



SIGMA-ALDRICH

Material Safety Data Sheet

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Section 1 - Product and Company Information

Product Name Benzaldehyde, redistilled, 99.5+%
Product Number 418099
Brand Aldrich Chemical

Company Sigma-Aldrich
Street Address 3050 Spruce Street
City, State, Zip, Country SAINT LOUIS, MO 63103 US
Technical Phone: 314 771 5765
Fax: 800 325 5052

Emergency Phone: 414 273 3850 Ext. 5996

Section 2 - Composition/Information on Ingredient

<u>Substance Name</u>	<u>CAS #</u>	<u>SARA 313</u>	<u>EC no</u>	<u>Annex I Index Number</u>
BENZALDEHYDE	100-52-7	No	202-860-4	605-012-00-5

Formula C7H6O
Synonyms Almond artificial essential oil, Artificial almond oil, Artificial essential oil of almond, Benzaldehyde FCC, Benzene carbaldehyde, Benzenecarbonal, Benzoic aldehyde, NCI-C56133, Phenylmethanal

Section 3 - Hazards Identification

Emergency Overview

Harmful.
Harmful in contact with skin and if swallowed. Irritating to eyes, respiratory system and skin. May cause sensitization by inhalation and skin contact.
Combustible liquid. Readily absorbed through skin. Target organ(s): Central nervous system. Liver.

HMIS Rating
Health: 3* Flammability: 2 Reactivity: 1

NFPA Rating
Health: 3 Flammability: 2 Reactivity: 1

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

Oral Exposure

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

Inhalation Exposure

If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

Dermal Exposure

In case of contact, immediately wash skin with soap and copious amounts of water.

Eye Exposure

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

Flash Point: 147.2 °F 64 °C
Explosion Limits: Lower: 1.4% Upper: 8.5%
Autoignition Temp: 190 °C

Extinguishing Media

Suitable
Water spray, Carbon dioxide, dry chemical powder, or appropriate foam.

Firefighting

Protective Equipment
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s)
Combustible liquid.

Section 6 - Accidental Release Measures

Procedure to be Followed in Case of Leak or Spill
Evacuate area.

Procedure(s) of Personal Precaution(s)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up

Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling

User Exposure

Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

Storage

Suitable

Keep tightly closed. Keep away from heat and open flame. Store under nitrogen.

Special Requirements

Air, light, and moisture sensitive.

Section 8 - Exposure Controls / PPE

Engineering Controls

Safety shower and eye bath. Mechanical exhaust required.

Personal Protective Equipment

Respiratory

Government approved respirator.

Hand

Compatible chemical-resistant gloves.

Eye

Chemical safety goggles.

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General Hygiene Measures
Wash thoroughly after handling.

Exposure Limits

Country	Type	Value
Poland	NDS	10 MG/M3
Poland	NDSch	40 MG/M3
Poland	NDSP	-

Section 9 - Physical/Chemical Properties

Appearance	Physical State	Color
	Liquid	Colorless
Molecular Weight:	106.12 AMU	
pH	5.9	20 °C
BP/BP Range	177 - 179 °C	
MP/MP Range	-26 °C	
Freezing Point	N/A	
Vapor Pressure	4 mmHg	45 °C
Vapor Density	3.7 g/l	
Saturated Vapor Conc.	N/A	
SG/Density	1.05 g/cm3	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Partition Coefficient	Log Kow: 1.5	
Decomposition Temp.	N/A	
Flash Point °F	147.2 °F	
Flash Point °C	64 °C	
Explosion Limits	Lower: 1.4 % Upper: 8.5 %	20 °C
Flammability	N/A	
Autoignition Temp	190 °C	
Refractive Index	1.545	
Solubility		
Solubility in Water:	Slightly.	

Method: closed cup
Method: closed cup

N/A = not available

Section 10 - Stability and Reactivity

Stability

Stable

Stable.

Conditions to Avoid

Sensitive to moisture. Sensitive to air. Sensitive to light.

Materials to Avoid

Strong oxidizing agents, Strong reducing agents, Strong bases.

Hazardous Decomposition Products

Hazardous Decomposition Products

Carbon monoxide, Carbon dioxide.

Hazardous Polymerization
Hazardous Polymerization
Will not occur.

Section 11 - Toxicological Information

Route of Exposure

Skin Contact

Causes skin irritation.

Skin Absorption

Harmful if absorbed through skin. Readily absorbed through skin.

Eye Contact

Causes eye irritation.

Inhalation

May be harmful if inhaled.

Ingestion

Harmful if swallowed.

Sensitization

Respiratory

May cause allergic respiratory reaction.

Skin

May cause allergic skin reaction.

Target Organ(s) or System(s)

Central nervous system. Liver. Kidneys.

Signs and Symptoms of Exposure

Exposure can cause: Narcotic effect. CNS depression. Prolonged or repeated exposure to skin causes defatting and dermatitis.

RTECS Number: CU4375000

Toxicity Data

Skin - Rabbit: 1,250 mg/kg(LD50)

Oral - Rat: 1300 mg/kg (LD50)

Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Coma.

Oral - Mouse: 28 mg/kg (LD50)

Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Tremor.
Lungs, Thorax, or Respiration:Other changes.

Intraperitoneal - Mouse: 9 MG/KG (LD50)

Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Tremor.
Lungs, Thorax, or Respiration:Other changes.

Subcutaneous - Rabbit: 5 GM/KG (LD50)

Oral - Guinea pig: 1000 mg/kg (LD50)

Remarks: Behavioral:Tremor.
Gastrointestinal:Ulceration or bleeding from small intestine.
Kidney, Ureter, Bladder:Urine volume increased.

Oral - Mammal: 2020 mg/kg (LD50)

Irritation Data

Eyes - Rabbit:

Remarks: Mild irritation effect

Skin - Rabbit: 500 mg 24H

Remarks: Moderate irritation effect

Chronic Exposure - Carcinogen

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Mouse - Oral: 154 GM/KG 2Y C

Result: Tumorigenic: Neoplastic by RTECS criteria. Gastrointestinal: Tumors.

NTP Carcinogen List

<u>Rating</u>	<u>Species</u>	<u>Route</u>
Some evidence.	Mouse	Gavage
No evidence.	Rat	Gavage

Chronic Exposure - Mutagen

<u>Species</u>	<u>Dose</u>	<u>Cell Type</u>	<u>Mutation test</u>
Result: Laboratory experiments have shown mutagenic effects.			
Human	1 MMOL/L	lymphocyte	Sister chromatid exchange
Mouse	400 MG/L	lymphocyte	specific locus test
Mouse	400 MG/L	lymphocyte	Mutation in mammalian somatic cells.
Hamster	1 GM/L	lung	Cytogenetic analysis
Hamster	50 MG/L	ovary	Sister chromatid exchange

Section 12 - Ecological Information

Acute Ecotoxicity Tests

Test Type
LC50 Fish
Species
Leuciscus idus
Time: 48.0 h
Value: 62 mg/l

Test Type
EC50 Daphnia
Species
Daphnia magna
Time: 24.0 h
Value: 50 mg/l

Section 13 - Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation

Contact a licensed professional waste disposal service to dispose of this material.
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.
Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Benzaldehyde
UN#: 1990
Class: 9
Packing Group: Packing Group III
Hazard Label: Class 9
PIH: Not PIH

IATA

Proper Shipping Name: Benzaldehyde
IATA UN Number: 1990
Hazard Class: 9
Packing Group: III

Section 15 - Regulatory Information

EU Directives Classification

Symbol of Danger: Xn

Indication of Danger

Harmful.

Risk Statements R: 22

Harmful if swallowed.

Safety Statements S: 24

Avoid contact with skin.

US Classification and Label Text

Indication of Danger

Harmful.

Risk Statements

Harmful in contact with skin and if swallowed. Irritating to eyes, respiratory system and skin. May cause sensitization by inhalation and skin contact.

Safety Statements

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.

US Statements

Combustible liquid. Readily absorbed through skin. Target organ(s): Central nervous system. Liver.

United States Regulatory Information

SARA Listed: No

TSCA Inventory Item: Yes

Canada Regulatory Information

WHMIS Classification

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 16 - Other Information

Disclaimer

For R&D use only. Not for drug, household or other uses.

Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.