

1 -PRODUCT IDENTIFICATION

PRODUCT NAME: KARL FISCHER REAGENT
COMMON SYNONYMS: N/A
CHEMICAL FAMILY: VOLUMETRIC SOLUTIONS AND CONCENTRATES
FORMULA: N/A
FORMULA WT.: N/A
CAS NO.: N/A
NIOSH/RTECS NO.: N/A
PRODUCT USE: LABORATORY REAGENT

CHEMTREC # (800) 424-9300
LA-MAR-KA, INC.
10272 SOUTH PERDUE STREET
BATON ROUGE, LA. 70814

EFFECTIVE: 01/29/90 ISSUED: 04/14/90 REVIEWED 1-1-95
REVISION #06

PRECAUTIONARY LABELING

LA-MAR-KA LABELING SYSTEM

HEALTH	-	3	SEVERE (LIFE)
FLAMMABILITY	-	2	MODERATE
REACTIVITY	-	1	SLIGHT
CONTACT	-	3	SEVERE (LIFE)

LABORATORY PROTECTIVE EQUIPMENT

GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B
EXTINGUISHER

U.S. PRECAUTIONARY LABELING

DANGER

CAUSES BURNS. COMBUSTIBLE. OVEREXPOSURE MAY CAUSE MALE OR FEMALE REPRODUCTIVE
DISORDERS. EXCEPTIONAL HEALTH AND CONTACT HAZARDS: READ MATERIAL SAFETY DATA
SHEET.

KEEP AWAY FROM HEAT, SPARKS, FLAME. DO NOT GET IN EYES, ON SKIN, ON CLOTHING.
AVOID BREATHING VAPOR. KEEP IN TIGHTLY CLOSED CONTAINER. USE WITH ADEQUATE
VENTILATION. WASH THOROUGHLY AFTER HANDLING. IN CASE OF FIRE, USE WATER
SPRAY, ALCOHOL FOAM, DRY CHEMICAL, OR CARBON DIOXIDE. FLUSH SPILL AREA WITH
WATER SPRAY.

PRECAUTIONARY LABELING (CONTINUED)

INTERNATIONAL LABELING

AVOID CONTACT WITH EYES. AFTER CONTACT WITH SKIN, WASH IMMEDIATELY WITH
PLENTY OF WATER. KEEP CONTAINER TIGHTLY CLOSED.

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MSDS for KARL FISCHER REAGENT

1 -PRODUCT IDENTIFICATION (continued)

LA-MAR-KA STORAGE COLOR CODE: RED (FLAMMABLE)

2 -COMPONENTS

COMPONENT	CAS NO.	WEIGHT %	OSHA/PEL	ACGIH/TLV
2-METHOXYETHANOL	109-86-4	25-35	25 PPM	5 PPM
PYRIDINE	110-86-1	10-20	5 PPM	5 PPM
METHANOL	67-56-1	25-40	200 PPM	200 PPM
IODINE-SULFUR DIOXIDE COMPLEX	N/A	20-30	N/E	N/E

3 -PHYSICAL DATA

BOILING POINT: N/A

VAPOR PRESSURE (MMHG): N/A

MELTING POINT: N/A

VAPOR DENSITY (AIR=1): N/A

SPECIFIC GRAVITY: 0.93
(H2O=1)

EVAPORATION RATE: N/A

SOLUBILITY(H2O): COMPLETE (100%)

% VOLATILES BY VOLUME: 100
(21 C)

PH: N/A

ODOR THRESHOLD (P.P.M.): N/A

PHYSICAL STATE: LIQUID

COEFFICIENT WATER/OIL DISTRIBUTION: N/A

APPEARANCE & ODOR: DARK BROWN LIQUID. DISAGREEABLE ODOR.

4 -FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP): 37 C (100 F)

AUTOIGNITION TEMPERATURE: N/A

FLAMMABLE LIMITS: UPPER - N/A LOWER - N/A

FIRE EXTINGUISHING MEDIA

USE WATER SPRAY, ALCOHOL FOAM, DRY CHEMICAL OR CARBON DIOXIDE.

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4 -FIRE AND EXPLOSION HAZARD DATA (continued)

SPECIAL FIRE-FIGHTING PROCEDURES

FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE. MOVE CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL.

UNUSUAL FIRE & EXPLOSION HAZARDS

VAPORS MAY FLOW ALONG SURFACES TO DISTANT IGNITION SOURCES AND FLASH BACK. CLOSED CONTAINERS EXPOSED TO HEAT MAY EXPLODE. CONTACT WITH STRONG OXIDIZERS MAY CAUSE FIRE.

TOXIC GASES PRODUCED

SULFUR DIOXIDE, OXIDES OF NITROGEN

EXPLOSION DATA-SENSITIVITY TO MECHANICAL IMPACT

NONE IDENTIFIED.

EXPLOSION DATA-SENSITIVITY TO STATIC DISCHARGE

NONE IDENTIFIED.

5 -HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE (TLV/TWA): 16 MG/M3 (5 PPM)

TLV IS FOR PYRIDINE.

SHORT-TERM EXPOSURE LIMIT (STEL): NOT ESTABLISHED

PERMISSIBLE EXPOSURE LIMIT (PEL): 15 MG/M3 (5 PPM)

PEL IS FOR PYRIDINE.

TOXICITY OF COMPONENTS

ORAL RAT LD50 FOR 2-METHOXYETHANOL	2460 MG/KG
INTRAPERITONEAL RAT LD50 FOR 2-METHOXYETHANOL	2500 MG/KG
SKIN RABBIT LD50 FOR 2-METHOXYETHANOL	1280 MG/KG
INHALATION-7HR MOUSE LC50 FOR 2-METHOXYETHANOL	1480 PPM
ORAL RAT LD50 FOR PYRIDINE	891 MG/KG
INTRAPERITONEAL RAT LD50 FOR PYRIDINE	866 MG/KG
SUBCUTANEOUS RAT LD50 FOR PYRIDINE	1000 MG/KG
SKIN RABBIT LD50 FOR PYRIDINE	1121 MG/KG
ORAL RAT LD50 FOR METHANOL	5628 MG/KG
INTRAPERITONEAL RAT LD50 FOR METHANOL	9540 MG/KG
SUBCUTANEOUS MOUSE LD50 FOR METHANOL	9800 MG/KG
SKIN RABBIT LD50 FOR METHANOL	20 G/KG

5 -HEALTH HAZARD DATA (continued)

CARCINOGENICITY: NTP: NO IARC: NO Z LIST: NO OSHA REG: NO

CARCINOGENICITY
NONE IDENTIFIED.

REPRODUCTIVE EFFECTS

IN TESTS WITH LABORATORY ANIMALS, EXPOSURE TO 2-METHOXYETHANOL HAS RESULTED IN AN INCREASE IN BIRTH DEFECTS, ADVERSE EFFECTS ON PREGNANCY, EMBRYONIC DEATH, BLOOD DAMAGE AND DAMAGE TO MALE REPRODUCTIVE ORGANS. ACCEPTABLE MAXIMUM EXPOSURE LIMIT FOR WOMEN OF CHILDBEARING AGE = 2 PPM (8 HR TIME-EIGHTED AVERAGE).

EFFECTS OF OVEREXPOSURE

INHALATION: NAUSEA, VOMITING, HEADACHE, UNCONSCIOUSNESS, COUGHING, DIFFICULT BREATHING

SKIN CONTACT: BURNS

EYE CONTACT: BURNS

SKIN ABSORPTION: NONE IDENTIFIED

INGESTION: GASTROINTESTINAL IRRITATION, CONVULSIONS

CHRONIC EFFECTS: KIDNEY DAMAGE, LIVER DAMAGE, DAMAGE TO BLOOD FORMING TISSUE

TARGET ORGANS

EYES, SKIN

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

NONE IDENTIFIED

PRIMARY ROUTES OF ENTRY

EYE CONTACT, SKIN CONTACT, INHALATION, INGESTION

EMERGENCY AND FIRST AID PROCEDURES

INGESTION: CALL A PHYSICIAN. IF SWALLOWED, DO NOT INDUCE VOMITING. IF CONSCIOUS, GIVE LARGE AMOUNTS OF WATER.

INHALATION: IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

SKIN CONTACT: IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. WASH CLOTHING BEFORE RE-USE.

5 -HEALTH HAZARD DATA (continued)

EYE CONTACT: IN CASE OF EYE CONTACT, IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES.

SARA/TITLE III HAZARD CATEGORIES AND LISTS

ACUTE: YES CHRONIC: YES FLAMMABILITY: YES PRESSURE: NO REACTIVITY: NO

EXTREMELY HAZARDOUS SUBSTANCE: NO

CERCLA HAZARDOUS SUBSTANCE: YES CONTAINS PYRIDINE (RQ = 1000 LBS) AND METHANOL (RQ = 5000 LBS)

SARA 313 TOXIC CHEMICALS: YES CONTAINS METHANOL, 2-METHOXYETHANOL, AND PYRIDINE
C05, C06, C11

GENERIC CLASS:

TSCA INVENTORY: YES

STATE LISTS: FOR PRODUCTS SOLD IN THE STATE OF CALIFORNIA, THE STATE REQUIRES THAT WE PROVIDE TO USERS AND THEIR EMPLOYEES THE FOLLOWING MESSAGE: WARNING: THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS AND OTHER REPRODUCTIVE HARM.

6 -REACTIVITY DATA

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: HEAT, FLAME, SOURCES OF IGNITION

INCOMPATIBLES: WATER, STRONG OXIDIZING AGENTS, STRONG BASES, ORGANIC MATERIALS, CAUSTICS

DECOMPOSITION PRODUCTS: OXIDES OF SULFUR, OXIDES OF NITROGEN, IODINE

7 -SPILL & DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE

WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. SHUT OFF IGNITION SOURCES; NO FLARES, SMOKING OR FLAMES IN AREA. STOP LEAK IF YOU CAN DO SO WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS. TAKE UP WITH SAND OR OTHER NON-COMBUSTIBLE ABSORBENT MATERIAL AND PLACE INTO CONTAINER FOR LATER DISPOSAL. FLUSH AREA WITH WATER.

DISPOSAL PROCEDURE

DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS.

7 -SPILL & DISPOSAL PROCEDURES (continued)

EPA HAZARDOUS WASTE NUMBER: U196 (TOXIC WASTE)

8 -INDUSTRIAL PROTECTIVE EQUIPMENT

VENTILATION: USE ADEQUATE GENERAL OR LOCAL EXHAUST VENTILATION TO KEEP VAPOR AND MIST LEVELS AS LOW AS POSSIBLE.

RESPIRATORY PROTECTION: NONE REQUIRED WHERE ADEQUATE VENTILATION CONDITIONS EXIST. IF AIRBORNE CONCENTRATION IS HIGH, A CHEMICAL CARTRIDGE RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE IS RECOMMENDED. IF CONCENTRATION EXCEEDS CAPACITY OF CARTRIDGE RESPIRATOR, A SELF-CONTAINED BREATHING APPARATUS IS ADVISED.

EYE/SKIN PROTECTION: SAFETY GOGGLES AND FACE SHIELD, UNIFORM, PROTECTIVE SUIT, BUTYL RUBBER GLOVES ARE RECOMMENDED.

9 -STORAGE AND HANDLING PRECAUTIONS

LA-MAR-KA STORAGE COLOR CODE: RED (FLAMMABLE)

STORAGE REQUIREMENTS

KEEP CONTAINER TIGHTLY CLOSED. STORE IN A COOL, DRY, WELL-VENTILATED, FLAMMABLE LIQUID STORAGE AREA OR CABINET.

10 -TRANSPORTATION DATA AND ADDITIONAL INFORMATION

DOMESTIC (D.O.T.)

PROPER SHIPPING NAME: COMBUSTIBLE LIQUID, N.O.S. (KARL FISCHER REAGENT)
HAZARD CLASS: COMBUSTIBLE LIQUID
UN/NA: NA1993
LABELS: NO LABEL REQUIRED UNDER 110 GALLONS
REGULATORY REFERENCES: 49CFR 172.101; 173.118A

INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME: FLAMMABLE LIQUIDS, POISONOUS, N.O.S. (KARL FISCHER REAGENT)
HAZARD CLASS: 3.2
UN: UN1992
MARINE POLLUTANTS: NO
I.M.O. PAGE: 3084
PACKAGING GROUP: II

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10 -TRANSPORTATION DATA AND ADDITIONAL INFORMATION (continued)

LABELS: FLAMMABLE LIQUID, POISON
REGULATORY REFERENCES: 49CFR 172.102; PART 176; IMO

AIR (I.C.A.O.)

PROPER SHIPPING NAME: FLAMMABLE LIQUIDS, POISONOUS, N.O.S. (KARL FISCHER
REAGENT)

HAZARD CLASS: 3.2

UN: UN1992

PACKAGING GROUP: II

LABELS: FLAMMABLE LIQUID, POISON

REGULATORY REFERENCES: 49CFR 172.101; 173.6; PART 175; ICAO/IATA

U.S. CUSTOMS HARMONIZATION NUMBER: 38220000000

N/A = NOT APPLICABLE OR NOT AVAILABLE

N/E = NOT ESTABLISHED

THE INFORMATION IN THIS MATERIAL SAFETY DATA SHEET MEETS THE REQUIREMENTS OF THE UNITED STATES OCCUPATIONAL SAFETY AND HEALTH ACT AND REGULATIONS PROMULGATED THEREUNDER (29 CFR 1910.1200 ET. SEQ.) AND THE CANADIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM. THIS DOCUMENT IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONARY HANDLING OF THE MATERIAL BY A PERSON TRAINED IN, OR SUPERVISED BY A PERSON TRAINED IN, CHEMICAL HANDLING. THE USER IS RESPONSIBLE FOR DETERMINING THE PRECAUTIONS AND DANGERS OF THIS CHEMICAL FOR HIS OR HER PARTICULAR APPLICATION. DEPENDING ON USAGE, PROTECTIVE CLOTHING INCLUDING EYE AND FACE GUARDS AND RESPIRATORS MUST BE USED TO AVOID CONTACT WITH MATERIAL OR BREATHING CHEMICAL VAPORS/FUMES.

EXPOSURE TO THIS PRODUCT MAY HAVE SERIOUS ADVERSE HEALTH EFFECTS. THIS CHEMICAL MAY INTERACT WITH OTHER SUBSTANCES. SINCE THE POTENTIAL USES ARE SO VARIED, LA-MAR-KA CANNOT WARN OF ALL OF THE POTENTIAL DANGERS OF USE OR INTERACTION WITH OTHER CHEMICALS OR MATERIALS. LA-MAR-KA WARRANTS THAT THE CHEMICAL MEETS THE SPECIFICATIONS SET FORTH ON THE LABEL.

LA-MAR-KA DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR PURPOSE.

THE USER SHOULD RECOGNIZE THAT THIS PRODUCT CAN CAUSE SEVERE INJURY AND EVEN DEATH, ESPECIALLY IF IMPROPERLY HANDLED OR THE KNOWN DANGERS OF USE ARE NOT HEEDDED. READ ALL PRECAUTIONARY INFORMATION. AS NEW DOCUMENTED GENERAL SAFETY INFORMATION BECOMES AVAILABLE, LA-MAR-KA WILL PERIODICALLY REVISE THIS MATERIAL SAFETY DATA SHEET.

APPROVED BY LA-MAR-KA, INC.

DO A 060666
CONFIDENTIAL

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10 -TRANSPORTATION DATA AND ADDITIONAL INFORMATION (continued)

DO A 060667
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