1. IDENTIFICATION

Product Description: BENZOIC ACID

CAS # 65-85-0

FEMA Number 2131

Other means of identification

Vigon Item # 502016

Recommended use

Concentrated aromatic and flavor ingredient which may be used in flavor and fragrance compounds according to legal and IFRA or FEMA GRAS/FDA guidelines.

Recommended restrictions

For Manufacturing Use Only

Company

Vigon International, Inc.

127 Airport Road

E. Stroudsburg, PA 18301

For information call: 570-476-6300

Web Site: www.vigon.com

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name Vigon International, Inc.

Address 127 Airport Road

E. Stroudsburg, PA 18301

United States

Telephone For information call: 570-476-6300

Website www.vigon.com

E-mail regulatory@vigon.com

Emergency phone number INFOTRAC (ACCT# 78928); 1-800-535-5053 WITHIN THE U.S.A.

24 Hour Emergency Response Information 1-352-323-3500 OUTSIDE THE U.S.A.

2. HAZARD(S) IDENTIFICATION

Physical hazards Not classified.

Health hazards

Acute toxicity, oral Category 4

Skin corrosion/irritation Category 2

Serious eye damage/eye irritation Category 1

Specific target organ toxicity, repeated exposure Category 1

Environmental hazards

Hazardous to the aquatic environment, acute hazard Category 3
SAFETY DATA SHEET

502016 BENZOIC ACID

Signal word

Danger

Hazard statement

Harmful if swallowed. Causes skin irritation. Causes serious eye damage. Causes damage to organs through prolonged or repeated exposure. Harmful to aquatic life.

Precautionary statement

Prevention

Do not breathe dust. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment. Wear eye protection/face protection. Wear protective gloves.

Response

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. IF ON SKIN: Wash with plenty of water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.

Storage

Store away from incompatible materials.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)

WARNING! May form combustible dust concentrations in air. Avoid breathing dust.

Supplemental information

100% of the substance consists of component(s) of unknown long-term hazards to the aquatic environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENZOIC ACID</td>
<td>BENZENE CARBOXYLIC ACID</td>
<td>65-85-0</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>PHENYL FORMIC ACID</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHENYL CARBOXYLIC ACID</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CARBOXYBENZENE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BENZENE METHANOIC ACID</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BENZENE FORMIC ACID</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DRACYLIC ACID</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. FIRST-AID MEASURES

Inhalation

If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. For breathing difficulties, oxygen may be necessary. Call a physician if symptoms develop or persist.

Skin contact

Take off immediately all contaminated clothing. Get medical attention if irritation develops and persists. Wash skin thoroughly with soap and water for several minutes.

Eye contact

Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists. Promptly wash eyes with plenty of water while lifting the eye lids.
502016 BENZOIC ACID

SAFETY DATA SHEET

Ingestion
Call a physician or poison control center immediately. If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn’t enter the lungs.

Most important symptoms/effects, acute and delayed
Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Dusts may irritate the respiratory tract, skin and eyes. Skin irritation. May cause redness and pain. Prolonged exposure may cause chronic effects.

Indication of immediate medical attention and special treatment needed
Not available.

General information
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Water spray, fog, CO2, dry chemical, or alcohol resistant foam.

Unsuitable extinguishing media
Do not use a solid water stream as it may scatter and spread fire.

Specific hazards arising from the chemical
Explosion hazard: Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Fire may produce irritating, corrosive and/or toxic gases.

Special protective equipment and precautions for firefighters
Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection. Wear self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode when fighting fires.

Fire fighting equipment/instructions
In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage. Ventilate closed spaces before entering them. Keep run-off water out of sewers and water sources. Dike for water control.

Specific methods
Use water spray to cool unopened containers.

General fire hazards
Static charges generated by emptying package in or near flammable vapor may cause flash fire.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Eliminate all sources of ignition. Avoid contact with skin or inhalation of spillage, dust or vapor. Keep unnecessary personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them.

Methods and materials for containment and cleaning up
Sweep up and place in a clearly labeled container for chemical waste. Wash contaminated area with water. Collect and dispose of spillage as indicated in section 13 of the SDS. This material and its container must be disposed of as hazardous waste. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Use only non-sparking tools. Avoid the generation of dusts during clean-up.

Never return spills in original containers for re-use.

Environmental precautions
Retain and dispose of contaminated wash water. Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water.
7. HANDLING AND STORAGE

Precautions for safe handling
Take precautionary measures against static discharges when there is a risk of dust explosion. Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Do not handle or store near an open flame, heat or other sources of ignition. Assume that this material is capable of producing a dust explosion if ignited as a dust cloud.

Take precautionary measures against static discharges. Avoid breathing vapor. Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities
Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limits
This substance has no PEL, TLV, or other recommended exposure limit.

Biological limit values
No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls
Use explosion-proof ventilation equipment to stay below exposure limits. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Use only appropriately classified electrical equipment and powered industrial trucks.

Individual protection measures, such as personal protective equipment
Eye/face protection
Wear safety glasses with side shields (or goggles).

Skin protection
Hand protection
Chemical resistant gloves.

Other
Use of an impervious apron is recommended.

Respiratory protection
Dust mask.

Thermal hazards
Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations
When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Refer to Spec Sheet

Physical state
Powder/Crystal.

Form
Powder. Crystalline powder.

Color
Refer to Spec Sheet

Odor
Characteristic.

Odor threshold
Not available.
## 502016 BENZOIC ACID

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>2.8 Saturated solution in water</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>251.6 °F (122 °C)</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>480.2 °F (249 °C)</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 200.0 °F (&gt; 93.3 °C) Closed Cup</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability limit - lower (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability limit - upper (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Explosive limit - lower (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Explosive limit - upper (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>&gt; 1 mm Hg at 20 °C</td>
</tr>
<tr>
<td>Vapor density</td>
<td>4.21</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td></td>
</tr>
<tr>
<td>Solubility (water)</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>1.87</td>
</tr>
<tr>
<td>(n-octanol/water)</td>
<td></td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>1058 °F (570 °C)</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available.</td>
</tr>
<tr>
<td>Other information</td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>1.27 g/cm3 estimated at 15 °C</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive.</td>
</tr>
<tr>
<td>Flammability class</td>
<td>Combustible IIIB estimated</td>
</tr>
<tr>
<td>Molecular formula</td>
<td>C7-H6-O2</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>122.13 g/mol</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>Not oxidizing.</td>
</tr>
<tr>
<td>Surface tension</td>
<td>30 mN/m (266 °F (130 °C))</td>
</tr>
</tbody>
</table>

### 10. STABILITY AND REACTIVITY

**Reactivity**

The product is stable and non-reactive under normal conditions of use, storage and transport.

**Chemical stability**

Material is stable under normal conditions.

**Possibility of hazardous reactions**

No dangerous reaction known under conditions of normal use.

**Conditions to avoid**

Keep away from heat, sparks and open flame. Avoid temperatures exceeding the flash point. Contact with incompatible materials. Minimize dust generation and accumulation.

**Incompatible materials**

Strong oxidizing agents.
Hazardous decomposition products
No hazardous decomposition products if stored and handled as indicated.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
- Inhalation: Irritating to respiratory system.
- Skin contact: Causes skin irritation.
- Eye contact: Causes serious eye damage.
- Ingestion: Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics
Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Dusts may irritate the respiratory tract, skin and eyes. Skin irritation. May cause redness and pain.

Information on toxicological effects
- Acute toxicity: Harmful if swallowed.

<table>
<thead>
<tr>
<th>Product</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENZOIC ACID (CAS 65-85-0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50</td>
<td>Rat</td>
<td>&gt; 12.2 mg/l, 4 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 0.026 mg/l, 1 Hours</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
Causes skin irritation.

Serious eye damage/eye irritation
Causes serious eye damage.

Respiratory or skin sensitization
- Respiratory sensitization: Due to partial or complete lack of data the classification is not possible.
- Skin sensitization: Due to partial or complete lack of data the classification is not possible.

Germ cell mutagenicity
Due to partial or complete lack of data the classification is not possible.

Carcinogenicity
Due to partial or complete lack of data the classification is not possible.

IARC Monographs. Overall Evaluation of Carcinogenicity
Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens
Not listed.

Reproductive toxicity
Due to partial or complete lack of data the classification is not possible.

Specific target organ toxicity - single exposure
Knowledge about health hazard is incomplete.

Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
Due to partial or complete lack of data the classification is not possible.
12. ECOLOGICAL INFORMATION

Ecotoxicity

Harmful to aquatic life.

<table>
<thead>
<tr>
<th>Product</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENZOIC ACID (CAS 65-85-0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algae</td>
<td>EC50</td>
<td>Green algae (Scenedesmus acutus) &gt; 10 mg/l, 14 days</td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Western mosquitofish (Gambusia affinis) 180 mg/l, 96 hours</td>
</tr>
</tbody>
</table>

Persistence and degradability
No data is available on the degradability of this substance.

Bioaccumulative potential

<table>
<thead>
<tr>
<th>Partition coefficient n-octanol / water (log Kow)</th>
<th>1.87</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioconcentration factor (BCF)</td>
<td>5.3</td>
</tr>
</tbody>
</table>

Mobility in soil
No data available.

Other adverse effects
No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. DISPOSAL CONSIDERATIONS

Disposal instructions
Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations
Dispose in accordance with all applicable regulations.

Hazardous waste code
Not established.

Waste from residues / unused products
Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

ADN
Not regulated as dangerous goods.

ADR
Not regulated as dangerous goods.

RID
Not regulated as dangerous goods.

DOT

BULK
UN number 3077
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.OS. (BENZOIC ACID RQ = 5000 LBS)

Hazard class: 9

Packing group: III

Environmental hazards:
- Marine pollutant: Yes

Packaging exceptions: 155

Packaging bulk: 240

Reportable quantity: 5000

Labels required: 9

DOT

NON-BULK
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

DOT BULK

Marine pollutant

15. REGULATORY INFORMATION

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Toxic Substances Control Act (TSCA)

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.
CERCLA Hazardous Substance List (40 CFR 302.4)
BENZOIC ACID (CAS 65-85-0) Listed.
SARA 304 Emergency release notification
Not regulated.
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not listed.
Superfund Amendments and Reauthorization Act of 1986 (SARA)
SARA 302 Extremely hazardous substance
Not listed.
SARA 311/312 Hazardous chemical
Classified hazard categories
Combustible dust
Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)
SARA 313 (TRI reporting)
Not regulated.
Other federal regulations
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.
Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.
Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)
Hazardous substance
Safe Drinking Water Act (SDWA) Not regulated.
Food and Drug Administration (FDA) Total food additive
Direct food additive
GRAS food additive

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION
Issue date 11-30-2015
Revision date 05-27-2020
Version # 04
Further information Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.
HMIS® ratings Health: 3*
                      Flammability: 1
                      Physical hazard: 0
Vigon International, Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available. The above information relates only to this product and not to its use in combination with any other material or any particular process and is designed only as guidance for the safe handling, use, processing, storage, transportation, and disposal and should not be considered as a guarantee or quality specification. This product has not been evaluated for safe use in e-cigarettes or any vaping application where the product(s) is/are intentionally vaporized and inhaled. Vigon International, Inc. has performed no testing on these products in e-cig/vaping applications. It is the sole responsibility of the individual(s) purchasing this product to assess its' safety in the final application. The above information relates only to this product and not to its use in combination with any other material or any particular process and is designed only as guidance for the safe handling, use, processing, storage, transportation, disposal, and should not be considered as a guarantee or quality specification. The above information is based on data provided by and collected from recognized sources such as distributors, manufacturers, and technical groups and is considered to be accurate to the best of Vigon’s knowledge as of the date of this document. It is the responsibility of the user to review all safety information about this product and determine its safety and suitability in their own processes and operations. Appropriate warnings and safe handling procedures should be provided to all handlers and users, taking into account the intended use and the specific conditions and factors relating to such use in accordance with all applicable laws and regulations.

This document has undergone significant changes and should be reviewed in its entirety.