SAFETY DATA SHEET

Creation Date 22-Apr-2009 **Revision Date** 24-Dec-2021 **Revision Number** 7

1. Identification

Product Name **Acetaldehyde**

Cat No. : **AC149510000, AC149510010, AC149510025, AC149510100, AC149512500**

CAS No 75-07-0
Synonyms Ethanal

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 1
Acute oral toxicity	Category 4
Serious Eye Damage/Eye Irritation	Category 2
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 1A
Specific target organ toxicity (single exposure)	Category 3

Target Organs - Respiratory system, Central nervous system (CNS).

Label Elements

Signal Word
Danger

Hazard Statements
Extremely flammable liquid and vapor
Harmful if swallowed
Causes serious eye irritation
May cause respiratory irritation
Suspected of causing genetic defects
May cause cancer

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear eye/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Hazardous polymerization may occur
Lachrymator (substance which increases the flow of tears)
May form explosive peroxides
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Acetaldehyde	75-07-0	<=100

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects None reasonably foreseeable. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media CO_2, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.

Unsuitable Extinguishing Media Water may be ineffective

Flash Point -27 °C / -16.6 °F

Method - No information available

Autoignition Temperature 155 °C / 311 °F

Explosion Limits

Upper 60.0%

Lower 4.0%

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Extremely flammable. May form explosive peroxides. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition. Vapors may form explosive mixtures with air.

Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO_2).

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	4	2	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment as required. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Use spark-proof tools and explosion-proof equipment. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Flammables area. Keep away from heat, sparks and flame. Refrigerator/flammables. Store under an inert atmosphere. Do not freeze. Incompatible Materials. Strong oxidizing agents. Acids. Bases. Metals. Strong reducing agents. Alcohols. Amines. Halogens.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Acetaldehyde	Ceiling: 25 ppm	(Vacated) TWA: 100 ppm (Vacated) TWA: 180 mg/m³ (Vacated) STEL: 150 ppm (Vacated) STEL: 270 mg/m³ TWA: 200 ppm TWA: 360 mg/m³	IDLH: 2000 ppm	Ceiling: 25 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting equipment. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Clear
Odor	pungent
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-123 °C / -189.4 °F
Boiling Point/Range	21 °C / 69.8 °F
Flash Point	-27 °C / -16.6 °F
Evaporation Rate	49.1
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	60.0%
Lower	4.0%
Vapor Pressure	986 mbar @ 20°C
Vapor Density	1.52
Specific Gravity	0.785
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	155 °C / 311 °F
Decomposition Temperature	No information available
Viscosity	0.25 mPas @ 15°C
Molecular Formula	C2 H4 O
Molecular Weight	44.04

10. Stability and reactivity

Reactive Hazard Yes

Stability Stable under recommended storage conditions. Polymerization can occur. May form explosive peroxides.

Conditions to Avoid Excess heat. Exposure to air. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents, Acids, Bases, Metals, Strong reducing agents, Alcohols, Amines, Halogens

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization may occur.

Hazardous Reactions Reacts with air to form peroxides.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Acetaldehyde	LD50 = 660 mg/kg (Rat)	LD50 = 3540 mg/kg (Rabbit)	LC50 = 13000 ppm (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and respiratory system

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Acetaldehyde	75-07-0	Group 1 Group 2B	Reasonably Anticipated	A2	X	A3

IARC (International Agency for Research on Cancer)

NTP: (National Toxicity Program)

ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans
NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen
A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)
Mexico - Occupational Exposure Limits - Carcinogens
A1 - Confirmed Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Confirmed Animal Carcinogen
A4 - Not Classifiable as a Human Carcinogen
A5 - Not Suspected as a Human Carcinogen

Mutagenic Effects Mutagenic effects have occurred in experimental animals.

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system Central nervous system (CNS)
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

The product contains following substances which are hazardous for the environment. Contains a substance which is:. Toxic to aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Acetaldehyde	Not listed	LC50: 28.0 - 34.0 mg/L, 96h flow-through (Pimephales promelas) LC50: 1.8 - 2.4 mg/L, 96h static (Oncorhynchus mykiss) LC50: = 53 mg/L, 96h static (Lepomis macrochirus) LC50: 39.8 - 46.8 mg/L, 96h static (Pimephales promelas)	EC50 = 280.6 mg/L 15 min EC50 = 280.6 mg/L 25 min EC50 = 280.6 mg/L 5 min	EC50: 3.64 - 6.15 mg/L, 48h Static (Daphnia magna) EC50: = 48.3 mg/L, 48h (Daphnia magna)

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Acetaldehyde	0.5

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Acetaldehyde - 75-07-0	U001	-

14. Transport information

DOT

UN-No UN1089
Proper Shipping Name ACETALDEHYDE
Hazard Class 3
Packing Group I

TDG

UN-No UN1089
Proper Shipping Name ACETALDEHYDE
Hazard Class 3
Packing Group I

IATA

UN-No UN1089
Proper Shipping Name Acetaldehyde
Hazard Class 3
Packing Group I

IMDG/IMO

UN-No UN1089
Proper Shipping Name Acetaldehyde
Hazard Class 3
Packing Group I

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Acetaldehyde	75-07-0	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

TSCA 12(b) - Notices of Export

Component	CAS No	**TSCA 12(b)** - Notices of Export
Acetaldehyde	75-07-0	Section 5

International Inventories
China, X = listed, Australia, U.S.A. (TSCA), Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Australia (AICS), Korea (KECL), China (IECSC), Japan (ENCS), Philippines (PICCS).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Acetaldehyde	75-07-0	X	-	200-836-8	X	X	X	X	X	KE-00003

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Acetaldehyde	75-07-0	<=100	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Acetaldehyde	X	1000 lb	-	-

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Acetaldehyde	X		-

OSHA - Occupational Safety and Health Administration

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Acetaldehyde	-	TQ: 2500 lb

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Acetaldehyde	1000 lb	-

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Acetaldehyde	75-07-0	Carcinogen	90 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Acetaldehyde	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product contains the following DHS chemicals:
Legend - STQs = Screening Threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Acetaldehyde	Release STQs - 10000lb

Other International Regulations

Mexico - Grade Severe risk, Grade 4

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Acetaldehyde	-	Use restricted. See item 28. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Acetaldehyde	75-07-0	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Acetaldehyde	75-07-0	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

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Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
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End of SDS