

Creation Date Oct-2013

Revision Date Oct-2018

Revision Number 2

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identification

<b>Product Description:</b>	<b><u>Benzaldehyde</u></b>
<b>Product Grade:</b>	SQ
<b>Cat No.:</b>	Q21625, Q21627
<b>Synonyms</b>	Benzenecarboxaldehyde; artificial almond oil; benzene carbaldehyde
<b>CAS-No</b>	100-52-7
<b>EC-No.</b>	202-860-4
<b>Molecular Formula</b>	C7 H6 O

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

<b>Recommended Use</b>	Laboratory chemicals.
<b>Sector of use</b>	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
<b>Product category</b>	PC21 - Laboratory chemicals
<b>Process categories</b>	PROC15 - Use as a laboratory reagent
<b>Environmental release category</b>	ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
<b>Uses advised against</b>	No Information available

### 1.3. Details of the supplier of the safety data sheet

<b>Company</b>	Thermo Fisher Scientific India Pvt. Ltd 403-404, B-wing, Delphi, Hiranandani Business Park, Powai, Mumbai 400076, INDIA.
<b>E-mail address</b>	<a href="mailto:laboratorysolutions@thermofisher.com">laboratorysolutions@thermofisher.com</a>

### 1.4. Emergency telephone number

India Toll Free: 18 00 22 22 30  
Chemtrec US: (800) 424-9300  
Chemtrec EU: 001 (202) 483-7616

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

#### CLP Classification - Regulation (EC) No 1272/2008

##### Physical hazards

Based on available data, the classification criteria are not met

##### Health hazards

Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 4
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity - (single exposure)	Category 3

##### Environmental hazards

Based on available data, the classification criteria are not met

### 2.2. Label elements

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**Signal Word**

**Warning**

**Hazard Statements**

- H302 - Harmful if swallowed
- H332 - Harmful if inhaled
- H319 - Causes serious eye irritation
- H335 - May cause respiratory irritation
- Combustible liquid

**Precautionary Statements**

- P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
- P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician

**2.3. Other hazards**

Prolonged skin contact may defat the skin and produce dermatitis

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

**3.1. Substances**

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Benzaldehyde	100-52-7	EEC No. 202-860-4	>95	Acute Tox. 4 (H302) Acute Tox. 4 (H332) Eye Irrit. 2 (H319) STOT SE 3 (H335)

Full text of Hazard Statements: see section 16

## SECTION 4: FIRST AID MEASURES

**4.1. Description of first aid measures**

- Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
- Skin Contact** Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.
- Ingestion** Do not induce vomiting. Call a physician or Poison Control Center immediately.
- Inhalation** Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Get medical attention immediately if symptoms occur.
- Protection of First-aiders** Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

**4.2. Most important symptoms and effects, both acute and delayed**

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Breathing difficulties. . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

#### **4.3. Indication of any immediate medical attention and special treatment needed**

**Notes to Physician** Treat symptomatically.

## **SECTION 5: FIREFIGHTING MEASURES**

### **5.1. Extinguishing media**

#### **Suitable Extinguishing Media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.

#### **Extinguishing media which must not be used for safety reasons**

No information available.

### **5.2. Special hazards arising from the substance or mixture**

Combustible material. Containers may explode when heated.

#### **Hazardous Combustion Products**

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>).

### **5.3. Advice for firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

### **6.1. Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Remove all sources of ignition. Take precautionary measures against static discharges.

### **6.2. Environmental precautions**

Should not be released into the environment. See Section 12 for additional ecological information. Do not flush into surface water or sanitary sewer system.

### **6.3. Methods and material for containment and cleaning 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.

### **6.4. Reference to other sections**

Refer to protective measures listed in Sections 8 and 13.

## **SECTION 7: HANDLING AND STORAGE**

### **7.1. Precautions for safe handling**

Wear personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use explosion-proof equipment. Take precautionary measures against static discharges.

### **7.2. Conditions for safe storage, including any incompatibilities**

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Keep under nitrogen.

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### 7.3. Specific end use(s)

Use in laboratories

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

#### Exposure limits

List source(s):

Component	Italy	Germany	Portugal	The Netherlands	Finland
Benzaldehyde					TWA: 1 ppm 8 tunteina TWA: 4.4 mg/m <sup>3</sup> 8 tunteina STEL: 4 ppm 15 minuutteina STEL: 17.4 mg/m <sup>3</sup> 15 minuutteina Ceiling: 4 ppm Ceiling: 17.4 mg/m <sup>3</sup>

Component	Austria	Denmark	Switzerland	Poland	Norway
Benzaldehyde				STEL: 40 mg/m <sup>3</sup> 15 minutach TWA: 10 mg/m <sup>3</sup> 8 godzinach	

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Benzaldehyde	TWA: 5.0 mg/m <sup>3</sup>				

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Benzaldehyde				STEL: 10 mg/m <sup>3</sup> 15 percekben. CK TWA: 5 mg/m <sup>3</sup> 8 órában. AK	

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Benzaldehyde	TWA: 5 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup> IPRD			

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Benzaldehyde	MAC: 5 mg/m <sup>3</sup>				

#### Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

#### Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS70 General methods for sampling airborne gases and vapours

**Derived No Effect Level (DNEL)** No information available

<u>Route of exposure</u>	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				25 mg/kg/d
Dermal	4.5 mg/cm <sup>2</sup>			34.7 mg/kg/d
Inhalation	6.3 mg/m <sup>3</sup>			10.4 mg/m <sup>3</sup>

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**Predicted No Effect Concentration (PNEC)** No information available.

## 8.2. Exposure controls

### Engineering Measures

Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

**Eye Protection** Goggles (European standard - EN 166)  
**Hand Protection** Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Nitrile rubber	See manufacturers recommendations	-	EN 374	(minimum requirement)
Neoprene				
Natural rubber				
PVC				

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

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

**Respiratory Protection** When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

**Large scale/emergency use** Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced  
**Recommended Filter type:** Organic gases and vapours filter Type A Brown conforming to EN14387

**Small scale/Laboratory use** Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.  
**Recommended half mask:-** Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141  
When RPE is used a face piece Fit Test should be conducted

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

**Environmental exposure controls** Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

**Appearance** Clear  
**Physical State** Liquid  
**Odor** bitter almond  
**Odor Threshold** No data available  
**pH** 5.9  
**Melting Point/Range** -26 °C / -14.8 °F  
**Softening Point** No data available

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<b>Boiling Point/Range</b>	179 °C / 354.2 °F	
<b>Flash Point</b>	64 °C / 147.2 °F	<b>Method</b> - No information available
<b>Evaporation Rate</b>	No data available	
<b>Flammability (solid,gas)</b>	Not applicable	Liquid
<b>Explosion Limits</b>	<b>Lower</b> 1.4 Vol% <b>Upper</b> 8.5 Vol%	
<b>Vapor Pressure</b>	No data available	
<b>Vapor Density</b>	No data available	(Air = 1.0)
<b>Specific Gravity / Density</b>	1.043	
<b>Bulk Density</b>	Not applicable	Liquid
<b>Water Solubility</b>	6.95 g/L @ 20 °C	
<b>Solubility in other solvents</b>	No information available	
<b>Partition Coefficient (n-octanol/water)</b>		
<b>Component</b>	<b>log Pow</b>	
Benzaldehyde	1.5	
<b>Autoignition Temperature</b>	190 - °C / 374 - °F	
<b>Decomposition Temperature</b>	No data available	
<b>Viscosity</b>	No data available	
<b>Explosive Properties</b>	No information available	explosive air/vapour mixtures possible
<b>Oxidizing Properties</b>	No information available	

## 9.2. Other information

<b>Molecular Formula</b>	C7 H6 O
<b>Molecular Weight</b>	106.12

## SECTION 10: STABILITY AND REACTIVITY

### 10.1. Reactivity

None known, based on information available

### 10.2. Chemical stability

Light sensitive, Air sensitive

### 10.3. Possibility of hazardous reactions

**Hazardous Polymerization** Hazardous polymerization does not occur.  
**Hazardous Reactions** None under normal processing.

### 10.4. Conditions to avoid

Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition. Exposure to air. Exposure to light.

### 10.5. Incompatible materials

Strong oxidizing agents. Strong reducing agents. Strong bases. oxygen. Aluminium. copper. Copper alloys. Alkali metals.

### 10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects

#### Product Information

#### (a) acute toxicity;

<b>Oral</b>	Category 4
<b>Dermal</b>	Based on available data, the classification criteria are not met
<b>Inhalation</b>	Category 4

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Benzaldehyde	1430 mg/kg (Rat)	2500 mg/kg (Rabbit)	1-5 mg/L/4h (Rat)

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- (b) **skin corrosion/irritation;** Based on available data, the classification criteria are not met
- (c) **serious eye damage/irritation;** Category 2
- (d) **respiratory or skin sensitization;**  
**Respiratory** Based on available data, the classification criteria are not met  
**Skin** Based on available data, the classification criteria are not met
- (e) **germ cell mutagenicity;** Based on available data, the classification criteria are not met  
 Not mutagenic in AMES Test
- (f) **carcinogenicity;** Based on available data, the classification criteria are not met  
 There are no known carcinogenic chemicals in this product
- (g) **reproductive toxicity;** Based on available data, the classification criteria are not met
- (h) **STOT-single exposure;** Category 3
- (i) **STOT-repeated exposure;** Based on available data, the classification criteria are not met  
**Target Organs** Eyes, Skin, Central nervous system (CNS), Liver, Kidney.
- (j) **aspiration hazard;** Based on available data, the classification criteria are not met
- Other Adverse Effects** Tumorigenic effects have been reported in experimental animals.  
**Symptoms / effects, both acute and delayed** Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

## SECTION 12: ECOLOGICAL INFORMATION

**12.1. Toxicity**

**Ecotoxicity effects** Do not empty into drains. Contains a substance which is: Very toxic to aquatic organisms. The product contains following substances which are hazardous for the environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Benzaldehyde	7.5 mg/L LC50 96 h 6.8 - 8.53 mg/L LC50 96 h 0.8 - 1.44 mg/L LC50 96 h 12.69 mg/L LC50 96 h 10.6 - 11.8 mg/L LC50 96 h	50 mg/L EC50 = 24 h		

**12.2. Persistence and degradability**

**Persistence** Readily biodegradable  
 Persistence is unlikely.  
**Degradation in sewage treatment plant** Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

**12.3. Bioaccumulative potential**

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Benzaldehyde	1.5	No data available

**12.4. Mobility in soil**

**12.5. Results of PBT and vPvB assessment** No data available for assessment.

**12.6. Other adverse effects**

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors

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**Persistent Organic Pollutant**  
**Ozone Depletion Potential**

This product does not contain any known or suspected substance  
This product does not contain any known or suspected substance

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

**Waste from Residues / Unused Products**

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

**Contaminated Packaging**

Dispose of this container to hazardous or special waste collection point.

**European Waste Catalogue (EWC)**

According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.

**Other Information**

Do not dispose of waste into sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains.

## SECTION 14: TRANSPORT INFORMATION

### IMDG/IMO

**14.1. UN number** UN1990  
**14.2. UN proper shipping name** Benzaldehyde  
**14.3. Transport hazard class(es)** 9  
**14.4. Packing group** III

### ADR

**14.1. UN number** UN1990  
**14.2. UN proper shipping name** Benzaldehyde  
**14.3. Transport hazard class(es)** 9  
**14.4. Packing group** III

### IATA

**14.1. UN number** UN1990  
**14.2. UN proper shipping name** Benzaldehyde  
**14.3. Transport hazard class(es)** 9  
**14.4. Packing group** III

**14.5. Environmental hazards** No hazards identified

**14.6. Special precautions for user** No special precautions required

**14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable, packaged goods

## SECTION 15: REGULATORY INFORMATION

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

#### International Inventories

X = listed

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Benzaldehyde	202-860-4	-		X	X	-	X	X	X	X	X

#### National Regulations

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
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Benzaldehyde	WGK 2
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Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment.  
Take note of Dir 94/33/EC on the protection of young people at work  
Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

## 15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

## SECTION 16: OTHER INFORMATION

### Full Text of H-/EUH-Statements Referred to Under Section 3

H302 - Harmful if swallowed  
H319 - Causes serious eye irritation  
H332 - Harmful if inhaled  
H335 - May cause respiratory irritation

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

No Observed Effect Concentration

Persistent, Bioaccumulative, Toxic

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**PNEC** - Predicted No Effect Concentration

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50% **NOEC** -

**POW** - Partition coefficient Octanol:Water **PBT** -

**vPvB** - very Persistent, very Bioaccumulative

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** - Volatile Organic Compounds

### Key literature references and sources for data

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

### Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

**Creation Date**

Oct-2013

**Next Revision Date**

Oct-2023

**Revision Summary**

SDS section 1 updated and update to Format.

**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**

### Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

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**End of Safety Data Sheet**