



Material Safety Data Sheet

1. Product and Company Identification

Product name : **Acrolein, Inhibited**

Chemical formula : C₃H₄O

Synonyms : 2-Propenal; Acraldehyde; Acrylic aldehyde; Allyl aldehyde; Prop-2-En-1-Al; 2-Propen-1-Al; Ethylene Aldehyde; Aqualin; Magnacide; Propenal; Acrolein; UN 1092

Company : Specialty Gases of America, Inc
6055 Brent Dr.
Toledo, OH 43611

Telephone : 419-729-7732

Emergency : 800-424-9300

2. Composition/Information on Ingredients

Components	CAS Number	% Volume
Acrolein, Inhibited	107-02-8	> 99%
Hydroquinone	123-31-9	< 0.1%

3. Hazards Identification

Emergency Overview

Potentially fatal if inhaled or swallowed; harmful on contact with the skin, respiratory tract burns, skin burns, eye burns, mucous membrane burns, tears.

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

Potential Health Effects

Inhalation : Irritation (possibly severe), tearing, nausea, vomiting, diarrhea, difficulty breathing, asthma, headache, drowsiness, symptoms of drunkenness, fainting, bluish skin color, lung damage, death. May cause lung damage in long term exposure.

Eye contact : Burns, tearing, eye damage.

Skin contact : Irritation (possibly severe), blisters. May cause rash in long term exposure.

Ingestion : Same as reported in other routes of exposure, burns, digestive disorders, dizziness, coma, death. May cause tumors in long term exposure.

Chronic Health Hazard : None known.

4. First Aid Measures

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

Skin contact : Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing before reuse. Destroy contaminated shoes.

- 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.
- 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.
- Note to physicians : For inhalation, consider oxygen.
For ingestion, consider gastric lavage and activated charcoal slurry.

5. Fire-Fighting Measures

- Suitable extinguishing media : Regular dry chemical, carbon dioxide, water, regular foam, alcohol-resistant foam.
Large fires: Use regular foam or flood with fine water spray.
- Specific hazards : Severe fire hazard. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Vapor/air mixtures are explosive.
- 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 the fire is out. If this is impossible, 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.

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 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 spill/release : Avoid heat, sparks, flames 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).
- Additional advice : None.

7. Handling and Storage

Handling

Secure cylinder when using to protect from falling. Use suitable hand truck to move cylinders.

Storage

Store 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. Do not evaporate or distill to dryness.

8. Exposure Controls / Personal Protection

Exposure limits

ACROLEIN, INHIBITED (107-02-8)

ACGIH	:	0.1 ppm Ceiling	Skin – potential significant contribution to overall exposure by the cutaneous route
OSHA (final)	:	0.1 ppm TWA; 0.25 mg/m ³ TWA	
OSHA (vacated)	:	0.3 ppm STEL; 0.8 mg/m ³ STEL	0.1 ppm TWA; 0.25 mg/m ³ TWA
NIOSH	:	0.3 ppm STEL; 0.8 mg/m ³ STEL	0.1 ppm TWA; 0.25 mg/m ³ TWA

HYDROQUINONE (123-31-9)

ACGIH	:	1 mg/m ³ TWA
OSHA (final)	:	2 mg/m ³ TWA
OSHA (vacated)	:	2 mg/m ³ TWA
NIOSH	:	2 mg/m ³ Ceiling 15 min

IDLH

2 ppm

Engineering measures/Ventilation

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

Personal protective equipment

Respiratory protection	:	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. Any air-purifying half-mask respirator equipped with cartridge(s) providing protection against the compound of concern. Any supplied-air respirator. 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.
Hand protection	:	Wear appropriate chemical resistant gloves.
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.
Skin and body protection : Wear appropriate chemical resistant clothing.

9. Physical and Chemical Properties

Form : Volatile liquid.
Color : Colorless to yellow.
Odor : Pungent odor.
Molecular weight : 56.06
Vapor pressure : 210 mmHg @ 20°C
Vapor density : 1.94 (air = 1)
Boiling point : 52 - 54°C
Melting point : -87°C
Water solubility : 20.6% @ 20°C
Specific gravity : 0.8410 (water = 1)
Solvent solubility : Soluble: alcohol, ether, acetone.

10. Stability and Reactivity

Stability : Polymerize 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. Minimize contact with material. Containers may rupture or explode if exposed to heat. Keep out of water supplies and sewer.
Materials to avoid : Acids, bases, oxidizing materials, amines, combustible materials, metal salts.
Hazardous decomposition products : Thermal decomposition products: oxides of carbon.

11. Toxicological Information

The components of this material have been reviewed in various sources and the following endpoints are published:

ACROLEIN, INHIBITED (107-02-8) : Inhalation LC50 Rat: 0.021 mg/L/4H; Inhalation LC50 Rat: 8 ppm/4H; Inhalation LC50 Rat: 0.065 mg/L/1H; Oral LD50 Rat: 26 mg/kg; Dermal LD50 Rabbit: 164 mg/kg.
HYDROQUINONE (123-31-9) : Oral LD50 Rat: 320 mg/kg; Dermal LD50 Rat: > 900 mg/kg.

Acute Toxicity Level

ACROLEIN, INHIBITED (107-02-8) : Highly toxic: Inhalation, dermal absorption, ingestion.
HYDROQUINONE (123-31-9) : Toxic: Ingestion.
Slightly toxic: Dermal absorption.

Component Carcinogenicity

ACROLEIN, INHIBITED (107-02-8)
ACGIH : A4 – Not Classifiable as a Human Carcinogen.
IARC : Monograph 63 [1995]; Supplement 7 [1987] (Group 3 (not classifiable))
DFG : Category 3B (could be carcinogenic for man)

HYDROQUINONE (123-31-9)

- ACGIH : A3 – Confirmed Animal Carcinogen with Unknown Relevance to Humans.
IARC : Monograph 71 [1999]; Supplement 7 [1987]; Monograph 15 [1977] (Group 3 (not classifiable))
DFG : Category 2 (considered to be carcinogenic for man)

Local Effects

- ACROLEIN, INHIBITED (107-02-8) : Corrosive: Inhalation, skin, eye, ingestion.
HYDROQUINONE (123-31-9) : Irritant: Inhalation, skin, eye.

Target Organs

- HYDROQUINONE (123-31-9) : Immune system (sensitizer).

Medical Conditions Aggravated by Exposure

Respiratory disorders.

12. Ecological Information

Aquatic Toxicity

- ACROLEIN, INHIBITED (107-02-8) : Fish: 96 Hr LC50 Pimephales promelas: 0.008 – 0.025 mg/L [flow-through]; 96 Hr LC50 Pimephales promelas: 0.045 mg/L [static]; 96 Hr LC50 Lepomis macrochirus: 0.08 – 0.12 mg/L [static]; 96 Hr LC50 Lepomis macrochirus: 0.027 – 0.040 mg/L [flow-through]; 96 Hr LC50 Oncorhynchus mykiss: 0.014 – 0.019 mg/L [flow-through].
Algae: 72 Hr EC50 Chlorella vulgaris: 0.05 mg/L.
Invertebrate: 48 Hr EC50 Daphnia magna: 0.043 – 0.062 mg/L.
HYDROQUINONE (123-31-9) : Fish: 96 Hr LC50 Oncorhynchus mykiss: 0.044 mg/L [flow-through]; 96 Hr LC50 Pimephales promelas: 0.044 mg/L [flow-through]; 96 Hr LC50 Pimephales promelas: 0.1 – 0.18 mg/L [static]; 96 Hr LC50 Brachydanio rerio: 0.17 mg/L.
Algae: 120 Hr EC50 Desmodesmus subspicatus: 13.5 mg/L; 72 Hr EC50 Pseudokirchneriella subcapitata: 0.335 mg/L.
Invertebrate: 48 Hr EC50 Daphnia magna: 0.25 mg/L.

13. Disposal Considerations

- Waste from residues / unused products : Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): P003.
Contaminated packaging : Return cylinder to supplier.
Component Waste Numbers : ACROLEIN, INHIBITED (107-02-8)
RCRA: waste_number P003

14. Transport Information

DOT (US only)

- Proper shipping name : Acrolein, stabilized
Class : 6.1, Packing Group I
UN/ID No. : UN1092
Labeling : Poison, Flammable liquid

Component Marine Pollutants

This material contains one or more of the following chemicals required by US DOT to be identified as marine pollutants.

Component	CAS	
ACROLEIN, INHIBITED	107-02-8	DOT regulated marine pollutant

15. Regulatory Information

U.S. Federal Regulations

This material contains one or more of the following chemicals required under SARA Section 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

ACROLEIN, INHIBITED (107-02-8)	:	SARA 302: 500 lb TPQ SARA 304: 1 lb EPCRA RQ SARA 313: 1.0% de minimis concentration CERCLA: 1 lb final RQ; 0.454 kg final RQ OSHA (safety): 150 lb TQ
HYDROQUINONE (123-31-9)	:	SARA 302: 500 lb lower TPQ; 10000 lb upper TPQ SARA 304: 100 lb EPCRA RQ SARA 313: 1.0% de minimis concentration CERCLA: 100 lb final RQ; 45.4 kg final RQ

SARA 311/312

Acute: Yes
Chronic: No
Fire: Yes
Reactive: Yes
Pressure: No

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
ACROLEIN, INHIBITED	107-02-8	Yes	Yes	Yes	Yes	Yes	Yes
HYDROQUINONE	123-31-9	Yes	Yes	Yes	Yes	Yes	Yes

Not regulated under California Proposition 65

16. Other Information

Prepared by : Specialty Gases of America, Inc.
For additional information, please visit our website at www.americangasgroup.com.