Material Safety Data Sheet
Benzaldehyde

ACC# 02590

Section 1 - Chemical Product and Company Identification

**MSDS Name:** Benzaldehyde  
**Catalog Numbers:** B240 500, B240-500, B240500  
**Synonyms:** Benzenecarboxaldehyde; artificial almond oil; benzene carbaldehyde; benzoic aldehyde  
**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

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-52-7</td>
<td>Benzaldehyde</td>
<td>100</td>
<td>202-860-4</td>
</tr>
</tbody>
</table>

**Hazard Symbols:** XN  
**Risk Phrases:** 22

Section 3 - Hazards Identification

**EMERGENCY OVERVIEW**

Appearance: yellow liquid. Flash Point: 64 deg C. **Combustible liquid and vapor.** Harmful if swallowed. Causes digestive and respiratory tract irritation. Causes eye and skin irritation. May cause central nervous system depression. May cause kidney damage. **Warning!**  
**Target Organs:** Kidneys, central nervous system.

**Potential Health Effects**  
**Eye:** Causes eye irritation.
**Skin:** Causes skin irritation.

**Ingestion:** Harmful if swallowed. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure.

**Inhalation:** Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. May cause respiratory tract irritation. May cause narcotic effects in high concentration.

**Chronic:** Prolonged or repeated skin contact may cause dermatitis. May cause kidney injury.

### 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.

**Skin:** Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

**Ingestion:** 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.

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

**Notes to Physician:** Treat symptomatically and supportively.

**Antidote:** None reported.

### 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. Vapors can travel to a source of ignition and flash back.

**Extinguishing Media:** Use water spray to cool fire-exposed containers. Use water spray, dry chemical, or foam. Use carbon dioxide.

**Flash Point:** 64 deg C (147.20 deg F)

**Autoignition Temperature:** 192 deg C (377.60 deg F)

**Explosion Limits, Lower:** 1.40%

**Upper:** 8.5%

**NFPA Rating:** (estimated) Health: 2; Flammability: 2; Instability: 0

### Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section
8. **Spills/Leaks:** Avoid runoff into storm sewers and ditches which lead to waterways. Use water spray to disperse the gas/vapor. Remove all sources of ignition. Absorb spill using an absorbent, non-combustible material such as earth, sand, or vermiculite. Do not use combustible materials such as sawdust.

### Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Use only in a well-ventilated area. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and 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. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

**Storage:** Keep away from heat 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. Keep away from reducing agents. Do not store near alkaline substances.

### Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Use adequate ventilation to keep airborne concentrations low.

**Exposure Limits**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
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</thead>
<tbody>
<tr>
<td>Benzaldehyde</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
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</table>

**OSHA Vacated PELs:** Benzaldehyde: No OSHA Vacated PELs are listed for this chemical.

**Personal Protective Equipment**

**Eyes:** 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:** Wear appropriate 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: yellow
Odor: bitter-almond
pH: 5.9
Vapor Pressure: 1 mm Hg @ 26.2°C
Vapor Density: 3.65
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 178 deg C
Freezing/Melting Point: -56 deg C
Decomposition Temperature: Not available.
Solubility: Slightly soluble.
Specific Gravity/Density: 1.0415 @10°C
Molecular Formula: C6H5CHO
Molecular Weight: 106.0414

Section 10 - Stability and Reactivity

Chemical Stability: Stable.
Conditions to Avoid: High temperatures, incompatible materials, ignition sources.
Incompatibilities with Other Materials: Incompatible with strong oxidizing agents. Oxidizes in air to benzoic acid. Reacts dangerously with performic acid.
Hazardous Decomposition Products: Carbon monoxide, irritating and toxic gases, carbon dioxide.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#: 
CAS# 100-52-7: CU4375000
LD50/LC50: 
CAS# 100-52-7:
Draize test, rabbit, skin: 500 mg/24H Moderate;
Oral, mouse: LD50 = 28 mg/kg;
Oral, mouse: LD50 = 2020 mg/kg;
Oral, rat: LD50 = 1300 mg/kg;
Oral, rat: LD50 = 2400 mg/kg; <br.

Carcinogenicity:
CAS# 100-52-7: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology: No information available.
Teratogenicity: TDLo (Oral, mouse) = 154 gm/kg/2Y-C; Gastrointestinal - tumors
Reproductive Effects: No information available.
Neurotoxicity: No information available.
Mutagenicity: Mutation, mammalian somatic cells (Mouse Lymphocyte) = 400 mg/L. Cytogenetic analysis (Rodent - hamster Lung) = 1 gm/L
Other Studies: Standard Draize Test: Administration onto the skin (rabbit) = 500 mg/24H (Moderate).

Section 12 - Ecological Information

Ecotoxicity: Fish: Rainbow trout: LC50 = 11 mg/L; 96 Hr.; Unspecified. Fish: Bluegill/Sunfish: LC50 = 1.1-7.6 mg/L; 96 Hr.; Unspecified. Water flea LC50 = 5.0 mg/L; 24 Hr.; Unspecified. Bacteria: Phytobacterium phosphoreum: EC50 = 4.85 - 6.11 mg/L; 5, 15, 30 Minutes; Microtox Test, 15 degrees C No data available.
Environmental: Based upon a measured log Kow of 1.48 and a water solubility of 6950 mg/l at 25 deg C, the BCF for benzaldehyde can be estimated to be 7.8 and 4.2, respectively, these BCF values suggest that the biconcentration in aquatic organisms is not important. A number of biological screening studies have demonstrated that benzaldehyde is readily biodegradable. Estimated Koc values of 34 and 150 suggest that benzaldehyde will leach readily.
Physical: Benzaldehyde has a BOD: 50%, 10 days; 150%, 5 days.
Other: Benzaldehyde absorbs UV irradiation weakly (extinction coefficient of 0-30/M-cu cm) in the spectra between 300 and 380 nm.

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: None listed.

Section 14 - Transport Information

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<th>Shipping Name:</th>
<th>US DOT</th>
<th>IATA</th>
<th>RID/ADR</th>
<th>IMO</th>
<th>Canada TDG</th>
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<tr>
<td>Hazard Class:</td>
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<tr>
<td>UN Number:</td>
<td>UN1990</td>
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<tr>
<td>Packing Group:</td>
<td>III</td>
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US FEDERAL

TSCA
CAS# 100-52-7 is listed on the TSCA inventory.

Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.

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.

SARA

CERCLA Hazardous Substances and corresponding RQs
None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.

SARA Codes
CAS # 100-52-7: flammable.

Section 313
No chemicals are reportable under Section 313.

Clean Air Act:
This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depleters. This material does not contain any Class 2 Ozone depleters.

Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances 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# 100-52-7 can be found on the following state right to know lists: New Jersey, Pennsylvania, Minnesota, Massachusetts.
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:
XN

Risk Phrases:
R 22 Harmful if swallowed.

Safety Phrases:
S 24 Avoid contact with skin.
WGK (Water Danger/Protection)
CAS# 100-52-7: 2

Canada - DSL/NDSL
CAS# 100-52-7 is listed on Canada's DSL List.

Canada - WHMIS
This product does not have a WHMIS classification.

Canadian Ingredient Disclosure List
CAS# 100-52-7 is listed on the Canadian Ingredient Disclosure List.

Exposure Limits
CAS# 100-52-7: OEL-HUNGARY:TWA 5 mg/m3; STEL 10 mg/m3 OEL-RUSSIA: STEL 5 mg/m3

Section 16 - Additional Information

MSDS Creation Date: 5/03/1999
Revision #2 Date: 3/18/2003

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.