

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.
150 Allen Road Suite 302
Basking Ridge, New Jersey 07920
Information: 1-800-416-2505

Emergency Contact:
CHEMTREC 1-800-424-9300
Calls Originating Outside the US:
703-527-3887 (Collect Calls Accepted)

SUBSTANCE: ACROLEIN, INHIBITED

TRADE NAMES/SYNONYMS:

ACRALDEHYDE; ACRYLALDEHYDE; ACRYLIC ALDEHYDE; ALLYL ALDEHYDE; 2-PROPENAL; PROP-2-EN-1-AL; 2-PROPEN-1-AL; ETHYLENE ALDEHYDE; AQUALIN; MAGNACIDE; PROPENAL; ACROLEIN; RCRA P003; STCC 4906410; UN 1092; C3H4O; MAT00330; RTECS AS1050000

CHEMICAL FAMILY: aldehydes, aliphatic

CREATION DATE: Jan 24 1989

REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: ACROLEIN, INHIBITED

CAS NUMBER: 107-02-8

PERCENTAGE: >99.0

COMPONENT: HYDROQUINONE

CAS NUMBER: 123-31-9

PERCENTAGE: <0.1

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=4 FIRE=3 REACTIVITY=3

EMERGENCY OVERVIEW:

COLOR: colorless to yellow

PHYSICAL FORM: volatile liquid

ODOR: pungent odor

MAJOR HEALTH HAZARDS: potentially fatal if inhaled or swallowed, harmful on contact with the skin,



respiratory tract burns, skin burns, eye burns, mucous membrane burns, tears

PHYSICAL HAZARDS: May explode when heated. Flammable liquid and vapor. Vapor may cause flash fire.

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: irritation (possibly severe), tearing, nausea, vomiting, diarrhea, difficulty breathing, asthma, headache, drowsiness, symptoms of drunkenness, fainting, bluish skin color, lung damage, death

LONG TERM EXPOSURE: lung damage

SKIN CONTACT:

SHORT TERM EXPOSURE: irritation (possibly severe), blisters

LONG TERM EXPOSURE: rash

EYE CONTACT:

SHORT TERM EXPOSURE: burns, tearing, eye damage

LONG TERM EXPOSURE: same as effects reported in short term exposure

INGESTION:

SHORT TERM EXPOSURE: same as effects reported in other routes of exposure, burns, digestive disorders, dizziness, coma, death

LONG TERM EXPOSURE: tumors

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing before reuse. Destroy contaminated shoes.

EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

NOTE TO PHYSICIAN: For inhalation, consider oxygen. For ingestion, consider gastric lavage and activated charcoal slurry.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Severe fire hazard. Vapor/air mixtures are explosive. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.

EXTINGUISHING MEDIA: regular dry chemical, carbon dioxide, water, regular foam, alcohol-resistant foam

Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING: Do not get water inside container. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile). Water may be ineffective.

FLASH POINT: -15 F (-26 C) (CC)

LOWER FLAMMABLE LIMIT: 2.8%

UPPER FLAMMABLE LIMIT: 31.0%

AUTOIGNITION: 428 F (220 C)

FLAMMABILITY CLASS (OSHA): IB

6. ACCIDENTAL RELEASE MEASURES

AIR RELEASE:

Reduce vapors with water spray.

SOIL RELEASE:

Trap spilled material at bottom in deep water pockets, excavated holding areas or within sand bag barriers. Dike for later disposal. Add dilute acid.

WATER RELEASE:

Cover with absorbent sheets, spill-control pads or pillows. Add a reducing agent. Absorb with activated carbon. Collect spilled material using mechanical equipment.

OCCUPATIONAL RELEASE:

Avoid heat, flames, sparks and other sources of ignition. Do not touch spilled material. Stop leak if possible without personal risk. Reduce vapors with water spray. Small spills: Flood with water. Large spills: Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.106. Grounding and bonding required. Keep separated from incompatible substances. Store in a cool, dry place. Store in a well-ventilated area. Avoid contact with light. Store outside or in a detached building. Store with flammable liquids. Monitor inhibitor content. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355 Part B). May form explosive peroxides. Store in a tightly closed container. Avoid contact with light. Store in a cool, dry place. Monitor inhibitor content. Do not evaporate or distill to dryness.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

ACROLEIN, INHIBITED:

ACROLEIN:

0.1 ppm (0.25 mg/m³) OSHA TWA

0.3 ppm (0.8 mg/m³) OSHA STEL (vacated by 58 FR 35338, June 30, 1993)

0.1 ppm ACGIH ceiling (skin)

0.1 ppm (0.25 mg/m³) NIOSH recommended TWA 10 hour(s)

0.3 ppm (0.8 mg/m³) NIOSH recommended STEL

VENTILATION: Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

2 ppm

Any supplied-air respirator operated in a continuous-flow mode.

Any powered, air-purifying respirator with organic vapor cartridge(s).

Any air-purifying respirator with a full facepiece and an organic vapor canister.

Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.

Any self-contained breathing apparatus with a full facepiece.

Any supplied-air respirator with a full facepiece.

Emergency or planned entry into unknown concentrations or IDLH conditions -

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Escape -

Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.

Any appropriate escape-type, self-contained breathing apparatus.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: liquid

COLOR: colorless to yellow

PHYSICAL FORM: volatile liquid

ODOR: pungent odor

MOLECULAR WEIGHT: 56.06

MOLECULAR FORMULA: C-H₂-C-H-C-H-O

BOILING POINT: 126-129 F (52-54 C)

FREEZING POINT: -125 F (-87 C)

VAPOR PRESSURE: 210 mmHg @ 20 C

VAPOR DENSITY (air=1): 1.94

SPECIFIC GRAVITY (water=1): 0.8410

WATER SOLUBILITY: 20.6% @ 20 C

PH: Not available

VOLATILITY: 100%

ODOR THRESHOLD: 1.5 ppm

EVAPORATION RATE: Not available

VISCOSITY: 0.35 cP @ 20 C

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

SOLVENT SOLUBILITY:

Soluble: alcohol, ether, acetone

10. STABILITY AND REACTIVITY

REACTIVITY: Polymerizes with evolution of heat. Avoid contact with air, light, water or storage and use above room temperature.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. Minimize contact with material. Keep out of water supplies and sewers.

INCOMPATIBILITIES: acids, bases, amines, combustible materials, metal salts, oxidizing materials

HAZARDOUS DECOMPOSITION:

Thermal decomposition products: oxides of carbon

POLYMERIZATION: May polymerize. Avoid contact with air, light or storage and use above room temperature.

11. TOXICOLOGICAL INFORMATION

ACROLEIN, INHIBITED:

IRRITATION DATA: 500 ppb/12 minute(s) eyes-human; 5 mg open skin-rabbit severe; 2 mg/24 hour(s) skin-rabbit severe; 1 mg eyes-rabbit severe; 50 ug/24 hour(s) eyes-rabbit severe; 1 percent skin-human

TOXICITY DATA: 8 ppm/4 hour(s) inhalation-rat LC50; 160 mg/kg skin-rabbit LD50; 26 mg/kg oral-rat LD50

CARCINOGEN STATUS: IARC: Human Inadequate Evidence, Animal Inadequate Evidence, Group 3; ACGIH: A4 -Not Classifiable as a Human Carcinogen

LOCAL EFFECTS:

Corrosive: inhalation, skin, eye, ingestion

ACUTE TOXICITY LEVEL:

Highly Toxic: inhalation, dermal absorption, ingestion

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: respiratory disorders

MUTAGENIC DATA: Available.

REPRODUCTIVE EFFECTS DATA: Available.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

FISH TOXICITY: 14.0 ug/L 96 hour(s) LC50 (Mortality) Fathead minnow (*Pimephales promelas*)

INVERTEBRATE TOXICITY: 93 ug/L 48 hour(s) EC50 (Immobilization) Water flea (*Daphnia magna*)

ALGAL TOXICITY: 1700 ug/L 48 hour(s) (Population Growth) Cryptomonad (*Chilomonas paramecium*)

OTHER TOXICITY: 7 ug/L 96 week(s) LC50 (Mortality) Clawed toad (*Xenopus laevis*)

FATE AND TRANSPORT:

BIOCONCENTRATION: 344 ug/L 1-28 hour(s) BCF (Residue) Bluegill (*Lepomis macrochirus*) 13.1 ug/L

ENVIRONMENTAL SUMMARY: Highly toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): P003. Dispose in accordance with all applicable regulations.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Acrolein, stabilized
ID NUMBER: UN1092
HAZARD CLASS OR DIVISION: 6.1
PACKING GROUP: I
LABELING REQUIREMENTS: 6.1; 3
QUANTITY LIMITATIONS:
PASSENGER AIRCRAFT OR RAILCAR: Forbidden
CARGO AIRCRAFT ONLY: Forbidden
MARINE POLLUTANT: Acrolein, stabilized



CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Acrolein, stabilized
UN NUMBER: UN1092
CLASS: 6.1; 3
PACKING GROUP/CATEGORY: I

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
ACROLEIN, INHIBITED: 1 LBS RQ
HYDROQUINONE: 100 LBS RQ

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B):
ACROLEIN, INHIBITED: 500 LBS TPQ

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C):
ACROLEIN, INHIBITED: 1 LBS RQ

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: No
FIRE: Yes
REACTIVE: Yes
SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65):
ACROLEIN, INHIBITED

OSHA PROCESS SAFETY (29 CFR 1910.119):
ACROLEIN, INHIBITED: 150 LBS TQ

STATE REGULATIONS:

California Proposition 65: Not regulated.

CANADIAN REGULATIONS:

WHMIS CLASSIFICATION: Not determined.

NATIONAL INVENTORY STATUS:

U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): Not determined.

16. OTHER INFORMATION

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