

Material Safety Data Sheet

Crotonaldehyde, 99+%

ACC# 56057

Section 1 - Chemical Product and Company Identification

MSDS Name: Crotonaldehyde, 99+%

Catalog Numbers: AC158220000, AC158220010, AC158220050, AC158221000, AC158225000, NC9131001, XXAC15822-170K

Synonyms: 2-Butenal; Crotonic aldehyde; beta-Methylacrolein.

Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
4170-30-3	Crotonaldehyde	>99	224-030-0

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: colorless to yellow. Flash Point: 55 deg F.

Danger! May be fatal if inhaled. Causes severe eye irritation and possible eye injury. Causes respiratory tract irritation. **Flammable liquid and vapor.** Lachrymator (substance which increases the flow of tears). Harmful if swallowed or absorbed through the skin. Causes skin irritation. May form explosive peroxides. Air sensitive. Light sensitive.

Target Organs: Eyes.

Potential Health Effects

Eye: Causes severe eye irritation. May cause eye injury. Lachrymator (substance which increases the flow of tears).

Skin: Causes skin irritation. Harmful if absorbed through the skin.

Ingestion: Harmful if swallowed. Causes gastrointestinal irritation with nausea, vomiting and diarrhea.

Inhalation: May be fatal if inhaled. Causes respiratory tract irritation.

Chronic: Chronic inhalation may cause effects similar to those of acute inhalation.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed.

Skin: Get medical aid immediately. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Discard contaminated clothing in a manner which limits further exposure.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Use water spray to keep fire-exposed containers cool. Flammable liquid and vapor. May be ignited by heat, sparks, and flame. Containers may explode when heated. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. Fight fire from protected location or maximum possible distance.

Extinguishing Media: Use water spray, dry chemical, "alcohol resistant" foam, or carbon dioxide.

Flash Point: 55e deg F (12.78 deg C)

Autoignition Temperature: 450 deg F (232.22 deg C)

Explosion Limits, Lower:2.1

Upper: 15.5

NFPA Rating: (estimated) Health: 4; Flammability: 3; Instability: 2

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Provide ventilation. A vapor suppressing foam may be used to reduce vapors. Water spray may reduce vapor but may not prevent ignition in closed spaces. Evacuate unnecessary personnel.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Do not ingest or inhale. Use only in a chemical fume hood. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a

tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Do not store near alkaline substances. Store under an inert atmosphere.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Crotonaldehyde	skin - potential for cutaneous absorption; 0.3 ppm Ceiling	2 ppm TWA; 6 mg/m ³ TWA 50 ppm IDLH	2 ppm TWA; 6 mg/m ³ TWA

OSHA Vacated PELs: Crotonaldehyde: 2 ppm TWA; 6 mg/m³ TWA

Personal Protective Equipment

Eyes: Wear chemical goggles.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: colorless to yellow

Odor: Pungent, suffocating odor.

pH: Not available.

Vapor Pressure: 30 mm Hg @ 20 deg C

Vapor Density: 2.41 (air=1)

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: 104 deg C

Freezing/Melting Point: -76 deg C

Decomposition Temperature: Not available.

Solubility: Partially soluble.

Specific Gravity/Density: 0.853

Molecular Formula: C₄H₆O

Molecular Weight: 70.09

Section 10 - Stability and Reactivity

Chemical Stability: May form explosive peroxides on contact with air or may undergo hazardous polymerization without an inhibitor.

Conditions to Avoid: High temperatures, ignition sources, loss of inhibitor.

Incompatibilities with Other Materials: Reacts violently with 1,3-butadiene. Violent hypergolic

reaction with concentrated nitric acid. Can react with oxidizers, ammonia and bases. Polymerization may be caused by elevated temperatures and alkalies.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.

Hazardous Polymerization: May occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 4170-30-3: GP9499000

LD50/LC50:

CAS# 4170-30-3:

Dermal, guinea pig: LD50 = 30 uL/kg;
 Inhalation, mouse: LC50 = 580 mg/m³/2H;
 Inhalation, rat: LC50 = 200 mg/m³/2H;
 Inhalation, rat: LC50 = 9600 mg/m³/5M;
 Inhalation, rat: LC50 = 4800 mg/m³/10M;
 Inhalation, rat: LC50 = 2400 mg/m³/15M;
 Inhalation, rat: LC50 = 1700 mg/m³/30M;
 Inhalation, rat: LC50 = 1100 mg/m³/60M;
 Inhalation, rat: LC50 = 300 mg/m³/4H;
 Oral, mouse: LD50 = 104 mg/kg;
 Oral, rat: LD50 = 80 mg/kg;
 Skin, rabbit: LD50 = 380 uL/kg;

Carcinogenicity:

CAS# 4170-30-3:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans
- Epidemiology:** No data available.
Teratogenicity: No data available.
Reproductive Effects: No data available.
Neurotoxicity: No data available.
Mutagenicity: No data available.
Other Studies: No data available.

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series:

CAS# 4170-30-3: waste number U053.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	CROTONALDEHYDE, STABILIZED	CROTONALDEHYDE, STABILIZED
Hazard Class:	6.1	6.1(3)
UN Number:	UN1143	UN1143
Packing Group:	I	I

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 4170-30-3 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 4170-30-3: Effective 3/7/86, Sunset 12/19/95

Chemical Test Rules

CAS# 4170-30-3: Test for Environmental Effects; Test for Chemical Fate

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 4170-30-3: 100 lb final RQ; 45.4 kg final RQ

SARA Section 302 Extremely Hazardous Substances

CAS# 4170-30-3: 1000 lb TPQ

SARA Codes

CAS # 4170-30-3: acute, chronic, flammable, reactive.

Section 313

This material contains Crotonaldehyde (CAS# 4170-30-3, >99%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 4170-30-3 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 4170-30-3 can be found on the following state right to know lists: New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T+ F N

Risk Phrases:

- R 11 Highly flammable.
- R 26 Very toxic by inhalation.
- R 37/38 Irritating to respiratory system and skin.
- R 41 Risk of serious damage to eyes.
- R 24/25 Toxic in contact with skin and if swallowed.
- R 50 Very toxic to aquatic organisms.
- R 48/22 Harmful : danger of serious damage to health by prolonged exposure if swallowed.
- R 68 Possible risk of irreversible effects.

Safety Phrases:

- S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S 28A After contact with skin, wash immediately with plenty of water.
- S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

WGK (Water Danger/Protection)

CAS# 4170-30-3: 3

Canada - DSL/NDSL

CAS# 4170-30-3 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B2, D1A, D2B.

Canadian Ingredient Disclosure List

CAS# 4170-30-3 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information
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MSDS Creation Date: 6/09/1998

Revision #4 Date: 7/16/2002

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