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# BENZALDEHYDE

MSDS Number: B0696 --- Effective Date: 12/08/96

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## 1. Product Identification

**Synonyms:** Benzoic aldehyde; benzenecarbonal  
**CAS No.:** 100-52-7  
**Molecular Weight:** 106.12  
**Chemical Formula:** C<sub>6</sub>H<sub>5</sub>CHO  
**Product Codes:** 9144

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## 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Benzaldehyde	100-52-7	99 - 100%	Yes

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## 3. Hazards Identification

### Emergency Overview

**WARNING! MAY CAUSE ALLERGIC SKIN REACTION. HARMFUL IF SWALLOWED OR INHALED. AFFECTS CENTRAL NERVOUS SYSTEM. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. COMBUSTIBLE LIQUID AND VAPOR.**

J.T. Baker SAF-T-DATA<sup>(tm)</sup> Ratings (Provided here for your convenience)

Health Rating: 1 - Slight  
Flammability Rating: 2 - Moderate  
Reactivity Rating: 1 - Slight  
Contact Rating: 1 - Slight  
Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER  
Storage Color Code: Red (Flammable)

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### Potential Health Effects

#### Inhalation:

May cause irritation to the respiratory tract. Symptoms may include coughing, sore throat, labored breathing, and chest pain. High concentrations have a narcotic effect.

#### Ingestion:

May cause sore throat, abdominal pain, nausea, central nervous system depression, convulsions, and respiratory failure. Estimated lethal dose 2 ounces.

#### Skin Contact:

May cause irritation with redness and pain. May cause allergic skin reactions. May have a local anesthetic effect.

#### Eye Contact:

May cause irritation, redness and pain.

#### Chronic Exposure:

Chronic exposure may cause skin effects.

#### Aggravation of Pre-existing Conditions:

No information found.

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## 4. First Aid Measures

### Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

### Ingestion:

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Skin Contact:**

Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eye Contact:**

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Call a physician if irritation persists.

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## 5. Fire Fighting Measures

**Fire:**

Flash point: 64C (147F) Autoignition temperature: 192C (378F) Flammable limits in air % by volume: lcl: 1.4 Combustible.

**Explosion:**

Above the flash point, explosive vapor-air mixtures may be formed. Vapors can flow along surfaces to distant ignition source and flash back. Sealed containers may rupture when heated. An explosion occurred after mixing sodium hydrosulfite, aluminum powder, potassium carbonate and benzaldehyde.

**Fire Extinguishing Media:**

Water spray, dry chemical, alcohol foam, or carbon dioxide. Water spray may be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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## 6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! J. T. Baker SOLUSORB(tm) solvent adsorbent is recommended for spills of this product.

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## 7. Handling and Storage

Store in a tightly closed container. Protect against physical damage. Outside or detached storage is preferred. Inside storage should be in a standard flammable liquids storage room or cabinet. Separate from oxidizing materials. Storage and use areas should be No Smoking areas. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

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## 8. Exposure Controls/Personal Protection

**Airborne Exposure Limits:**

AIHA Workplace Environmental Exposure Limit: 8-hour TWA: 2 ppm; 15-min STEL: 4 ppm

**Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

**Personal Respirators (NIOSH Approved):**

If the exposure limit is exceeded, a full facepiece respirator with organic vapor cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

**Skin Protection:**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

**Eye Protection:**

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

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## 9. Physical and Chemical Properties

**Appearance:**

Clear, colorless liquid.

**Odor:**

Characteristic odor of volatile oil of almonds.

**Solubility:**

Soluble in 350 parts water.

**Specific Gravity:**

1.05 @ 15C/4C

**pH:**

No information found.

**% Volatiles by volume @ 21C (70F):**

No information found.

**Boiling Point:**

179C (354F)

**Melting Point:**

-26C (-15F)

**Vapor Density (Air=1):**

3.65

**Vapor Pressure (mm Hg):**

1 @ 26C (79F)

**Evaporation Rate (BuAc=1):**

No information found.

## 10. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage. Turns yellow on keeping. Oxidizes slowly in air to benzoic acid.

**Hazardous Decomposition Products:**

Carbon dioxide and carbon monoxide may form when heated to decomposition.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Performic acid and other oxidizing materials. An explosion occurred after mixing sodium hydrosulfite, aluminum powder, potassium carbonate and benzaldehyde.

**Conditions to Avoid:**

Heat, flames, ignition sources and incompatibles.

## 11. Toxicological Information

Oral rat LD50: 1300 mg/kg;. Irritation data: skin rabbit, standard Draize, 500 mg/24H moderate; investigated as a tumorigen, mutagen.

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Benzaldehyde (100-52-7)	No	No	None

## 12. Ecological Information

**Environmental Fate:**

When released into the soil, this material may leach into groundwater. When released into the soil, this material may biodegrade to a moderate extent. When released into water, this material may evaporate to a moderate extent. When released into water, this material is expected to readily biodegrade. This material has an estimated bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to have a half-life between 1 and 10 days. When released into the air, this material may be removed from the atmosphere to a moderate extent by wet deposition.

**Environmental Toxicity:**

No information found.

### 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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### 14. Transport Information

#### Domestic (Land, D.O.T.)

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Proper Shipping Name: BENZALDEHYDE  
Hazard Class: 9  
UN/NA: UN1990  
Packing Group: III  
Information reported for product/size: 4L

#### International (Water, I.M.O.)

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Proper Shipping Name: BENZALDEHYDE  
Hazard Class: 9  
UN/NA: UN1990  
Packing Group: III  
Information reported for product/size: 4L

#### International (Air, I.C.A.O.)

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Proper Shipping Name: BENZALDEHYDE  
Hazard Class: 9  
UN/NA: UN1990  
Packing Group: III  
Information reported for product/size: 4L

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### 15. Regulatory Information

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-----\Chemical Inventory Status - Part 1\-----  
Ingredient                                     TSCA  EC   Japan  Australia  
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Benzaldehyde (100-52-7)                       Yes  Yes  Yes    Yes
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-----\Chemical Inventory Status - Part 2\-----  
Ingredient                                     Korea  --Canada--  
                                     DSL   NDSL   Phil.  
-----  
Benzaldehyde (100-52-7)                       Yes   Yes   No     Yes
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-----\Federal, State & International Regulations - Part 1\-----  
Ingredient                                     -SARA 302-  -SARA 313-  
                                     RQ   TPQ   List  Chemical Catg.  
-----  
Benzaldehyde (100-52-7)                       No    No    No     No
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-----\Federal, State & International Regulations - Part 2\-----  
Ingredient                                     CERCLA  -RCRA-  -TSCA-  
                                     261.33  8(d)  
-----  
Benzaldehyde (100-52-7)                       No      No      Yes
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Chemical Weapons Convention: No    TSCA 12(b): No    CDTA: Yes  
SARA 311/312: Acute: Yes    Chronic: Yes    Fire: Yes    Pressure: No  
Reactivity: No    (Pure / Liquid)

**Australian Hazchem Code:** No information found.

**Poison Schedule:** No information found.

#### WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

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## 16. Other Information

**NFPA Ratings: Health: 2 Flammability: 2 Reactivity: 0**

**Label Hazard Warning:**

WARNING! MAY CAUSE ALLERGIC SKIN REACTION. HARMFUL IF SWALLOWED OR INHALED. AFFECTS CENTRAL NERVOUS SYSTEM. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. COMBUSTIBLE LIQUID AND VAPOR.

**Label Precautions:**

Avoid contact with eyes, skin and clothing. Avoid breathing vapor. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. Keep away from heat and flame.

**Label First Aid:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Call a physician. In case of skin contact, immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Call a physician. In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes while lifting lower and upper eyelids. Call a physician if irritation persists.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

Pure. New 16 section MSDS format, all sections have been revised.

**Disclaimer:**

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