

**EMS CATALOG NO:** 15750 / 15760  
**EMS PRODUCT:** FORMIC ACID 96% REAGENT  
**DATE:** 05/10/2009  
**PAGE NUMBER:** One of 5

**MATERIAL SAFETY DATA SHEET**

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**FOR PRODUCT AND SALES INFORMATION**

CONTACT ELECTRON MICROSCOPY SCIENCES OFFICE ABOVE.

**1 - PRODUCT IDENTIFICATION**

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PRODUCT NAME: FORMIC ACID  
FORMULA: HCOOH  
FORMULA WT: 46.03  
CAS NO.: 64-18-6  
NIOSH/RTECS NO.: LQ4900000  
COMMON SYNONYMS: HYDROGEN CARBOXYLIC ACID  
PRODUCT CODES: 15750 / 15760  
EFFECTIVE: 05/12/2004

**PRECAUTIONARY LABELLING**

HEALTH - 2 MODERATE  
FLAMMABILITY - 2 MODERATE  
REACTIVITY - 1 SLIGHT  
CONTACT - 3 SEVERE (CORROSIVE)  
HAZARD RATINGS ARE 0 TO 4 (0 = NO HAZARD; 4 = EXTREME HAZARD).

LABORATORY PROTECTIVE EQUIPMENT

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

DANGER  
COMBUSTIBLE  
CAUSES BURNS

HARMFUL IF SWALLOWED

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 WATERSPRAY.

STORAGE COLOR CODE: RED (FLAMMABLE)

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**2 - HAZARDOUS COMPONENTS**  
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COMPONENT % CAS NO.

FORMIC ACID 85-95 64-18-6  
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**3 - PHYSICAL DATA**  
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BOILING POINT: 101 C ( 214 F) VAPOR PRESSURE(MM HG): 23  
MELTING POINT: 8 C ( 46 F) VAPOR DENSITY(AIR=1): 1.6  
SPECIFIC GRAVITY: 1.21 EVAPORATION RATE: 2.1  
(H2O=1) (BUTYL ACETATE=1)  
SOLUBILITY(H2O): COMPLETE (IN ALL PROPORTIONS) % VOLATILES BY VOLUME: 100  
APPEARANCE & ODOR: COLORLESS LIQUID, PUNGENT ODOR.  
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**4 - FIRE AND EXPLOSION HAZARD DATA**  
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FLASH POINT (CLOSED CUP 50 C ( 122 F) NFPA 704M RATING: 3-2-0  
FLAMMABLE LIMITS: UPPER - 57 % LOWER - 18 %  
FIRE EXTINGUISHING MEDIA:USE WATER SPRAY, ALCOHOL FOAM, DRY CHEMICAL OR CARBON DIOXIDE.

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.

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### **5 - HEALTH HAZARD DATA**

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THRESHOLD LIMIT VALUE (TLV/TWA): 9 MG/M3 ( 5 PPM)  
PERMISSIBLE EXPOSURE LIMIT (PEL): 9 MG/M3 ( 5 PPM)  
TOXICITY: LD50 (ORAL-RAT)(MG/KG) - 1100  
LD50 (IPR-MOUSE)(MG/KG) - 940  
LC50 (INHL-RAT-15M) (G/M3) - 15  
CARCINOGENICITY: NTP: NO IARC: NO Z LIST: NO OSHA REG: NO

EFFECTS OF OVEREXPOSURE: CONTACT WITH SKIN OR EYES MAY CAUSE SEVERE IRRITATION OR BURNS. INHALATION OF VAPORS MAY CAUSE SEVERE IRRITATION OF THE RESPIRATORY SYSTEM. INHALATION OF VAPORS MAY CAUSE COUGHING, CHEST PAINS, NAUSEA AND VOMITING. INGESTION MAY CAUSE ACUTE LOCAL TISSUE DAMAGE, WITH OTHER EFFECTS RANGING FROM NAUSEA AND DIZZINESS TO UNCONSCIOUSNESS.

TARGET ORGANS: RESPIRATORY SYSTEM, SKIN, KIDNEYS, LIVER, EYES

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: NONE IDENTIFIED

ROUTES OF ENTRY: INHALATION, INGESTION, EYE CONTACT, SKIN CONTACT

EMERGENCY AND FIRST AID PROCEDURES:  
CALL A PHYSICIAN.

IF SWALLOWED, DO NOT INDUCE VOMITING; IF CONSCIOUS, GIVE WATER, MILK, OR MILK OF MAGNESIA.

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

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### **6 - REACTIVITY DATA**

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STABILITY: STABLE HAZARDOUS POLYMERIZATION: WILL NOT OCCUR  
CONDITIONS TO AVOID: HEAT, FLAME, OTHER SOURCES OF IGNITION  
INCOMPATIBLES: STRONG OXIDIZING AGENTS, STRONG BASES, SULFURIC ACID

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## **7 - SPILL AND DISPOSAL PROCEDURES**

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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. NEUTRALIZE SPILL WITH SODA ASH OR LIME. WITH CLEAN SHOVEL, CAREFULLY PLACE MATERIAL INTO CLEAN, DRY CONTAINER AND COVER. REMOVE FROM SPILL AREA. FLUSH AREA WITH WATER.

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

EPA HAZARDOUS WASTE NUMBER: U123 (TOXIC WASTE)

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## **8 - PROTECTIVE EQUIPMENT**

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VENTILATION: USE GENERAL OR LOCAL EXHAUST VENTILATION TO MEET TLV REQUIREMENTS.

RESPIRATORY PROTECTION: RESPIRATORY PROTECTION REQUIRED IF AIRBORNE CONCENTRATION EXCEEDS TLV. AT CONCENTRATIONS UP TO 100 PPM, A CHEMICAL CARTRIDGE RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE AND DUST/MIST FILTER IS RECOMMENDED. ABOVE THIS LEVEL, A SELF-CONTAINED BREATHING APPARATUS IS RECOMMENDED.

EYE/SKIN PROTECTION: SAFETY GOGGLES AND FACE SHIELD, UNIFORM, PROTECTIVE SUIT, ACID-RESISTANT GLOVES ARE RECOMMENDED.

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## **9 - STORAGE AND HANDLING PRECAUTIONS**

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STORAGE COLOR CODE: RED (FLAMMABLE)

SPECIAL PRECAUTIONS: KEEP CONTAINER TIGHTLY CLOSED. STORE IN A COOL, DRY, WELL-VENTILATED, FLAMMABLE LIQUID STORAGE AREA OR CABINET. BOND AND GROUND CONTAINERS WHEN TRANSFERRING LIQUID.

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**10 - TRANSPORTATION DATA AND ADDITIONAL INFORMATION**  
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DOMESTIC (D.O.T.)

PROPER SHIPPING NAME FORMIC ACID

HAZARD CLASS CORROSIVE MATERIAL (LIQUID) , FLAMMABLE

UN/NA UN1779

LABELS CORROSIVE , FLAMMABLE

REPORTABLE QUANTITY 5000 LBS.

INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME FORMIC ACID

HAZARD CLASS 8

SUB RISK CLASS 3