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ISO 9001: 2015

MATERIAL SAFETY DATA SHEET

1. Identification

1.1 GHS Product identifier

Butyl lactate
Code B 2388

2. Hazard identification

2.1 Classification of the substance or mixture

Skin irritation, Category 2

Eye irritation, Category 2

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Warning

Hazard statement(s)

H315 Causes skin irritation
H319 Causes serious eye irritation

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response

P302+P352 IF ON SKIN: Wash with plenty of water/...
P321 Specific treatment (see ... on this label).
P332+P313 If skin irritation occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/attention.

Storage

none

Disposal

none

2.3 Other hazards which do not result in classification

none

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Butyl lactate	Butyl lactate	138-22-7	none	100%

4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms/effects, acute and delayed

VAPOR: Headache, coughing, possible sleepiness, nausea or vomiting, or dizziness may result. LIQUID: Irritating to skin and eyes. (USCG, 1999)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

/SRP:/ Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. /Organic acids and related compounds/

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Extinguishing methods: Alcohol Foam

5.2 Specific hazards arising from the chemical

Combustible. Extinguish with dry chemical, CO₂, or alcohol foam. Use water spray to "knock down" vapors and cool exposed containers. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Personal precautions: Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

Environmental precautions: Do not let product enter drains. Methods and materials for containment and cleaning up: Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

Recommended Exposure Limit: 10 Hour Time-Weighted Average: 5 ppm (25 mg/cu m)

Biological limit values

no data available

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9. Physical and chemical properties

Physical state A clear colorless liquid with a mild odor.

Colour Water-white, stable liquid

Odour Mild, transient odor

Melting point/ freezing point 298\°C (lit.)

Boiling point or initial boiling point and boiling range 187\°C

Flammability Class IIIA Combustible Liquid: Fl.P. at or above 60\°C and below 93.33\°C.

Lower and upper explosion limit / flammability limit no data available

Flash point 91\°C (lit.)

Auto-ignition temperature 382\°C (720 deg F)

Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	In water:42 g/L (25 \u00b0C)
Partition coefficient n-octanol/water (log value)	log Kow = 0.80 (est)
Vapour pressure	0.4 mm Hg (20 \u00b0C)
Density and/or relative density	0.98
Relative vapour density	5.04 (vs air)
Particle characteristics	no data available

10. Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Flammable when exposed to heat or flame BUTYL LACTATE is an ester. Esters react with acids to liberate heat along with alcohols and acids. Strong oxidizing acids may cause a vigorous reaction that is sufficiently exothermic to ignite the reaction products. Heat is also generated by the interaction of esters with caustic solutions. Flammable hydrogen is generated by mixing esters with alkali metals and hydrides. Avoid contact with strong oxidizing agents and strong bases. Will not polymerize (USCG, 1999).

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Strong acids & bases, strong oxidizers, heat, sparks, open flames.

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides.

11. Toxicological information

Acute toxicity

Oral: no data available

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. Ecological information

12.1 Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water Flea); Conditions: freshwater, static; Concentration: 320000 ug/L for 48 hr (95% confidence interval: 320000-399000 ug/L); Effect: intoxication, decreased mobility /formulation, 97% purity

Toxicity to algae: EC50; Species: Pseudokirchneriella subcapitata (Green Algae, 1x10+4 cells/mL); Conditions: freshwater, static, 20\u00b0C, pH 8.0; Concentration: 329000 ug/L for 72-96 hr; Effect: decreased population biomass /formulation, 97% purity

Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: n-Butyl lactate, present at 1.53, 2.0 and 2.08 mg/L, exhibited degradation of 22, 39, and 25%, respectively, in 5 days using an activated sludge inoculum in the Closed Bottle test. The percent degradation was 57, 63 and 69 after 28, 20 and 28 days respectively(1).

12.3 Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for n-butyl lactate(SRC), using an estimated log Kow of 0.80(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

