

# Chem-Impex International Inc.

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## SAFETY DATA SHEET

### SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #: 47634

NAME: Acetic acid, glacial [for LC-MS]

24 HOUR  
EMERGENCY  
TELEPHONE: (800) 535-5053(USA)  
352-323-3500 (INTERNATIONAL)

TO REQUEST AN  
MSDS: (800) 869-9290

CUSTOMER  
SERVICE: (630) 766-2112

### SECTION 2. HAZARDS IDENTIFICATION

#### CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

##### GHS CLASSIFICATION IN ACCORDANCE WITH 29 CFR 1910 (OSHA HCS)

FLAMMABLE LIQUIDS (CATEGORY 3), H226

SKIN CORROSION (CATEGORY 1A), H314

SERIOUS EYE DAMAGE (CATEGORY 1), H318

FOR THE FULL TEXT OF THE H-STATEMENTS MENTIONED IN THIS SECTION, SEE SECTION 16.

#### GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS PICTOGRAM



SIGNAL WORD DANGER

#### HAZARD STATEMENT(S)

H226 FLAMMABLE LIQUID AND VAPOUR.

H314 CAUSES SEVERE SKIN BURNS AND EYE DAMAGE.

**PRECAUTIONARY STATEMENT(S)**

|                           |                                                                                                                                                                          |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P210                      | KEEP AWAY FROM HEAT/SPARKS/OPEN FLAMES/HOT SURFACES. - NO SMOKING.                                                                                                       |
| P233                      | KEEP CONTAINER TIGHTLY CLOSED.                                                                                                                                           |
| P240                      | GROUND/BOND CONTAINER AND RECEIVING EQUIPMENT.                                                                                                                           |
| P241                      | USE EXPLOSION-PROOF ELECTRICAL/ VENTILATING/ LIGHTING EQUIPMENT.                                                                                                         |
| P242                      | USE ONLY NON-SPARKING TOOLS.                                                                                                                                             |
| P243                      | TAKE PRECAUTIONARY MEASURES AGAINST STATIC DISCHARGE.                                                                                                                    |
| P264                      | WASH SKIN THOROUGHLY AFTER HANDLING.                                                                                                                                     |
| P280                      | WEAR PROTECTIVE GLOVES/ PROTECTIVE CLOTHING/ EYE PROTECTION/ FACE PROTECTION.                                                                                            |
| P301 + P330 + P331        | IF SWALLOWED: RINSE MOUTH. DO NOT INDUCE VOMITING.                                                                                                                       |
| P303 + P361 + P353        | IF ON SKIN (OR HAIR): REMOVE/ TAKE OFF IMMEDIATELY ALL CONTAMINATED CLOTHING. RINSE SKIN WITH WATER/ SHOWER.                                                             |
| P304 + P340 + P310        | IF INHALED: REMOVE VICTIM TO FRESH AIR AND KEEP AT REST IN A POSITION COMFORTABLE FOR BREATHING. IMMEDIATELY CALL A POISON CENTER OR DOCTOR/ PHYSICIAN.                  |
| P305 + P351 + P338 + P310 | F IN EYES: RINSE CAUTIOUSLY WITH WATER FOR SEVERAL MINUTES. REMOVE CONTACT LENSES, IF PRESENT AND EASY TO DO. CONTINUE RINSING. IMMEDIATELY CALL A POISON CENTER/DOCTOR. |
| P363                      | WASH CONTAMINATED CLOTHING BEFORE REUSE.                                                                                                                                 |
| P370 + P378               | IN CASE OF FIRE: USE DRY SAND, DRY CHEMICAL OR ALCOHOL-RESISTANT FOAM TO EXTINGUISH.                                                                                     |
| P403 + P235               | STORE IN A WELL-VENTILATED PLACE. KEEP COOL.                                                                                                                             |
| P405                      | STORE LOCKED UP.                                                                                                                                                         |
| P501                      | DISPOSE OF CONTENTS/ CONTAINER TO AN APPROVED WASTE DISPOSAL PLANT.                                                                                                      |

**HAZARDS NOT  
OTHERWISE  
CLASSIFIED  
(HNOC) OR NOT  
COVERED BY GHS**

NONE

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**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

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|         |                                              |
|---------|----------------------------------------------|
| MF:     | C <sub>2</sub> H <sub>4</sub> O <sub>2</sub> |
| MW:     | 60.05                                        |
| CAS-NO. | 64-19-7                                      |
| PURITY: | ≥ 99.5% (Assay by titration)                 |

**HAZARDOUS COMPONENTS**

| COMPONENT | CLASSIFICATION | CONCENTRATION |
|-----------|----------------|---------------|
|-----------|----------------|---------------|

| ACETIC ACID, GLACIAL |                                                                                                                                                                                                                       |          |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|                      | FLAM. LIQ. 3; SKIN CORR. 1A; EYE DAM. 1; H226, H314, H318<br>CONCENTRATION LIMITS: >= 90 %: SKIN CORR. 1A, H314; 25 - < 90 %: SKIN CORR. 1B, H314; 10 - < 25 %: SKIN IRRIT. 2, H315; 10 - < 25 %: EYE IRRIT. 2, H319; | <= 100 % |

FOR THE FULL TEXT OF THE H-STATEMENTS MENTIONED IN THIS SECTION, SEE SECTION 16.

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## SECTION 4. FIRST-AID MEASURES

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### DESCRIPTION OF FIRST AID MEASURES

|                                                                                   |                                                                                                                                                                    |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>GENERAL ADVICE</b>                                                             | FIRST AIDERS NEED TO PROTECT THEMSELVES. SHOW THIS MATERIAL SAFETY DATA SHEET TO THE DOCTOR IN ATTENDANCE.                                                         |
| <b>IF INHALED</b>                                                                 | AFTER INHALATION: FRESH AIR. CALL IN PHYSICIAN.                                                                                                                    |
| <b>IN CASE OF SKIN CONTACT</b>                                                    | IN CASE OF SKIN CONTACT: TAKE OFF IMMEDIATELY ALL CONTAMINATED CLOTHING. RINSE SKIN WITH WATER/ SHOWER. CALL A PHYSICIAN IMMEDIATELY.                              |
| <b>IN CASE OF EYE CONTACT</b>                                                     | AFTER EYE CONTACT: RINSE OUT WITH PLENTY OF WATER. IMMEDIATELY CALL IN OPHTHALMOLOGIST. REMOVE CONTACT LENSES.                                                     |
| <b>IF SWALLOWED</b>                                                               | AFTER SWALLOWING: MAKE VICTIM DRINK WATER (TWO GLASSES AT MOST), AVOID VOMITING (RISK OF PERFORATION). CALL A PHYSICIAN IMMEDIATELY. DO NOT ATTEMPT TO NEUTRALISE. |
| <b>MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED</b>                | THE MOST IMPORTANT KNOWN SYMPTOMS AND EFFECTS ARE DESCRIBED IN THE LABELLING (SEE SECTION 2.2) AND/OR IN SECTION 11.                                               |
| <b>INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED</b> | NO DATA AVAILABLE                                                                                                                                                  |

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## SECTION 5. FIRE AND EXPLOSION DATA

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## **EXTINGUISHING MEDIA**

### **SUITABLE EXTINGUISHING MEDIA**

SUITABLE EXTINGUISHING MEDIA  
WATER FOAM CARBON DIOXIDE (CO<sub>2</sub>) DRY POWDER

UNSUITABLE EXTINGUISHING MEDIA  
FOR THIS SUBSTANCE/MIXTURE NO LIMITATIONS OF  
EXTINGUISHING AGENTS ARE GIVEN.

### **SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE**

CARBON OXIDES  
COMBUSTIBLE.  
VAPORS ARE HEAVIER THAN AIR AND MAY SPREAD  
ALONG FLOORS.  
FORMS EXPLOSIVE MIXTURES WITH AIR AT ELEVATED  
TEMPERATURES.  
DEVELOPMENT OF HAZARDOUS COMBUSTION GASES  
OR VAPOURS POSSIBLE IN THE EVENT OF FIRE.

### **ADVICE FOR FIREFIGHTERS**

STAY IN DANGER AREA ONLY WITH SELF-CONTAINED  
BREATHING APPARATUS. PREVENT SKIN CONTACT BY  
KEEPING A SAFE DISTANCE OR BY WEARING SUITABLE  
PROTECTIVE CLOTHING.

### **FURTHER INFORMATION**

REMOVE CONTAINER FROM DANGER ZONE AND COOL  
WITH WATER. PREVENT FIRE EXTINGUISHING WATER  
FROM CONTAMINATING SURFACE WATER OR THE  
GROUND WATER SYSTEM.

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## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

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### **PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES**

ADVICE FOR NON-EMERGENCY PERSONNEL: DO NOT  
BREATHE VAPORS, AEROSOLS. AVOID SUBSTANCE  
CONTACT. ENSURE ADEQUATE VENTILATION. KEEP  
AWAY FROM HEAT AND SOURCES OF IGNITION.  
EVACUATE THE DANGER AREA, OBSERVE EMERGENCY  
PROCEDURES, CONSULT AN EXPERT.

FOR PERSONAL PROTECTION SEE SECTION 8.

### **ENVIRONMENTAL PRECAUTIONS**

DO NOT LET PRODUCT ENTER DRAINS. RISK OF  
EXPLOSION.

### **METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP**

COVER DRAINS. COLLECT, BIND, AND PUMP OFF SPILLS.  
OBSERVE POSSIBLE MATERIAL RESTRICTIONS (SEE  
SECTIONS 7 AND 10). DISPOSE OF PROPERLY. CLEAN UP  
AFFECTED AREA.

### **REFERENCE TO OTHER SECTIONS**

FOR DISPOSAL SEE SECTION 13.

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## SECTION 7. HANDLING AND STORAGE

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### PRECAUTIONS FOR SAFE HANDLING

KEEP AWAY FROM OPEN FLAMES, HOT SURFACES AND SOURCES OF IGNITION. TAKE PRECAUTIONARY MEASURES AGAINST STATIC DISCHARGE. IMMEDIATELY CHANGE CONTAMINATED CLOTHING. APPLY PREVENTIVE SKIN PROTECTION. WASH HANDS AND FACE AFTER WORKING WITH SUBSTANCE. FOR PRECAUTIONS SEE SECTION 2.2.

### CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND WELL-VENTILATED PLACE. KEEP AWAY FROM HEAT AND SOURCES OF IGNITION.  
STORAGE CLASS (TRGS 510): 3: FLAMMABLE LIQUIDS.

STORE AT RT

### SPECIFIC END USE(S)

APART FROM THE USES MENTIONED IN SECTION 1.2 NO OTHER SPECIFIC USES ARE STIPULATED.

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### CONTROL PARAMETERS

#### COMPONENTS WITH WORKPLACE CONTROL PARAMETERS

| COMPONENT   | CAS-NO. | VALUE | CONTROL<br>PARAMETERS | BASIS                                                                                     |
|-------------|---------|-------|-----------------------|-------------------------------------------------------------------------------------------|
| ACETIC ACID | 64-19-7 | TWA   | 10 PPM                | USA. ACGIH THRESHOLD<br>LIMIT VALUES (TLV)                                                |
|             |         | STEL  | 15 PPM                | USA. ACGIH THRESHOLD<br>LIMIT VALUES (TLV)                                                |
|             |         | TWA   | 10 PPM<br>25 MG/M3    | USA. NIOSH RECOMMENDED<br>EXPOSURE LIMITS                                                 |
|             |         | ST    | 15 PPM<br>37 MG/M3    | USA. NIOSH RECOMMENDED<br>EXPOSURE LIMITS                                                 |
|             |         | TWA   | 10 PPM<br>25 MG/M3    | USA. OCCUPATIONAL<br>EXPOSURE LIMITS (OSHA) -<br>TABLE Z-1 LIMITS FOR AIR<br>CONTAMINANTS |
|             |         | PEL   | 10 PPM<br>25 MG/M3    | CALIFORNIA PERMISSIBLE<br>EXPOSURE LIMITS FOR<br>CHEMICAL CONTAMINANTS                    |
|             |         | C     | 40 PPM                | CALIFORNIA PERMISSIBLE<br>EXPOSURE LIMITS FOR<br>CHEMICAL CONTAMINANTS                    |
|             |         | STEL  | 15 PPM<br>37 MG/M3    | CALIFORNIA PERMISSIBLE<br>EXPOSURE LIMITS FOR<br>CHEMICAL CONTAMINANTS                    |

## **EXPOSURE CONTROLS**

|                                                 |                                                                                                                                     |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>APPROPRIATE<br/>ENGINEERING<br/>CONTROLS</b> | IMMEDIATELY CHANGE CONTAMINATED CLOTHING.<br>APPLY PREVENTIVE SKIN PROTECTION. WASH HANDS<br>AND FACE AFTER WORKING WITH SUBSTANCE. |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|

## **PERSONAL PROTECTIVE EQUIPMENT**

|                            |                                                                                                                                                                       |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EYE/FACE PROTECTION</b> | USE EQUIPMENT FOR EYE PROTECTION TESTED AND<br>APPROVED UNDER APPROPRIATE GOVERNMENT<br>STANDARDS SUCH AS NIOSH (US) OR EN 166(EU).<br>TIGHTLY FITTING SAFETY GOGGLES |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                        |                                                                                                                                                                                                                                                                                                                    |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SKIN PROTECTION</b> | THIS RECOMMENDATION APPLIES ONLY TO THE<br>PRODUCT STATED IN THE SAFETY DATA SHEET,<br>SUPPLIED BY US AND FOR THE DESIGNATED USE. WHEN<br>DISSOLVING IN OR MIXING WITH OTHER SUBSTANCES<br>AND UNDER CONDITIONS DEVIATING FROM THOSE<br>STATED IN EN 16523-1 PLEASE CONTACT THE SUPPLIER<br>OF CE-APPROVED GLOVES. |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

FULL CONTACT  
MATERIAL: BUTYL-RUBBER  
MINIMUM LAYER THICKNESS: 0.7 MM  
BREAK THROUGH TIME: 480 MIN  
MATERIAL TESTED:BUTOJECT® (KCL 898)

THIS RECOMMENDATION APPLIES ONLY TO THE  
PRODUCT STATED IN THE SAFETY DATA SHEET,  
SUPPLIED BY US AND FOR THE DESIGNATED USE. WHEN  
DISSOLVING IN OR MIXING WITH OTHER SUBSTANCES  
AND UNDER CONDITIONS DEVIATING FROM THOSE  
STATED IN EN 16523-1 PLEASE CONTACT THE SUPPLIER  
OF CE-APPROVED GLOVES (E.G. KCL GMBH).

SPLASH CONTACT  
MATERIAL: LATEX GLOVES  
MINIMUM LAYER THICKNESS: 0.6 MM  
BREAK THROUGH TIME: 30 MIN  
MATERIAL TESTED:LAPREN® (KCL 706 SIZE M)

|                        |                                                    |
|------------------------|----------------------------------------------------|
| <b>BODY PROTECTION</b> | FLAME RETARDANT ANTISTATIC PROTECTIVE<br>CLOTHING. |
|------------------------|----------------------------------------------------|

**RESPIRATORY  
PROTECTION**

RECOMMENDED FILTER TYPE: FILTER E-(P2)  
THE ENTREPRENEUR HAS TO ENSURE THAT  
MAINTENANCE, CLEANING AND TESTING OF  
RESPIRATORY PROTECTIVE DEVICES ARE CARRIED OUT  
ACCORDING TO THE INSTRUCTIONS OF THE PRODUCER.  
THESE MEASURES HAVE TO BE PROPERLY  
DOCUMENTED.

REQUIRED WHEN VAPOURS/AEROSOLS ARE  
GENERATED. OUR RECOMMENDATIONS ON FILTERING  
RESPIRATORY PROTECTION ARE BASED ON THE  
FOLLOWING STANDARDS: DIN EN 143, DIN 14387 AND  
OTHER ACCOMPANYING STANDARDS RELATING TO THE  
USED RESPIRATORY PROTECTION SYSTEM.

**CONTROL OF  
ENVIRONMENTAL  
EXPOSURE**

DO NOT LET PRODUCT ENTER DRAINS. RISK OF  
EXPLOSION.

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**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

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**INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES**

|                                  |                                                      |
|----------------------------------|------------------------------------------------------|
| APPEARANCE                       | CLEAR COLORLESS LIQUID                               |
| ODOUR                            | STINGING                                             |
| ODOUR THRESHOLD                  | 0.2 PPM                                              |
| PH                               | 2.5 AT 50 G/L AT 20 °C                               |
| MELTING                          | 16.2 °C (61.2 °F) – LIT.                             |
| POINT/FREEZING POINT             |                                                      |
| INITIAL BOILING POINT            | 117 - 118 °C - LIT.                                  |
| AND BOILING RANGE                |                                                      |
| FLASH POINT                      | 39 °C (102 °F) - CLOSED CUP - CLOSED CUP             |
| EVAPOURATION RATE                | NO DATA AVAILABLE                                    |
| FLAMMABILITY (SOLID,<br>GAS)     | NO DATA AVAILABLE                                    |
| UPPER/LOWER                      | UPPER EXPLOSION LIMIT: 19.9 %(V)                     |
| FLAMMABILITY OR                  | LOWER EXPLOSION LIMIT: 4 %(V)                        |
| EXPLOSIVE LIMITS                 |                                                      |
| VAPOUR PRESSURE                  | 20.79 HPA AT 25 °C                                   |
| VAPOUR DENSITY                   | 2.07                                                 |
| RELATIVE DENSITY                 | 1.049 G/CM3 AT 25 °C (77 °F) - LIT.                  |
| WATER SOLUBILITY                 | 602.9 G/L AT 25 °C AT 1,013 HPA - COMPLETELY SOLUBLE |
| PARTITION                        | LOG POW: -0.17 AT 25 °C - BIOACCUMULATION IS NOT     |
| COEFFICIENT: N-<br>OCTANOL/WATER | EXPECTED. (ECHA)                                     |
| AUTO-IGNITION                    | 463 °C                                               |
| TEMPERATURE                      |                                                      |
| DECOMPOSITION                    | DISTILLABLE IN AN UNDECOMPOSED STATE AT              |
| TEMPERATURE                      | NORMAL PRESSURE.                                     |
| VISCOSITY                        | 1.17 MM2/S AT 20 °C                                  |
| EXPLOSIVE                        | NOT CLASSIFIED AS EXPLOSIVE.                         |
| PROPERTIES                       |                                                      |
| OXIDIZING PROPERTIES             | NONE                                                 |

**OTHER SAFETY INFORMATION**

|                 |                      |
|-----------------|----------------------|
| SURFACE TENSION | 28.8 MN/M AT 10.0 °C |
| RELATIVE VAPOR  | 2.07                 |
| DENSITY         |                      |

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**SECTION 10. STABILITY AND REACTIVITY**

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|                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>REACTIVITY</b>                         | VAPOR/AIR-MIXTURES ARE EXPLOSIVE AT INTENSE WARMING.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>CHEMICAL STABILITY</b>                 | THE PRODUCT IS CHEMICALLY STABLE UNDER STANDARD AMBIENT CONDITIONS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>POSSIBILITY OF HAZARDOUS REACTIONS</b> | RISK OF EXPLOSION WITH:<br>PEROXI COMPOUNDS<br>PERCHLORIC ACID<br>FUMING SULFURIC ACID<br>PHOSPHORUS HALIDES<br>HYDROGEN PEROXIDE<br>CHROMIUM(VI) OXIDE<br>POTASSIUM PERMANGANATE<br>PEROXIDES<br>STRONG OXIDIZING AGENTS<br>RISK OF IGNITION OR FORMATION OF INFLAMMABLE GASES OR VAPOURS WITH:<br>IRON<br>ZINC<br>MAGNESIUM<br>MILD STEEL<br>POSSIBLE FORMATION OF:<br>HYDROGEN<br>VIOLENT REACTIONS POSSIBLE WITH:<br>STRONG ALKALIS<br>ALDEHYDES<br>ALKALI HYDROXIDES<br>NONMETALLIC HALIDES<br>ETHANOLAMINE<br>ACETALDEHYDE<br>ALCOHOLS<br>HALOGEN-HALOGEN COMPOUNDS<br>CHLOROSULFONIC ACID<br>CHROMOSULFURIC ACID<br>POTASSIUM HYDROXIDE<br>NITRIC ACID |
| <b>CONDITIONS TO AVOID</b>                | HEATING.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>INCOMPATIBLE MATERIALS</b>             | NO DATA AVAILABLE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

**HAZARDOUS  
DECOMPOSITION  
PRODUCTS**

IN THE EVENT OF FIRE: SEE SECTION 5

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**SECTION 11. TOXICOLOGICAL INFORMATION**

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**INFORMATION ON TOXICOLOGICAL EFFECTS**

**ACUTE TOXICITY**

LD50 ORAL - RAT - 3,310 MG/KG  
REMARKS: (RTECS)

LC50 INHALATION - MOUSE - 4 H - 2,819 MG/L - VAPOR  
REMARKS: (RTECS)

DERMAL: NO DATA AVAILABLE

NO DATA AVAILABLE

**SKIN  
CORROSION/IRRITATION**

SKIN – RABBIT  
RESULT: CAUSES BURNS. - 4 H  
(OECD TEST GUIDELINE 404)  
REMARKS: CLASSIFIED ACCORDING TO REGULATION  
(EU) 1272/2008, ANNEX VI (TABLE 3.1/3.2)

**SERIOUS EYE  
DAMAGE/EYE  
IRRITATION**

EYES – RABBIT  
RESULT: CAUSES BURNS. - 4 H  
(OECD TEST GUIDELINE 405)  
REMARKS: (IUCLID)  
REMARKS: CAUSES SERIOUS EYE DAMAGE.

**RESPIRATORY OR SKIN  
SENSITISATION**

NO DATA AVAILABLE

**GERM CELL  
MUTAGENICITY**

TEST TYPE: AMES TEST  
TEST SYSTEM: SALMONELLA TYPHIMURIUM  
METABOLIC ACTIVATION: WITH AND WITHOUT  
METABOLIC ACTIVATION  
METHOD: OECD TEST GUIDELINE 471  
RESULT: NEGATIVE  
TEST TYPE: MUTAGENICITY (MAMMAL CELL TEST):  
CHROMOSOME ABERRATION.  
TEST SYSTEM: CHINESE HAMSTER OVARY CELLS  
METABOLIC ACTIVATION: WITH AND WITHOUT  
METABOLIC ACTIVATION  
METHOD: OECD TEST GUIDELINE 473  
RESULT: NEGATIVE  
  
TEST TYPE: MICRONUCLEUS TEST  
SPECIES: RAT  
CELL TYPE: BONE MARROW  
APPLICATION ROUTE: INHALATION (VAPOR)  
METHOD: MUTAGENICITY (MICRONUCLEUS TEST)  
RESULT: NEGATIVE

**CARCINOGENICITY**

IARC: NO COMPONENT OF THIS PRODUCT PRESENT AT  
LEVELS GREATER THAN OR EQUAL TO 0.1% IS  
IDENTIFIED AS PROBABLE, POSSIBLE OR CONFIRMED  
HUMAN CARCINOGEN BY IARC.  
NTP: NO COMPONENT OF THIS PRODUCT PRESENT AT  
LEVELS GREATER THAN OR EQUAL TO 0.1% IS  
IDENTIFIED AS A KNOWN OR ANTICIPATED  
CARCINOGEN BY NTP.  
OSHA: NO COMPONENT OF THIS PRODUCT PRESENT AT  
LEVELS GREATER THAN OR EQUAL TO 0.1% IS ON  
OSHA'S LIST OF REGULATED CARCINOGENS.

**REPRODUCTIVE  
TOXICITY**

NO DATA AVAILABLE

**SPECIFIC TARGET  
ORGAN TOXICITY -  
SINGLE EXPOSURE**

NO DATA AVAILABLE

**SPECIFIC TARGET  
ORGAN TOXICITY -  
REPEATED EXPOSURE**

NO DATA AVAILABLE

**ASPIRATION HAZARD**

NO DATA AVAILABLE

**ADDITIONAL  
INFORMATION**

RTECS: AF1225000

MATERIAL IS EXTREMELY DESTRUCTIVE TO TISSUE OF THE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT, EYES, AND SKIN., SPASM, INFLAMMATION AND EDEMA OF THE LARYNX, SPASM, INFLAMMATION AND EDEMA OF THE BRONCHI, PNEUMONITIS, PULMONARY EDEMA, BURNING SENSATION, COUGH, WHEEZING, LARYNGITIS, SHORTNESS OF BREATH, HEADACHE, NAUSEA, VOMITING, INGESTION OR INHALATION OF CONCENTRATED ACETIC ACID CAUSES DAMAGE TO TISSUES OF THE RESPIRATORY AND DIGESTIVE TRACTS. SYMPTOMS INCLUDE: HEMATEMESIS, BLOODY DIARRHEA, EDEMA AND/OR PERFORATION OF THE ESOPHAGUS AND PYLORUS, PANCREATITIS, HEMATURIA, ANURIA, UREMIA, ALBUMINURIA, HEMOLYSIS, CONVULSIONS, BRONCHITIS, PULMONARY EDEMA, PNEUMONIA, CARDIOVASCULAR COLLAPSE, SHOCK, AND DEATH. DIRECT CONTACT OR EXPOSURE TO HIGH CONCENTRATIONS OF VAPOR WITH SKIN OR EYES CAN CAUSE: ERYTHEMA, BLISTERS, TISSUE DESTRUCTION WITH SLOW HEALING, SKIN BLACKENING, HYPERKERATOSIS, FISSURES, CORNEAL EROSION, OPACIFICATION, IRITIS, CONJUNCTIVITIS, AND POSSIBLE BLINDNESS.

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

STOMACH - IRREGULARITIES - BASED ON HUMAN EVIDENCE

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**SECTION 12. ECOLOGICAL INFORMATION**

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**TOXICITY**

TOXICITY TO FISH

SEMI-STATIC TEST LC50 - ONCORHYNCHUS MYKISS (RAINBOW TROUT) - > 1,000 MG/L - 96 H (OECD TEST GUIDELINE 203)

TOXICITY TO DAPHNIA  
AND OTHER AQUATIC  
INVERTEBRATES

STATIC TEST EC50 - DAPHNIA MAGNA (WATER FLEA) - > 1,000 MG/L - 48 H (OECD TEST GUIDELINE 202)

TOXICITY TO ALGAE

STATIC TEST EC50 - SKELETONEMA COSTATUM - > 1,000 MG/L - 72 H (ISO 10253)

|                                               |                                                                                                                                                                                                                                             |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TOXICITY TO BACTERIA                          | <p>EC5 - PSEUDOMONAS PUTIDA - 2,850 MG/L - 16 H</p> <p>REMARKS: NEUTRAL<br/>(MAXIMUM PERMISSIBLE TOXIC CONCENTRATION)<br/>(LIT.)</p> <p>MICROTOX TEST EC50 - PHOTOBACTERIUM<br/>PHOSPHOREUM - 11 MG/L – 15 MIN</p> <p>REMARKS: (IUCLID)</p> |
| <b>PERSISTENCE AND DEGRADABILITY</b>          |                                                                                                                                                                                                                                             |
| BIODEGRADABILITY                              | <p>RESULT: 99 % - READILY BIODEGRADABLE.</p> <p>(OECD TEST GUIDELINE 301D)</p> <p>REMARKS: (HSDB)</p> <p>RESULT: 95 % - READILY ELIMINATED FROM WATER</p> <p>(OECD TEST GUIDELINE 302B)</p>                                                 |
| BIOCHEMICAL OXYGEN<br>DEMAND (BOD)            | 880 MG/G                                                                                                                                                                                                                                    |
| RATIO BOD/THBOD                               | <p>REMARKS: (LIT.)</p> <p>76 %</p> <p>REMARKS: (IUCLID)</p>                                                                                                                                                                                 |
| <b>BIOACCUMULATIVE<br/>POTENTIAL</b>          | NO DATA AVAILABLE                                                                                                                                                                                                                           |
| <b>MOBILITY IN SOIL</b>                       | NO DATA AVAILABLE                                                                                                                                                                                                                           |
| <b>RESULTS OF PBT AND<br/>VPVB ASSESSMENT</b> | PBT/VPVB ASSESSMENT NOT AVAILABLE AS<br>CHEMICAL SAFETY ASSESSMENT NOT REQUIRED/NOT<br>CONDUCTED.                                                                                                                                           |
| <b>OTHER ADVERSE<br/>EFFECTS</b>              | <p>BIOLOGICAL EFFECTS:</p> <p>HARMFUL EFFECT DUE TO PH SHIFT.</p> <p>CAUSTIC EVEN IN DILUTED FORM.</p> <p>DISCHARGE INTO THE ENVIRONMENT MUST BE<br/>AVOIDED.</p>                                                                           |

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## SECTION 13. DISPOSAL CONSIDERATIONS

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### WASTE TREATMENT METHODS

**PRODUCT** WASTE MATERIAL MUST BE DISPOSED OF IN ACCORDANCE WITH THE NATIONAL AND LOCAL REGULATIONS. LEAVE CHEMICALS IN ORIGINAL CONTAINERS. NO MIXING WITH OTHER WASTE.

**CONTAMINATED PACKAGING** DISPOSE OF AS UNUSED PRODUCT.

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## SECTION 14. TRANSPORT INFORMATION

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**DOT (US)**  
PROPER SHIPPING NAME: ACETIC ACID, GLACIAL  
UN NUMBER: 2789  
CLASS: 8 (3)  
PACKING GROUP: II  
REPORTABLE QUANTITY (RQ): 5000 LBS  
POISON INHALATION HAZARD: NO

**IMDG**  
PROPER SHIPPING NAME: ACETIC ACID, GLACIAL  
UN NUMBER: 2789  
CLASS: 8 (3)  
PACKING GROUP: II  
EMS-NO: F-E, S-C

**IATA**  
PROPER SHIPPING NAME: ACETIC ACID, GLACIAL  
UN NUMBER: 2789  
CLASS: 8 (3)  
PACKING GROUP: II

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## SECTION 15. REGULATORY INFORMATION

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### CERCLA REPORTABLE QUANTITY

| COMPONENTS  | CAS-NO. | COMPONENT RQ (LBS) | CALCULATED PRODUCT RQ (LBS) |
|-------------|---------|--------------------|-----------------------------|
| ACETIC ACID | 64-19-7 | 5000               | 5000                        |

**SARA 304 EXTREMELY HAZARDOUS SUBSTANCES REPORTABLE QUANTITY**  
THIS MATERIAL DOES NOT CONTAIN ANY COMPONENTS WITH A SECTION 304 EHS RQ.

**SARA 302 EXTREMELY HAZARDOUS SUBSTANCES THRESHOLD PLANNING QUANTITY**  
THIS MATERIAL DOES NOT CONTAIN ANY COMPONENTS WITH A SECTION 302 EHS TPQ.

**SARA 311/312 HAZARDS**

FIRE HAZARD  
ACUTE HEALTH HAZARD  
CHRONIC HEALTH HAZARD

**SARA 313**

THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DE MINIMIS) REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

**CLEAN AIR ACT**

THIS PRODUCT NEITHER CONTAINS, NOR WAS MANUFACTURED WITH A CLASS I OR CLASS II ODS AS DEFINED BY THE U.S. CLEAN AIR ACT SECTION 602 (40 CFR 82, SUBPT. A, APP. A + B).

THIS PRODUCT DOES NOT CONTAIN ANY HAZARDOUS AIR POLLUTANTS (HAP), AS DEFINED BY THE U.S. CLEAN AIR ACT SECTION 112 (40 CFR 61).

THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS LISTED UNDER THE U.S. CLEAN AIR ACT SECTION 112(R) FOR ACCIDENTAL RELEASE PREVENTION (40 CFR 68.130, SUBPART F). THE FOLLOWING CHEMICAL(S) ARE LISTED UNDER THE U.S. CLEAN AIR ACT SECTION 111 SOCM I INTERMEDIATE OR FINAL VOC'S (40 CFR 60.489):

|             |         |                  |
|-------------|---------|------------------|
| ACETIC ACID | 64-19-7 | >= 90 - <= 100 % |
|-------------|---------|------------------|

**CLEAN WATER ACT**

THE FOLLOWING HAZARDOUS SUBSTANCES ARE LISTED UNDER THE U.S. CLEANWATER ACT, SECTION 311, TABLE 116.4A:

|             |         |                  |
|-------------|---------|------------------|
| ACETIC ACID | 64-19-7 | >= 90 - <= 100 % |
|-------------|---------|------------------|

THE FOLLOWING HAZARDOUS CHEMICALS ARE LISTED UNDER THE U.S. CLEANWATER ACT, SECTION 311, TABLE 117.3:

|             |         |                  |
|-------------|---------|------------------|
| ACETIC ACID | 64-19-7 | >= 90 - <= 100 % |
|-------------|---------|------------------|

THIS PRODUCT DOES NOT CONTAIN ANY TOXIC POLLUTANTS LISTED UNDER THE U.S. CLEAN WATER ACT SECTION 307

THIS PRODUCT DOES NOT CONTAIN ANY PRIORITY POLLUTANTS RELATED TO THE U.S. CLEAN WATER ACT

**US STATE REGULATIONS****MASSACHUSETTS RIGHT TO KNOW COMPONENTS**

|             |         |
|-------------|---------|
| ACETIC ACID | 64-19-7 |
|-------------|---------|

**PENNSYLVANIA RIGHT TO KNOW COMPONENTS**

|             |         |
|-------------|---------|
| ACETIC ACID | 64-19-7 |
|-------------|---------|

**MAINE CHEMICALS OF HIGH CONCERN**

PRODUCT DOES NOT CONTAIN ANY LISTED CHEMICALS

**VERMONT CHEMICALS OF HIGH CONCERN**

PRODUCT DOES NOT CONTAIN ANY LISTED CHEMICALS

**WASHINGTON CHEMICALS OF HIGH CONCERN**

PRODUCT DOES NOT CONTAIN ANY LISTED CHEMICALS

**THE INGREDIENTS OF THIS PRODUCT ARE REPORTED IN THE FOLLOWING INVENTORIES:**

|      |                                                       |
|------|-------------------------------------------------------|
| TSCA | ALL SUBSTANCES LISTED AS ACTIVE ON THE TSCA INVENTORY |
|------|-------------------------------------------------------|

**TSCA LIST**

NO SUBSTANCES ARE SUBJECT TO A SIGNIFICANT NEW USE RULE.  
NO SUBSTANCES ARE SUBJECT TO TSCA 12(B) EXPORT NOTIFICATION REQUIREMENTS.

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## SECTION 16. OTHER INFORMATION

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### FULL TEXT OF H-STATEMENTS REFERRED TO UNDER SECTIONS 2 AND 3.

|      |                                          |
|------|------------------------------------------|
| H226 | FLAMMABLE LIQUID AND VAPOUR.             |
| H314 | CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. |

### MSDS LEGEND

|        |                                                           |
|--------|-----------------------------------------------------------|
| MW:    | MOLECULAR WEIGHT                                          |
| MF:    | MOLECULAR FORMULA                                         |
| VOC:   | VOLATILE ORGANIC COMPOUNDS                                |
| ACGIH: | AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS |
| CAS:   | CHEMICAL ABSTRACTS SERVICE REGISTRY NUMBER                |
| OSHA:  | OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION             |
| PEL:   | PERMISSIBLE EXPOSURE LIMIT (OSHA)                         |
| TLV:   | THRESHOLD LIMIT VALUE (ACGIH)                             |

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