosols. Work under hood. Do not inhale substance.

Storage:

Tightly closed. In a well-ventilated place at +15 to +25 °C. Protect from light. Store in fridge if possible. Accessible only for authorized persons.

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

Ingredients:

SULFURIC ACID
EXPOSURE LIMITS - GERMANY

Source	Type	Value
TRGS 900	OEL	1 mg/m³

EXPOSURE LIMITS - DENMARK

Source	Type	Value
OEL	TWA	1 mg/m³

MERCURIC SULPHATE
EXPOSURE LIMITS - UNITED KINGDOM

Source	Type	Value
OEL	LTEL	0.05 mg (Hg)/m³
OEL	STEL	0.15 mg (Hg)/m³

EXPOSURE LIMITS - DENMARK

Source	Type	Value
OEL	TWA	0.05 mg (Hg)/m³

Engineering:

Safety shower and eye wash.

Personal Protective Equipment:

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled.

Respiratory Protection:

Required when vapors/aerosols are generated. Work under hood.

Protective Gloves:

Rubber or plastic

Eye Protection:

Goggles or face mask

Industrial Hygiene:

Immediately change contaminated clothing and immerse in water. Apply skin-protective barrier cream. Wash hands and face after working with substance. Work under hood. Do not inhale substance. Avoid generation of vapors/aerosols. Under no circumstances eat or drink at workplace.

SECTION 9: PHYSICAL/CHEMICAL PROPERTIES

Appearance:	Yellow-orange liquid with undissolved solid	***Odor:***	Odorless	***Density at 20° C:***	~ 1.7 g/cm³
Melting Point:	NA	***Boiling Point:***	ND	***Solubility:***	Soluble (development of heat)
pH at 20° C:	< 0.5	***Explosion Limit:***	NA	***Flash Point:***	NA
Thermal Decomp.:	> 338 °C				

SECTION 10: STABILITY AND REACTIVITY

Conditions to be Avoided:

Strong Heating

Hazardous Polymerization:

Will not occur.

Further Information:

Hygroscopic. Has a corrosive effect. Incompatible with metals.

Hazardous Decomposition Products:

In the event of fire: See section 5.

Substances to be Avoided:

Combustible substances, water, metals, metal alloys, alkali metals, alkali compounds, alkali hydroxides, alkali oxides, alkaline earth compounds, alkalis, ammonia, nitrates, sodium carbonate, lithium silicide, halogen-halogen compounds, salts of oxyhalogenic acids, bromates, chromates/perchromates, perchlorates, perchloric acid, permanganates, permanganic acid, organic nitro compounds, nonmetals, nonmetallic oxides, picrates, hydrogen peroxide, nitramide, mercury nitride, ammonium iron (III) sulfate dodecahydrate

SECTION 11: TOXICOLOGICAL INFORMATION

Quantitative data on the toxicity of this product is not available.

APPLICABLE TO MAIN COMPONENT:
The following applies to Mercury (II) sulphate, as the pure substance:
Acute toxicity
LD50 Dermal, Rat: 625 mg/kg
LD50 Oral, Rat: 57 mg/kg
Sign and symptoms of exposure
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Exposure to mercury compounds can cause tremors, loss
of appetite, weight loss, anuria, and uremia. Mercury accumulates in almost all tissues, especially in the brain, liver, and kidneys. Ingestion can cause: tremors, incoordination, insomnia, irritability, fatigue, anxiety, anorexia, hallucinations, headache, depression, severe stomatitis, nausea, vomiting, diarrhea, metallic taste, muscle weakness, loosening of the teeth, pain and numbness in the extremities, nephritis, peripheral neuropathy, collapse, and possibly death.
Target organ information
Blood. Kidneys. Liver. Nerves. Bones. Spleen.
Chronic exposure - carcinogen
Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

APPLICABLE TO MAIN COMPONENT:
The following applies to SULFURIC acid, as the pure substance:
Acute toxicity
LC50 Inhalation, Rat: 510 mg/kg/2h.
LD50 Oral, Rat: 2140 mg/kg
Specific symptoms in animal studies:
Eye irritation test (rabbit): burns.
Skin irritation test (rabbit): burns.
Toxicological values are not available due to other dangerous properties of the substance. Subacute to chronic toxicity
Applicable to partial component(s):
Bacterial mutagenicity: Ames test: negative.
No teratogenic effect in animal experiments.

In Case of Inhalation:	After inhalation of aerosols: damage to the affected mucous membranes.
In Case of Skin Contact:	Severe burns with formation of scabs.
In Case of Eye Contact:	Burns, corneal lesion.
In Case of Ingestion:	Severe pain (risk of perforation!), nausea, vomiting and diarrhea.
Further Data:	The product should be handled with the usual care when dealing with chemicals. Property that must be anticipated on the basis from the components of the preparation:

SECTION 12: ECOLOGICAL INFORMATION

Quantitative data on the toxicity of this product is not available.

APPLICABLE TO MAIN COMPONENT:
The following applies to Mercury (II) sulphate, as the pure substance:
Ecotoxic effects:
Biological effects:
Highly toxic for aquatic organisms. May cause long-term adverse effects in the aquatic environment.
Concentration in organisms possible.
Fish toxicity: P.promelas LC 50 : 0.19 mg/L /96 h.
L.idus LC 50 : 0.05 mg/L /48 h (Hg(II)ions).
Daphnia toxicity: Daphnia magna EC 50 : 0.0052 mg/L /48 h (Hg(II)ions).
Maximum permissible toxic concentration: algae: M.aeruginosa EC 5 : 0.005 mg/L.
Sc.quadricauda EC 5 : 0.07 mg/L.
Further ecologic data:
The following applies to the water-soluble matter contained in inorganic Hg compounds in general (tested with mercury(II) chloride): Leuciscus idus LC 50 : 0.5 mg/L (48h), Daphnia magna EC 50 : 0.005-3.6 mg/L (48h), Chlorella pyrenoidosa EC 50 : 0.3 mg/L (5h), Pseudomonas fluorescens IC 50 : 0.005 mg/L.
The toxicity of mercury(II) ions for water organisms depends on the water hardness [source: IPCS].

APPLICABLE TO PARTIAL COMPONENT:
The following applies to Sulfuric acid, as the pure substance:
Biologic degradation:
Methods for the determination of biodegradability are not applicable to inorganic substances.
Behavior in environmental compartments:
Concentration in organisms is not to be expected.
Ecotoxic effects:
Quantitative data on the ecological effect of this product are not available.
Further ecologic data:
The following applies to sulfuric acid: biological effects: harmful effect on aquatic organisms. Harmful effect due to pH shift. Toxic effect on fish and algae. Caustic even in diluted form. Does not cause biological oxygen deficit. Endangers drinking water supplies if allowed to enter soil and/or waters in large quantities. Neutralization possible in waste water treatment plants.
Daphnia toxicity: Daphnia magna EC 50 : 29 mg/L/24 h (calculated on the pure substance).

Further Data: DO NOT ALLOW TO ENTER WATERS, WASTE WATERS, OR SOIL!

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal: Chemical residues are generally classified as special waste and thus covered by local regulations. Contact local authorities or disposal companies for advice. Handle contaminated packaging in the same way as the substance itself.

SECTION 14: TRANSPORTATION INFORMATION

Land:

ADR/RID: 9/PG II/ UN3316
Name : CHEMICAL KIT

Sea:

IMDG: 9/PG II/ UN3316
Name: CHEMICAL KIT
Marine pollutant: yes
Severe marine pollutant : no

Air:

ICAO/IATA: 9/PG II/ UN3316
Name: CHEMICAL KIT

Transport data applies to the COMPLETE KIT!

SECTION 15: REGULATORY INFORMATION

Labeling according to EC Directives:

Symbol: T: Toxic
C: Corrosive

R-phrases: 23/24/25-33-35-52/53: Toxic by inhalation, in contact with skin and if swallowed. Danger of cumulative effects. Causes severe burns. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrases: 26-30-36/37/39-45: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Never add water to this product. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Contains: Mercury (II) sulphate, Sulfuric acid

SECTION 16: OTHER INFORMATION

Text of R-phrases under Section 3

26/27/28: Very toxic by inhalation, in contact with skin and if swallowed.
33: Danger of cumulative effects.
35: Causes severe burns.
50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Revision Information

Revision Date:	2008-12-01
Supersedes edition of:	2008-01-03
Reason for revision:	REACH Compliance and General Update

Legend

NA: Not Applicable
ND: Not Determined

THE INFORMATION CONTAINED HEREIN IS BASED ON THE PRESENT STATE OF OUR KNOWLEDGE. IT CHARACTERIZES THE PRODUCT WITH REGARD TO THE APPROPRIATE SAFETY PRECAUTIONS. IT DOES NOT REPRESENT A GUARANTEE OF THE PROPERTIES OF THE PRODUCT.