



Curtin Matheson Scientific, Inc.
1225 N MICHAEL DRIVE

WOOD DALE, IL 60191-1019

FISONS

MATERIAL SAFETY DATA SHEET

MAIL TO: MICHIGAN STATE UNIV
CENTRAL RECEIVING
133 WEST SERVICE ROAD
EAST LANSING, MI 48824-1234

SECTION 1 - NAME AND PRODUCT

MANUFACTURER NAME AND ADDRESS

MAS - ENZYMES
MEDICAL ANALYSIS SYSTEMS
542 FLYNN RD
CAMARILLO CA 93010
EMERGENCY PHONE 805-987-7891

CHEMICAL NUMBER:

ITEM NUMBER: 0285004
VNDR CATLG NBR: S1231
ENTRY DATE: 02-15-91
CHANGE DATE: 09-26-95
PD NUMBER: 52215CU REL# 532842

COMMON NAME (ON LABEL)

BILIRUBIN (DIRECT) REAGENT; (DIRECT) BLANK

CHEMICAL FAMILY

N/G

TRADE NAME & SYNONYMS

BILIRUBIN (DIRECT) BLANK
BILIRUBIN (DIRECT) REAGENT

CHEMICAL FORMULA

N/G

SECTION 2 - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENT	CAS	% (WT)	TLV	PEL
SULFURIC ACID (OIL OF VITRIOL)	7664-93-9	.00	1.000 MG/M3	1.000 MG/M3
HYDROCHLORIC ACID (MURIATIC ACID)	7647-01-0	.00	1.000 MG/M3	1.000 MG/M3

PEL: Permissible Exposure Limit established by the Occupational Safety and Health Administration (OSHA).

TLV: Threshold Limit Value established by the American Conference of Governmental Industrial Hygienists, 1986-87.

OTHER INGREDIENT INFORMATION

NOTE: THIS REAGENT MIXTURE HAS NOT BEEN TESTED AS A WHOLE TO DETERMINE WHETHER THE MIXTURE IS A HEALTH HAZARD; THEREFORE IN ACCORDANCE WITH 29 CFR 1900.1200 THE DATA REPORTED ARE FOR THE HAZARDOUS COMPONENT(S) OF THE REAGENT MIXTURE. NORMAL LABORATORY PRECAUTIONS SHOULD BE EXERCISED WHEN USING THIS REAGENT. AVOID CONTACT WITH EYES, SKIN AND MUCOUS MEMBRANES. IMMEDIATELY FLUSH AFFECTED AREA WITH LARGE AMOUNTS OF WATER. DO NOT INGEST.

SECTION 3 - PHYSICAL DATA

BOILING POINT SEE PHYSICAL DATA	VOLATILE BY VOLUME (%) SEE PHYSICAL DATA	VAPOR PRESSURE SEE PHYSICAL DATA
MELTING POINT N/G	VAPOR DENSITY SEE PHYSICAL DATA	SOLUBILITY IN WATER SEE PHYSICAL DATA
EVAPORATION RATE (N/G	SPECIFIC GRAVITY SEE PHYSICAL DATA	

APPEARANCE AND ODOR

SEE PHYSICAL DATA

OTHER PHYSICAL DATA

BOILING POINT: HYDROCHLORIC ACID = 110 C; SULFURIC ACID = 290 C. VAPOR PRESSURE (MM HG): HYDROCHLORIC ACID = 212; SULFURIC ACID = N/F. VAPOR DENSITY (AIR=1): HYDROCHLORIC ACID = 1.3; SULFURIC ACID = N/F. SOLUBILITY IN WATER: HYDROCHLORIC ACID = MISCIBLE; SULFURIC ACID = MISCIBLE. SPECIFIC GRAVITY (H2O=1): HYDROCHLORIC ACID = 1.19; SULFURIC ACID = 1.84. PERCENT VOLATILE BY VOLUME: HYDROCHLORIC ACID = 100; SULFURIC ACID = N/F. APPEARANCE AND ODOR: HYDROCHLORIC ACID = CLEAR, COLORLESS OR SLIGHTLY YELLOW FUMING LIQUID. SULFURIC ACID = CLEAR, COLORLESS, ODORLESS, OILY LIQUID.

SECTION 4 - FIRE AND EXPLOSION DATA**FLASH POINT**

N/G

LOWER EXPLOSIVE LIMIT

N/G

UPPER EXPLOSIVE LIMIT

N/G

EXTINGUISHING MEDIA

USE EXTINGUISHING MEDIA SUITABLE FOR SURROUNDING FIRE.

UNUSUAL FIRE AND EXPLOSION HAZARDS

SULFURIC ACID IS HIGHLY CORROSIVE TO MOST METALS WITH EVOLUTION OF HYDROGEN GAS WHICH IS HIGHLY FLAMMABLE WHEN MIXED WITH AIR.

SPECIAL FIRE FIGHTING PROCEDURES

WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. IF IT CAN BE DONE WITHOUT RISK, MOVE EXPOSED CONTAINERS FROM FIRE AREA AND KEEP COOL WITH WATER SPRAY. DO NOT GET WATER INSIDE CONTAINERS.

SECTION 5 - HEALTH HAZARD DATA**HEALTH HAZARDS (ACUTE & CHRONIC)**

SEE SIGNS AND SYMPTOMS OF EXPOSURE.

PRIMARY ROUTES OF EXPOSURE

CONTACT, INGESTION, INHALATION

SIGNS AND SYMPTOMS OF EXPOSURE

HYDROCHLORIC ACID AND SULFURIC ACID ARE HIGHLY CORROSIVE TO ALL BODY TISSUES. INHALATION OF FUMES IS IRRITATING TO RESPIRATORY SYSTEM. INGESTION MAY BE FATAL.

SECTION 5 - HEALTH HAZARD DATA (CONTINUED)

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
 NONE INDICATED.

CARCINOGENICITY

NOT INDICATED.

INDICATORS NOT GIVEN

NTP Yes No

IARC Yes No

OSHA Yes No

EMERGENCY AND FIRST AID PROCEDURES

IN CASE OF CONTACT, FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. DO NOT GIVE EMETICS. GIVE TAP WATER, MILK OR MILK OF MAGNESIA. CALL A PHYSICIAN.

THRESHOLD LIMITS / TOXICITY DATA

HYDROCHLORIC ACID: 5 PPM (HC1). SULFURIC ACID: 1 MG/M3 (H2SO4).

SECTION 6 - REACTIVITY DATA

STABILITY Unstable Stable

CONDITIONS TO AVOID
 HEAT AND MOISTURE.

INCOMPATIBILITY (MATERIALS TO AVOID)

HYDROCHLORIC ACID IS INCOMPATIBLE WITH MOST COMMON METALS, WATER, STRONG BASES, AMINES, CARBONATES, METAL OXIDES. SULFURIC ACID IS INCOMPATIBLE WITH WATER, METALS, STRONG BASES, ACETYLIDES, STRONG OXIDIZING OR REDUCING AGENTS.

SECTION 6 - REACTIVITY DATA (CONTINUED)

HAZARDOUS DECOMPOSITION OR BYPRODUCTS

HYDROCHLORIC ACID DECOMPOSES TO HYDROGEN CHLORIDE. AT EXTREMELY HIGH TEMPERATURES, SULFURIC ACID DECOMPOSES TO OXIDES OF SULFUR.

HAZARDOUS POLYMERIZATION May Occur Will Not Occur
CONDITIONS TO AVOID
 WILL NOT OCCUR.

SECTION 7 - SPILL, LEAK, AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.
 CAREFULLY REMOVE MATERIAL INTO A CLEAN, DRY CONTAINER AND COVER; REMOVE FROM AREA. FLUSH SPILL AREA WITH WATER.

WASTE DISPOSAL METHOD

DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS. PROPERLY NEUTRALIZED MATERIAL CAN BE FLUSHED DOWN A DRAIN WITH EXCESS VOLUMES OF WATER.

SECTION 8 - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

N/A

LOCAL VENTILATION

YES

MECHANICAL VENTILATION

YES

SPECIAL VENTILATION

N/A

SECTION 8 - SPECIAL PROTECTION INFORMATION (CONTINUED)**OTHER VENTILATION**

THE ABOVE DATA ARE FOR THE UNDILUTED CHEMICAL COMPOUND(S) THAT ARE INGREDIENTS OF THIS REAGENT MIXTURE. FOLLOW GOOD LABORATORY PRACTICES WHEN HANDLING THIS REAGENT MIXTURE.

PROTECTIVE GLOVES

RUBBER GLOVES

EYE PROTECTION

SAFETY GLASSES WITH SIDE SHIELD

OTHER PROTECTIVE CLOTHING OR EQUIPMENT

APPROVED WORKING CLOTHES, EYE BATH, SAFETY SHOWER.

SECTION 9 - SPECIAL PRECAUTIONS**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE**

KEEP IN TIGHTLY CLOSED CONTAINER IN A COOL PLACE.

SECTION 10 - OTHER INFORMATION**MISCELLANEOUS INFO.**

THE ABOVE DATA ARE FOR THE UNDILUTED CHEMICAL COMPOUNDS THAT ARE INGREDIENTS OF THIS REAGENT MIXTURE. FOLLOW GOOD LABORATORY PRACTICES WHEN HANDLING THIS REAGENT MIXTURE.

N/A = NOT AVAILABLE.

N/A = NOT APPLICABLE. N/G = NOT GIVEN.