SILVER FERN CHEMICAL, INC.
Safety Data Sheet
Butyl Benzyl Phthalate

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifier
Product Name: Butyl Benzyl Phthalate
Synonym(s): BBP; Benzyl butyl phthalate; 1,2-Benzenedicarboxylic acid butyl phenyl methyl ester; Butyl phenylmethyl 1,2-benzenedicarboxylate; Phthalic acid, benzyl butyl ester

REACH Registration Number: No data available at this time.

1.2 Relevant identified uses of the substance or mixture and uses advised against
General use: Industrial applications
Uses advised against: None known

1.3 Details of the supplier and of the safety data sheet
Manufacturer/Distributor
Silver Fern Chemical, Inc.
2226 Queen Anne Avenue North
Suite C
Seattle, WA 98109 USA
1-866-282-3384

1.4 Emergency telephone number: INFO-TRAC +1-800-535-5053; Outside USA & Canada +1-352-323-3500

SECTION 2 - HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture
Product definition: Substance
Classification in accordance with 29 CFR 1910 (OSHA HCS) and Regulation (EC) No 1272/2008
Reproductive toxicity - Category 2 [H360fd]
Aquatic chronic - Category 1 [H410]

2.2 Label Elements
Hazard Symbol(s):
Signal Word: Danger
Hazard Statement(s): H360fd - May damage fertility or the unborn child
H410 - Very toxic to aquatic life with long lasting effects
Precautionary Statements:
[Prevention] P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P273 - Avoid release to the environment.
P281 - Use personal protective equipment as required.
[Response] P308 + P313 - IF exposed or concerned: Get medical advice.
P391 - Collect spillage.
[Storage] P405 - Store locked up.
[Disposal] P501 - Dispose of contents and containers in accordance with national and local regulations.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS
None identified

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

<table>
<thead>
<tr>
<th>% by Weight</th>
<th>Ingredient</th>
<th>CAS Number</th>
<th>EC Number</th>
<th>Index Number</th>
<th>GHS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 - 100</td>
<td>Butyl Benzyl Phthalate</td>
<td>85-68-7</td>
<td>201-622-7</td>
<td>607-430-00-3</td>
<td>H360fd, H410</td>
</tr>
</tbody>
</table>

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

3.2 Mixtures
Not applicable

Effective Date: 24 April 2017
Supersedes: Safety Data Sheet
Butyl Benzyl Phthalate
4.1 Description of first aid measures

   **Inhalation:** If product mist or vapor causes respiratory irritation or distress, move the exposed person to fresh air immediately. If breathing is difficult or irregular, administer oxygen; if respiratory arrest occurs, start artificial respiration by trained personnel. Loosen tight fitting clothing such as a collar, tie, belt or waistband. If symptoms persist, seek medical attention.

   **Eyes:** Immediately flush eyes with large amounts of water for 15 minutes, occasionally lifting the upper and lower lids. Remove contact lenses, if present and easy to do, after the first 2 minutes and continue rinsing. If irritation persists, seek medical attention, preferably from an ophthalmologist.

   **Skin:** Flush skin with large amounts of water while removing contaminated clothing and continue rinsing for at least 15 minutes. Wash exposed skin areas with soap and water. Contaminated clothing thoroughly before reuse. Discard contaminated shoes and leather items. If irritation persists, seek medical attention.

   **Ingestion:** Rinse mouth with water if the victim is conscious. Remove dentures, if any. Give 1 - 2 cupfuls of water or milk to drink if the victim is conscious, alert and able to swallow. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious or convulsing person. Do not leave the victim unattended. Obtain medical advice. Lay victim on side with head lower than the waist to prevent aspiration of material during vomiting.

4.2 Most important symptoms and effects, both acute and delayed

   **Potential health symptoms and effects**

   **Eyes:** May cause eye irritation. Symptoms may include redness and discomfort.

   **Skin:** Prolonged skin contact may cause temporary irritation. This material is a low hazard for normal industrial handling.

   **Inhalation:** Low inhalation hazard unless this material is heated or misted. If heated, inhalation may cause irritation of the upper respiratory tract and mucous membranes. Symptoms may include runny nose, scratchy throat, coughing, chest pain and shortness of breath. Higher exposures may cause central nervous system effects with dizziness, narcosis, nausea and headache.

   **Ingestion:** May cause gastrointestinal upset with nausea, vomiting and diarrhea. May cause irritation of the mucous membranes of the mouth, throat and stomach. Ingesting large amounts may cause depression of the central nervous system with lethargy, drowsiness and incoordination.

   **Chronic:** Persons with pre-existing skin disorders or impaired respiratory function may be more susceptible to the effects of this substance. Chronic exposure may cause damage to the liver and kidneys. Butyl Benzyl Phthalate (BBP) has potential toxic effects on fertility, reproductive organs, fetal development and endocrine activity. BBP has caused cancer in laboratory animals. Refer to Section 11.2.

4.3 Indication of any immediate medical attention and special treatment needed

   **Advice to Doctor and Hospital Personnel**

   Treat symptomatically and supportively.

SECTION 5 - FIRE FIGHTING MEASURES

5.1 Extinguishable media

   **Suitable methods of extinction:** Use dry chemical, carbon dioxide, alcohol-resistant foam, water spray or water fog.

   **Unsuitable methods of extinction:** Water jets may spread the fire. Water or foam may cause frothing.

5.2 Special hazards arising from the substance or mixture

   Closed containers may explode due to the buildup of pressure when exposed to extreme heat. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent or may be delayed. Obtain medical attention.

   **Explosion hazards:** Not considered to be explosion hazard.

5.3 Advice for firefighters

   Full protective equipment including self-contained breathing apparatus should be used. Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion when exposed to extreme heat. Water contaminated by this material must be contained from being discharged to any waterway, sewer or drain to prevent environmental contamination.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

   Evacuate non-essential personnel. Wear appropriate protective clothing designated in Section 8. Ventilate the area. Remove all sources of ignition. No smoking. Spill creates a slip hazard.

6.2 Environmental precautions

   Avoid dispersal of spilled material or runoff and prevent contact with soil and entry into drains, sewers or waterways.

6.3 Methods and materials for containment and cleaning up

   Cover drains and contain spill. DO NOT flush the spill down the drain. Cover with a large quantity of inert absorbent. Do not use combustible material such as sawdust. Collect material and place into an approved container for proper disposal. Observe possible material restrictions (Sections 7.2 and 10.5). Dispose of waste via a licensed waste disposal contractor.

   Releases should be reported, if required, to appropriate agencies. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800) 424-8802 (USA) or (202) 426-2675 (USA).

6.4 Reference to other sections

   See Section 13 for additional waste treatment information.
SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Occupational exposure limits

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Ingredient</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
<th>NIOSH</th>
</tr>
</thead>
<tbody>
<tr>
<td>85-68-7</td>
<td>Butyl Benzyl Phthalate</td>
<td>5 mg/m³ TWA</td>
<td>5 mg/m³ TWA</td>
<td>5 mg/m³ TWA; 4,000 mg/m³ IDLH</td>
</tr>
</tbody>
</table>

8.2 Exposure controls
Engineering measures: Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. Use adequate ventilation. Local exhaust is preferable.

Individual protection measures: Wear protective clothing to prevent repeated or prolonged contact with product. Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the representative supplier.

Hygiene measures: Facilities storing or using this material should be equipped with an eyewash station and safety shower. Change contaminated clothing. Preventive skin protection is recommended. Wash hands thoroughly after use, before eating, drinking, smoking or using the lavatory.

Eye/face protection: Wear safety glasses with unperforated side shields or protective splash goggles during use.

Hand Protection: Wear gloves recommended by glove supplier for protection against materials in Section 3. Gloves should be impermeable to chemicals and oil. Breakthrough time of selected gloves must be greater than the intended use period.

Skin protection: Wear protective clothing. Wear protective boots if the situation requires.

Respiratory protection: Always use an approved respirator when vapor/aerosols are generated. Where risk assessment shows air-purifying respirators are appropriate use a full-faced respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Follow OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149.

Environmental exposure controls: Do not empty into drains.

PPE must not be considered a long-term solution to exposure control. PPE usage must be accompanied by employer programs to properly select, maintain, clean fit and use. Consult a competent industrial hygiene resource to determine hazard potential and/or the PPE manufacturers to ensure adequate protection.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- Appearance: Clear, colorless liquid
- Odor: Odorless
- Odor Threshold: No data available
- Molecular Weight: 312.363 g/mol
- Chemical Formula: C₁₹H₂₀O₄
- pH: Not determined
- Freezing/Melting Point: -35 °C (-31 °F) estimated
- Initial Boiling Point: 240 °C (464 °F)
- Evaporation Rate: <1 (BuOAc = 1)
- Flammability (solid, gas): Not applicable
- Flash Point: 199 °C (390.2 °F) COC
SECTION 10 - STABILITY AND REACTIVITY

10.1 Reactivity
No special reactivity has been reported.

10.2 Chemical stability
This product is stable under recommended storage conditions, handling and use.

10.3 Possibility of hazardous reactions
Hazardous polymerization does not occur.

10.4 Conditions to avoid
High temperatures, contact with incompatible materials

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Thermal decomposition products include oxides of carbon.

SECTION 11 - TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Acute Oral Toxicity
LD₅₀, rat: 6,700 mg/kg

Acute inhalation toxicity
No data available

Acute dermal toxicity
LD₅₀, mouse: >10,000 mg/kg

Skin irritation/corrosion
May cause skin irritation

Eye irritation/corrosion
May cause eye irritation

Sensitization
Not expected to cause skin or respiratory sensitization.

Genotoxicity in vitro
No data available

Mutagenicity
No data available

Specific organ toxicity - single exposure
No data available

Specific organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Further information
Butyl Benzyl Phthalate (CAS #85-68-7): IARC Group 3 carcinogen - Not classifiable as to its carcinogenicity to humans; Not classified as a carcinogen by ACGIH, NTP or OSHA. The EPA has classified Butyl Benzyl Phthalate as a Group C carcinogen - Possible human carcinogen.

Reproductive effects
Major adverse effects of BBP observed are those on body weight, pancreas, liver, kidneys and the reproduction and development of offspring. Weight reduction of the testes and epididymides, seminiferous tubular atrophy, reduced testicular sperm counts and disrupted blood hormone levels such as decreased serum concentration of testosterone were observed effects of BBP on the reproductive organs of male animals. Reduced ovarian weight was observed as a BBP effect on female parental animals. Decreased fertility rates and increased postimplantation loss rates were
SECTION 12 - ECOLOGICAL INFORMATION

12.1 Toxicity
This material is very toxic to aquatic life with long lasting effects.
Acute and prolonged toxicity to fish: \( LC_{96} \) - Cymatogaster aggregata (Shiner perch), 96 h: 0.47 - 0.56 mg/l
Acute toxicity to aquatic invertebrates: \( LC_{96} \) - Daphnia magna (Water flea), 48 h: >0.96 mg/l

12.2 Persistence and degradability
Expected to biodegrade over time.

12.3 Bioaccumulation potential
This substance has the potential to bioaccumulate.

12.4 Mobility in soil
This substance is expected to have low mobility in soil.

12.5 Results of PBT and vPvB assessment
No data available

12.6 Other adverse effects
Additional ecological information
Do not allow material to run into surface waters, wastewater or soil.
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13 - DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Methods of disposal: The generation of waste should be avoided or minimized whenever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.
RCRA P-Series: No listing
RCRA U-Series: No listing

SECTION 14 - TRANSPORT INFORMATION

Note: Transportation information provided is for reference only. Customer is urged to consult 49 CFR 100 - 177, IMDG, IATA, EC, United Nations TDG and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

Not regulated for transport in single packages weighing <100 pounds
Note: When shipped as a single package weighing ≥100 pounds this material is regulated as a U.S. DOT hazardous material and should be labeled as follows:

U.S. DOT
Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (Butyl Benzyl Phthalate)
Hazard Class: 9
UN/NA: UN3082
Packing Group: III
NAERG: Guide #171
Packaging Exceptions: 49 CFR 173.155

IMO/IMDG (Water Transportation)
Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (Butyl Benzyl Phthalate)
Hazard Class: 9
UN/NA: UN3082
Packing Group: III
Marine Pollutant: YES
EMS Number: F-A, S-F

ICAO/IATA (Air Transportation)
Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (Butyl Benzyl Phthalate)
Hazard Class: 9
UN/NA: UN3082
Packing Group: III
Quantity Limitations: 49 CFR 175.27 and 175.75 - Cargo Aircraft Only: No limit; Passenger Aircraft/rail: No limit

Effective Date: 24 April 2017
Supercedes: Safety Data Sheet
Butyl Benzyl Phthalate
15.1 Safety, health and environmental regulations/legislation specific for substance or mixture

U.S. Federal Regulations

OSHA Hazard Communication Standard: This material is classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

OSHA Process Safety Management Standard: This material is not regulated under OSHA PSM Standard 29 CFR 1910.119.

EPA Risk Management Planning Standard: This material is not regulated under EPA RMP Standard (RMP) 40 CFR Part 68.

EPA Federal Insecticide, Fungicide and Rodenticide Act: This product is not a registered Pesticide under the FIFRA, 40 CFR Part 150.

Toxic Substance Control Act (TSCA) Inventory: This substance is listed on the TSCA Inventory. It is not subject to TSCA 12(b) Export Notification.

Drug Enforcement Administration (DEA) List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.4(f)(2) and Chemical Code Number Not listed

Drug Enforcement Administration (DEA) Lists 1 & 2, Exempt Chemical Mixtures (21 CFR 1310.12(c)) and Code Number Not listed

Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) Chemicals Not listed

SARA Section 311/312 Hazard Categories: Chronic Health Hazard

SARA 302/304 Extremely Hazardous Substance: None of the chemicals in this product are subject to reporting requirements of these sections of Title III of SARA.

SARA 302/304 Emergency Planning & Notification: None of the chemicals in this product are subject to reporting requirements of these sections of Title III of SARA.

Comprehensive Response Compensation and Liability Act (CERCLA): This product contains the following CERCLA reportable substances: Butyl Benzyl Phthalate (CAS #85-68-7): RQ = 45.36 kg (100 lbs)

Clean Air Act (CAA)

Butyl Benzyl Phthalate (CAS #85-68-7) is listed as a Hazardous Air Pollutant (HAP) designated in CAA Section 112 (b).
This product does not contain any Class 1 Ozone depletors.
This product does not contain any Class 2 Ozone depletors.

Clean Water Act (CWA)

None of the chemicals in this product are listed as a Hazardous Substance under the CWA.
Butyl Benzyl Phthalate (CAS #85-68-7) is listed as a Priority Pollutant under the CWA.
Phthalate Esters are listed as Toxic Pollutants under the CWA.

U.S. State Regulations

California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986
Butyl Benzyl Phthalate (CAS #85-68-7) is known to the State of California to cause reproductive/developmental harm.

Other U.S. State Inventories

Butyl Benzyl Phthalate (CAS #85-68-7) is listed on the following State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists: ME, MN, NJ, PA.

Canada

WHMIS Hazard Symbol and Classification: The classification has not been validated yet by the Service du répertoire toxicologique.

Canadian National Pollutant Release Inventory (NPRI): Butyl Benzyl Phthalate (CAS #85-68-7) is listed on the NPRI.

European Economic Community

WGK, Germany (Water danger/protection): 3 (severe hazard to waters)

Global Chemical Inventory Lists

<table>
<thead>
<tr>
<th>Country</th>
<th>Inventory Name</th>
<th>Inventory Listing*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada:</td>
<td>Domestic Substance List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada:</td>
<td>Non-Domestic Substance List (NDSSL)</td>
<td>No</td>
</tr>
<tr>
<td>Europe:</td>
<td>Inventory of New and Existing Chemicals (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States:</td>
<td>Toxic Substance Control Act (TSCA)</td>
<td>Yes</td>
</tr>
<tr>
<td>Australia:</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand:</td>
<td>New Zealand Inventory of Chemicals (NZIoC)</td>
<td>Yes</td>
</tr>
<tr>
<td>China:</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Japan:</td>
<td>Inventory of Existing and New Chemical Substances (ENCSS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea:</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines:</td>
<td>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Yes - All components of this product are in compliance with the inventory requirements administered by the governing country.
No - One or more components of this product are not on the inventory or are exempt from listing.
15.2 Chemical safety assessment
For this product a chemical safety assessment was not carried out.

SECTION 16 - OTHER INFORMATION

Hazardous Material Information System (HMIS)

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Physical Hazard</th>
<th>Personal Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
<td>C = safety glasses, gloves and an apron</td>
</tr>
</tbody>
</table>

HMIS Hazard Rating Legend
0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic Health Hazard

National Fire Protection Association (NFPA)

<table>
<thead>
<tr>
<th>Flammability</th>
<th>Health</th>
<th>Instability</th>
<th>Special</th>
</tr>
</thead>
</table>

NFPA Hazard Rating Legend
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme

Abbreviation Key
ACGIH American Conference of Governmental Industrial Hygienists
ADR Accord Dangereux Routier (European regulations concerning the international transport of dangerous goods by road)
CAS Chemical Abstract Services
CFR Code of Federal Regulations
DOT Department of Transportation
EMS Guide Emergency Response Procedures for Ships Carrying Dangerous Goods
EPA Environmental Protection Agency
ERG Emergency Response Guide Book
FDA Food and Drug Administration
GHS Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
HCS Hazard Communication Standard
IARC International Agency for Research on Cancer
IATA International Air Transport Association
ICAO International Civil Aviation Organization
IDLH Immediately Dangerous to Life and Health
IMDG International Maritime Dangerous Goods
IMO International Maritime Organization
mppcf Millions of Particles Per Cubic Foot
NA North America
NIOSH National Institute for Occupational Safety
NTP National Toxicology Program
OSHA Occupational Safety and Health Administration
PBT Persistent, Bioaccumulating and Toxic
PEL Permissible exposure limit
PMCC Pensky-Martens Closed Cup
ppm Parts Per Million
RCRA Resource Conservation and Recovery Act
RID Dangerous Goods by Rail
RQ Reportable Quantity
TLV Threshold Limit Value
TSCA Toxic Substance Control Act
TWA Time-weighted Average
UN United Nations
VOC Volatile Organic Compounds
vPvB Very Persistent and Very Bioaccumulating
WHMIS Workplace Hazardous Materials Information System

DISCLAIMER OF RESPONSIBILITY

The information on this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume damage or expense arising out of or in any way responsibility and expressly disclaim liability for loss, connected with handling, storage, use, or disposal of this product. If the product is used as a component in another product, this SDS information may not be applicable.

Revision Date: 24 April 2017

<end of document>