MATERIAL SAFETY DATA SHEET

(Rev.I-July-2018)

Butyl Butyrate

Section 1: IDENTIFICATION OF THE SUBSTANCE AND OF COMPANY

| Product Name | Butyl Butyrate |
|-------------------------|--|
| Chemical Name | Butyl Butanoate |
| CAS No. | 109-21-7 |
| EINECS No. | 203-656-8 |
| Usage | In flavors and fragrances, an ingredient in the manufacturing of mixtures. |
| | Not intended for final consumer. |
| Manufacturer | Breeze Intermediates Pvt. Ltd. |
| | Z-39, Dahej SEZ, Dahej, Ta. Vagra, Dist. Bharuch (Guj.) India |
| | Tel.: +91 9825107638 |
| | Email: info@breezeipl.com, qc@breezeipl.com |
| Emergency telephone no. | +91 9825107638, +91 8155088809 |

Section 2: HAZARDS IDENTIFICATION

| Classification as per | Flammable liquids, H | lazard Category 3; H22 | 26, |
|--------------------------|--|---------------------------|--|
| EC No. 1272/2008 | | | |
| OSHA Hazard | Product not carcinog | enic according to OSH | Α |
| Label elements including | Signal Word: Warnin | g | Pictogram: |
| precautionary statement | | | \wedge |
| | Hazard statement(s) | | JH2 |
| | H226 Flammable liqu | | |
| | H303 May be harmfu H315 Causes skin irr | | • |
| | | s skin and eye irritation | n |
| | H319 Causes serious | 5 | |
| | Precautionary staten | | |
| | P210 Keep away fror | n heat/sparks/open fla | mes/hot surfaces. No smoking. |
| | P233 Keep container | | |
| | | ontainer and receiving | |
| | | ve gloves/eye protectio | |
| | | | ry powder to extinguish. |
| Risk Phrases | May be irritating to t | n a well-ventilated plac | |
| HMIS Classification | Health hazard: 2 | Flammability: 2 | Physical hazards: 0 |
| NFPA Rating | Health hazard: 2 | Fire: 2 | Reactivity Hazard: 0 |
| Potential Health Effects | | | ses respiratory tract irritation. |
| Fotential Health Ellects | 5 | | |
| | - | - | skin. Causes skin irritation. |
| | Eyes: Causes eye irr | | |
| | Ingestion: Harmful if | | |
| Other Hazards | | | ncluded in the Substances of Very High |
| | Concern list (> 0.1 % | % w/w). | |

Section 3: INFORMATON ON INGREDIENTS

| Concentration of the constituent | 97-100% (% wt/wt) |
|----------------------------------|---|
| Chemical name | Butyl butanoate |
| Chemical Entity | Straight chain primary aliphatic alcohols/aldehydes/acids/acetals and |
| | esters with esters containing satirated alcohols and acetals containing |
| | saturated aldehydes. No aromatic or hetero aromatic moiety as a |
| | component of an ester or acetal. |
| Molecular Formula | $C_8H_{16}O_2$ (M.W.= 144.21 g/mol) |
| CAS No. | 109-21-7 |
| EC/EINECS No. | 203-656-8 |
| FEMA | 2186 |

Section 4: FIRST AID MEASURES

| Consumption | If swallowed, rinse, mouth with water (only if the person is conscious) |
|-------------------|---|
| Consumption | If swallowed, rinse mouth with water (only if the person is conscious). |
| (Ingestion) | Seek medical advice immidiately. Do not induce vomiting. |
| Eye Exposure | First rinse with plenty of water for several minutes |
| | (remove contact lenses if easily possible), then take to a doctor. |
| Inhalation | If inhaled, remove person to fresh air. |
| | If not breathing give artificial respiration. |
| | If breathing is difficult, give oxygen. |
| Skin Exposure | Wash immediately affected area with soap and plenty of water. |
| | Seek medical advice if irritation, pain, swelling, lacrimation or photophobia persists. |
| Most important | Symptoms on inhalation: Choking, drowsiness, respiratory disruptions. |
| symptoms and | Symptoms on eye contact: Irritation, reddening. |
| effects, both | Symptoms on skin contact: Irritation, stinging. |
| acute and delayed | Symptoms on ingestion: queasiness, stomach aches. |
| Immediate | Not applicable. |
| medical attention | |
| special treatment | |
| Others | Take Risk and Safety Phrases (section 15) into account |

Section 5: FIRE-FIGHTING MEASURES

| Extinguishing | Water spray, Alcohol-resistant foam, carbon dioxide, dry chemical powder or |
|--------------------|---|
| Media | appropriate foam. For safety reasons do not use full water-jet. |
| Hazards arising | Not applicable. |
| from the substance | |
| Combustible Liquid | Keep away from source of heat, flame or spark. |
| | Cool endengered drums with water. |
| Advices for | In case of fire on the surrounding, follow the instructions: |
| firefighters | 1-Closed containers may build up pressure at elevated temperatures. |
| | 2-Avoid inhalation of generated fumes or vapors. Use apropriate respiratory equipment. |
| | 3-Do not allow the spillage of the fire extinguishing to sink into a drainage system or water area. |

Section 6: ACCIDENTAL RELEASE MEASURES

| Personal precautions, protective equipment and emergency procedures | Handle the product using protective gloves resistant to the the chemicals exposed. Avoid contact with skin and inhalation of its vapours or smoke. Maintain adequate ventilation in the working area after spilling. |
|---|--|
| Environmental precautions | To avoid possible contamination of the environment. |
| | Do not discharge into any drains, surface waters or groundwaters |
| Methods and material for | Cover with an inert, inorganic, non-combustible absorbent material (e.g. dry- |
| containment and cleaning up | lime, sand, soda ash). Place in covered containers using non-sparking tools and |
| | transport outdoors. Avoid open flames or sources of ignition (e.g. pilot lights on |
| | gas hot water heater). Ventilate area and wash spill site after material pickup is |
| | complete. Dispose of in accordance with current laws and regulations. |
| Reference to other sections | Refer to section 13 Disposal considerations |

Section 7: HANDLING AND STORAGE

| Precautions for safe handling | Keep away from food, drink and animal feedingstuffs. When using do not smoke. Avoid contact with skin and eyes. Handle in accordance with good industrial hygiene and safety practice. |
|-------------------------------------|---|
| Condition for | Should be stored in tightly sealed and preferably full containers in a cool, well-ventilated, dry |
| Storage | place, out of direct rays of the sun, Away from areas of high fire hazard, & should be |
| | periodically inspected. Incompatible materials should be isolated from each other. |
| Specific end | Not available |
| use(s) | |

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

| Control parameters | Declaration of substances is not required. |
|--------------------|---|
| Exposure controls | Personal protection equipment: Use personal protection equipment according to Directive 89/686/EEC. Eye/Face protection: Chemical safety goggles are recommended. Wash contaminated goggles before reuse. Respiratory Protection: Use personal breathing apparatus whenever deemed necessary. Skin Protection: Avoid contact with skin. Compatible chemical-resistant gloves are recommended. Wash contaminated gloves before reuse. Engineering Controls-Ventilation: The areas where the product is handled and |
| | Engineering Controls-Ventilation: The areas where the product is handled and stored should be adequately ventilated. |

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

| Appearance | Clear Colorless liquid. |
|--------------------------|-----------------------------------|
| Odor | Fresh-fruity, pineapple like odor |
| pH value | No data available |
| Boiling point | 166 °C @ 760 mm Hg. |
| Melting point | No data available |
| Flash point (closed cup) | 49.44 °C. |
| Ignition Temperature | No data available |
| Auto Inflammability | Not Determined |

| Explosive Property | Not Determined |
|-----------------------|-------------------------|
| Oxidizing Property | Not Determined |
| Vapour Pressure | 1.810000 mm/Hg @ 25 °C |
| Vapour Density | 4.9 (Air=1) |
| Solubility in Water | 500 mg/L @ 20 °C (est.) |
| Solubility in Alcohol | Soluble |
| Specific Gravity | 0.867 – 0.871 @ 25 °C. |
| Partition Coefficient | 2.823 (Octanol/Water) |

Section 10: STABILITY AND REACTIVITY

| Chemical stability | Stable under normal operational condition. |
|-------------------------|---|
| Reactivity | Heat, excessive heat, open flames and other sources of ignition. |
| | Strong oxidizing agents, strong reducing agents. |
| Incompatibility | Does not react with water. Avoid contact with strong oxidizing mineral acids, |
| | strong reducing agents. |
| Hazardous decomposition | Hazardous combustion or decomposition products: |
| Products | carbon oxides and other unidentified organic compound. |

Section 11: TOXOLOGICAL INFORMATION

| Acute toxicity | LD50 Oral - Rabbit - 9,520 mg/kg |
|--|---|
| | LD50 Dermal - Rabbit - >5,000 mg/kg |
| Inhalation Toxicity (LD_{50}) | No adverse effects due to inhalation are expected. |
| Skin corrosion/irritation | Causes mild skin irritation. |
| Human Experience | 4% solution: No irritation or sensitization |
| Serious eye damage/eye irritation | Causes mild eyes irritation. |
| Respiratory or skin sensitization | Not expected to cause skin sensitization |
| Germ cell mutagenicity | No data available |
| Carcinogenicity | <u>IARC</u> : No component of this product present at levels $\geq 0.1\%$ is identified as probable, possible or confirmed human carcinogen by IARC. <u>ACGIH</u> : No component of this product present at levels $\geq 0.1\%$ is identified as a carcinogen or potential carcinogen by ACGIH. <u>NTP</u> : No component of this product present at levels $\geq 0.1\%$ is identified as a known or anticipated carcinogen by NTP. <u>OSHA</u> : No component of this product present at levels $\geq 0.1\%$ is identified as a carcinogen or potential carcinogen by OSHA. |
| Reproductive toxicity | Not expected to cause reproductive or developmental effets |
| Specific target organ toxicity single exposure (GHS) | Not classified |
| Specific target organ toxicity repeated exposure (GHS) | Not classified |
| Aspiration hazard | Not an aspiration hazard. |
| Potential health effects | <u>Inhalation</u> : - May be harmful if inhaled. Causes respiratory tract irritation. <u>Ingestion</u> : - Harmful if swallowed. <u>Skin</u> : - May be harmful if absorbed through skin. Causes skin irritation. <u>Eyes</u> : - Causes eye irritation. |

| Signs and Symptoms of Exposure | No data available |
|--------------------------------|-----------------------------------|
| Additional Information | RTECS: ES8120000 for CAS#109-21-7 |

Section 12: ECOLOGICAL INFORMATION

| General | Prevent contamination of soil, ground and surface waters. | | | |
|-------------------------------|---|--|--|--|
| | Do not discharge product unmonitored into the environment. | | | |
| Acute aquatic Toxicity | LC50 – Fish – 11.4 mg/l - 96 hrs | | | |
| Persistence and degradability | No data available | | | |
| Bioaccumulative potential | No data available | | | |
| Mobility in soil | No data available | | | |
| PBT and vPvB assessment | Not determined. Not listed on EC's PBT substances list. | | | |
| Other adverse effects | Do not allow the material to enter streams, sewers or other waterways | | | |

Section 13: DISPOSAL CONSIDERATION

| Product Disposal | Dispose of according all federal, state, and local environmental regulations. | | |
|------------------|--|--|--|
| | Contact a licensed professional waste disposal service to dispose of this material. | | |
| Packaging | Don not re-use empty containers. Empty residue into a suitable disposal site. Contaminated packaging should be disposed of as unused product. | | |

Section 14: TRANSPORT INFORMATION

| International Carriage of Danger | rous Goods by Road (ADR) | | | | |
|----------------------------------|----------------------------------|--|--|--|--|
| UN No. | 3272 | | | | |
| Proper Shipping Name | Esters, N.O.S., (BUTYL BUTYRATE) | | | | |
| Packing Group | 111 | | | | |
| Class | 3 | | | | |
| Tunnel restriction code | | | | | |
| Label | 3 | | | | |
| Air Transport (ICAO/IATA) | | | | | |
| UN No. | 3272 | | | | |
| Proper Shipping Name | Esters, N.O.S., (BUTYL BUTYRATE) | | | | |
| Class | 3 | | | | |
| Packing Group | | | | | |
| Sea Transport (IMDG) | | | | | |
| UN No. | 3272 | | | | |
| Proper Shipping Name | Esters, N.O.S., (BUTYL BUTYRATE) | | | | |
| Class | 3 | | | | |
| Packing Group | 111 | | | | |
| EmS | F-E, S-D | | | | |
| Marine Pollutant | No | | | | |
| DOT (US) | | | | | |
| Non-Bulk | Not regulated as dangerous goods | | | | |

Section 15: REGULATORY INFORMATION

| Safety, health and | Substance(s) is (are) either included in EINECS, ELINCS, NPL inventories or |
|-------------------------|---|
| environmental | exempted |
| regulations/legislation | |
| specific for the | |
| substance | |
| Hazard Symbol | Xi- Irritant |
| Risk Phrases | R 10 - Flammable. |
| | R 38 - Irritating to skin. |
| Safety Phrases | S 02 - Keep out of the reach of children. |
| | S 37 Wear suitable gloves |
| WGK Germany | 2 |
| Chemical safety | Not available |
| assessment | |

Section 16: OTHER INFORMATION

| Hazardous materials identification system | Fire: 2 | Health: 2 | Reactivity: 0 | Personal Protection: B | | |
|--|---------|-----------|---------------|------------------------|--|--|
| This material should be used for industrial purposes only. | | | | | | |

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