SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

苯甲酸

Product Description: Benzoic acid

Cat No. : A14062
Synonyms
Benzenecarboxylic acid; Benzenemethanoic acid; Phenylcarboxylic acid; Phenylformic acid; Benzeneformic acid; Carboxybenzene

CAS-No 65-85-0
Molecular Formula C7 H6 O2

Supplier
Alfa Aesar
Avocado Research Chemicals, Ltd.
Shore Road
Port of Heysham Industrial Park
Heysham, Lancashire LA3 2XY
United Kingdom
Office Tel: +44 (0) 1524 850506
Office Fax: +44 (0) 1524 850608

Emergency Telephone Number
Call Carechem 24 at
+44 (0) 1865 407333 (English only);
+44 (0) 1235 239670 (Multi-language)

E-mail address
uktech@alfa.com
www.alfa.com
Product Safety Department

Recommended Use
Laboratory chemicals.

Uses advised against
No Information available

SECTION 2. HAZARD IDENTIFICATION

Physical State
Solid

Appearance
Off-white

Odor
aromatic

Emergency Overview
Causes skin irritation. Causes serious eye damage. Causes damage to organs through prolonged or repeated exposure. May form combustible dust concentrations in air.

Classification of the substance or mixture

<table>
<thead>
<tr>
<th>Classification</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Corrosion/Irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Serious Eye Damage/Eye Irritation</td>
<td>Category 1</td>
</tr>
<tr>
<td>Specific target organ toxicity - (repeated exposure)</td>
<td>Category 1</td>
</tr>
</tbody>
</table>

Label Elements
Signal Word  
Danger

**Hazard Statements**
H315 - Causes skin irritation  
H318 - Causes serious eye damage  
H372 - Causes damage to organs through prolonged or repeated exposure

**Precautionary Statements**

**Prevention**
P264 - Wash face, hands and any exposed skin thoroughly after handling  
P270 - Do not eat, drink or smoke when using this product  
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection

**Response**
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a POISON CENTER or doctor/ physician  
P362 - Take off contaminated clothing and wash before reuse

**Storage**
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

**Disposal**
P501 - Dispose of contents/ container to an approved waste disposal plant

**Physical and Chemical Hazards**
Dust can form an explosive mixture in air.

**Health Hazards**
Causes skin irritation. Corrosive. Causes eye burns. Causes damage to organs through prolonged or repeated exposure.

**Environmental hazards**
Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants. The product is water soluble, and may spread in water systems.

**Other Hazards**
May form combustible dust concentrations in air.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzoic acid</td>
<td>65-85-0</td>
<td>&gt;95</td>
</tr>
</tbody>
</table>

### SECTION 4. FIRST AID MEASURES

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

**Skin Contact**
Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

**Inhalation**
Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Obtain medical attention.
Ingestion
Do not induce vomiting. Obtain medical attention.

Most important symptoms and effects
Causes eye burns.

Self-Protection of the First Aider
Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

Notes to Physician
Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Extinguishing media which must not be used for safety reasons
No information available.

Specific Hazards Arising from the Chemical
Dust can form an explosive mixture in air. Keep product and empty container away from heat and sources of ignition. Thermal decomposition can lead to release of irritating gases and vapors.

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.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Use personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Avoid contact with the skin and the eyes.

Environmental Precautions
See Section 12 for additional ecological information.

Methods for Containment and Clean Up
Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

Refer to protective measures listed in Sections 8 and 13.

SECTION 7. HANDLING AND STORAGE

Handling
Wear personal protective equipment. Ensure adequate ventilation. Avoid contact with skin and eyes. Avoid ingestion and inhalation. Avoid dust formation. Do not breathe dust.

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

Specific Use(s)
Use in laboratories

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
Control Parameters

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. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

Exposure Controls

Engineering Measures
Ensure adequate ventilation, especially in confined areas. 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

<table>
<thead>
<tr>
<th>Glove material</th>
<th>Breakthrough time</th>
<th>Glove thickness</th>
<th>EU standard</th>
<th>Glove comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural rubber</td>
<td>See manufacturers</td>
<td>-</td>
<td>EN 374</td>
<td>(minimum requirement)</td>
</tr>
<tr>
<td>Butyl rubber</td>
<td>recommendations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrile rubber</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neoprene</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PVC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

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

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:** Particulates filter conforming to EN 143

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
No information available.

---

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**
Off-white

**Physical State**
Solid
Odor: aromatic
Odor Threshold: No data available
pH: 2.5-3.5
2.9 g/l water
Melting Point/Range: 121 - 123 °C / 249.8 - 253.4 °F
Softening Point: No data available
Boiling Point/Range: 249 °C / 480.2 °F
Flash Point: 121 °C / 249.8 °F
Evaporation Rate: Not applicable
Solemdly (solid,gas): No information available
Explosion Limits: Lower 1.4
Upper 8.2
Vapor Pressure: 1.3 hPa @ 96 °C
Vapor Density: Not applicable
Specific Gravity / Density: No data available
Bulk Density: No data available
Water Solubility: soluble
Solubility in other solvents: No information available
Partition Coefficient (n-octanol/water):
Component: log Pow
Benzoic acid: 1.9
Autoignition Temperature: 570 °C / 1058 °F
Decomposition Temperature: No data available
Viscosity: Not applicable
Explosive Properties: No information available
Oxidizing Properties: No information available

SECTION 10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions.
Hazardous Reactions: Aqueous solution, May react with metals and lead to the formation of flammable hydrogen gas.
Hazardous Polymerization: Hazardous polymerization does not occur.
Conditions to Avoid: Incompatible products. Avoid dust formation.

Hazardous Decomposition Products: Carbon monoxide (CO). Carbon dioxide (CO₂).

SECTION 11. TOXICOLOGICAL INFORMATION

Product Information: No acute toxicity information is available for this product

(a) acute toxicity:

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzoic acid</td>
<td>1700 mg/kg ( Rat ) 2565 mg/kg ( Rat )</td>
<td>LD50 &gt; 10000 mg/kg ( Rabbit )</td>
<td>LC50 &gt; 12.2 mg/L ( Rat ) 4 h</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LC50 &gt; 26 mg/m³ ( Rat ) 1 h</td>
</tr>
</tbody>
</table>

(b) skin corrosion/irritation:
Observational endpoint: Category 2
Repeated or prolonged skin contact may cause allergic reactions with susceptible persons
(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization; Based on available data, the classification criteria are not met
Respiratory Based on available data, the classification criteria are not met
Skin No information available

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

(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; Based on available data, the classification criteria are not met

(i) STOT-repeated exposure; Category 1
Route of exposure Inhalation
Target Organs Lungs.

(j) aspiration hazard; Not applicable
Solid

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information

Symptoms / effects, both acute and delayed No information available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity effects

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Fish</th>
<th>Water Flea</th>
<th>Freshwater Algae</th>
<th>Microtox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzoic acid</td>
<td>LC50: = 180 mg/L, 96h (Gambusia affinis)</td>
<td>EC50: = 300 mg/L, 24h (Daphnia magna)</td>
<td>EC50: = 5 mg/L, 3h (Anabaena inaequalis)</td>
<td>EC50 = 16.85 mg/L 30 min</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EC50: = 860 mg/L, 48h Static (Daphnia magna)</td>
<td>Static (Daphnia magna)</td>
<td>EC50 = 16.9 mg/L 15 min</td>
</tr>
</tbody>
</table>

Persistence and Degradability
Persistence Readily biodegradable
Soluble in water, Persistence is unlikely, based on information available.

Bioaccumulative Potential Bioaccumulation is unlikely

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
<th>Bioconcentration factor (BCF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzoic acid</td>
<td>1.9</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Mobility in soil The product is water soluble, and may spread in water systems. Is predicted to have low mobility in the environment: Highly mobile in soils
Endocrine Disruptor Information
This product does not contain any known or suspected endocrine disruptors

Persistent Organic Pollutant
This product does not contain any known or suspected substance

Ozone Depletion Potential
This product does not contain any known or suspected substance

SECTION 13. DISPOSAL CONSIDERATIONS

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.

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

SECTION 14. TRANSPORT INFORMATION

Road and Rail Transport
Not Regulated

IMDG/IMO
Not regulated

IATA
Not regulated

Special Precautions for User
No special precautions required

SECTION 15. REGULATORY INFORMATION

International Inventories
X = listed

<table>
<thead>
<tr>
<th>Component</th>
<th>The Inventory of Hazardous Chemicals (2015 Edition)</th>
<th>List of dangerous goods GB 12268 - 2012</th>
<th>Taiwan Toxic Chemicals Substances Inventory</th>
<th>IECSC</th>
<th>EINECS</th>
<th>TSCA</th>
<th>DSL</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzoic acid</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>200-618-2</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

National Regulations

SECTION 16. OTHER INFORMATION

Prepared By
Health, Safety and Environmental Department

Creation Date
01-May-2012

Revision Date
12-Mar-2018

Revision Summary

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.

Legend

CAS - Chemical Abstracts Service
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
PICCS - Philipines Inventory of Chemicals and Chemical Substances
ENCS - Japanese Existing and New Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
AICS - Australian Inventory of Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
NZIoC - New Zealand Inventory of Chemicals
WEL - Workplace Exposure Limit
TWA - Time Weighted Average
ACGIH - American Conference of Governmental Industrial Hygienists
IARC - International Agency for Research on Cancer
DNEL - Derived No Effect Level
PNEC - Predicted No Effect Concentration
ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
LD50 - Lethal Dose 50%
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
EC50 - Effective Concentration 50%
OADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
NOEC - No Observed Effect Concentration
MARPOL - International Convention for the Prevention of Pollution from Ships
PBT - Persistent, Bioaccumulative, Toxic
vPvB - very Persistent, very Bioaccumulative
PECS - Philippines Inventory of Chemicals and Chemical Substances
ATE - Acute Toxicity Estimate
IECSC - Chinese Inventory of Existing Chemical Substances
POW - Partition coefficient Octanol:Water
AICS - Australian Inventory of Chemical Substances
BCF - Bioconcentration factor
NZIoC - New Zealand Inventory of Chemicals
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
PICCS - Philipines Inventory of Chemicals and Chemical Substances
ENCS - Japanese Existing and New Chemical Substances
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vPvB - very Persistent, very Bioaccumulative
PECS - Philippines Inventory of Chemicals and Chemical Substances
ATE - Acute Toxicity Estimate
BCF - Bioconcentration factor

Key literature references and sources for data
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Disclaimer

The information provided in 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.

End of Safety Data Sheet