SECTION 1: Identification

1.1. Product identifier

Identification of the substance/preparation: n-Butyric acid AF

CAS-No: 107-92-6

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance / Preparation: Intermediate

Uses advised against: None

1.3. Details of the supplier of the safety data sheet

Supplier: OXEA Corporation
15375 Memorial Drive
West Memorial Place I
Suite 300
Houston, TX 77079
USA
Phone: +1 346 378 7300

Product Information
Product Stewardship
FAX: +49 (0)208 693 2053
email: psq@oxea-chemicals.com

1.4. Emergency telephone number

Emergency telephone number: in USA, call 800 424 9300
outside USA, call +1.703.527.3887, collect calls accepted available 24/7

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

This substance is classified in accordance with paragraph (d) of §1910.1200 (GHS-US classification).

Acute oral toxicity Category 4, H302
Skin corrosion/irritation Category 1B, H314
Serious eye damage/eye irritation Category 1, H318
Flammable liquid Category 4, H227
SAFETY DATA SHEET

n-Butyric acid AF
10460A

Environmental hazard  Aquatic Acute 3; H402

OSHA Specified Hazards  Not applicable.

2.2. Label elements

Labeling according to §1910.1200 (GHS-US labeling).

Hazard symbol(s)

Signal word  Danger

Hazard statements  H227: Combustible liquid
H302: Harmful if swallowed.
H314: Causes severe skin burns and eye damage.
H402: Harmful to aquatic life

Precautionary statements

Prevention  P210: Keep away from flames and hot surfaces. - No smoking.
P260: Do not breathe gas/mist/vapours.
P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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/doctor.
P363: Wash contaminated clothing before reuse.

Storage  P403 + P235: Store in a well ventilated place. Keep cool.
P405: Store locked up.

Disposal  P501: Dispose of contents/container in accordance with local regulation.

2.3. Other hazards

Emergency telephone number  in USA, call 800 424 9300; outside USA, call USA 703 527 3887, collect calls accepted
2 / 14
USA (A-US)
SAFETY DATA SHEET

n-Butyric acid AF
10460A

Vapours may form explosive mixture with air
Components of the product may be absorbed into the body by inhalation

SECTION 3: Composition / information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butyric acid</td>
<td>107-92-6</td>
<td>&gt; 99,5</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation
Keep at rest. Aerate with fresh air. When symptoms persist or in all cases of doubt seek medical advice.

Skin
Wash off immediately with soap and plenty of water. When symptoms persist or in all cases of doubt seek medical advice.

Eyes
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.

Ingestion
Call a physician immediately. Do not induce vomiting without medical advice.

4.2. Most important symptoms and effects, both acute and delayed

Main symptoms
nausea, vomiting, convulsions, shortness of breath, discomfort.

Special hazard
Lung irritation, Stomach perforation, Lung oedema, Methemoglobinemia.

4.3. Indication of any immediate medical attention and special treatment needed

General advice
Remove contaminated, soaked clothing immediately and dispose of safely. First aider needs to protect himself.

Treat symptomatically. If ingested, flush stomach and compensate acidosis.

SECTION 5: Firefighting measures

5.1. Extinguishing media
SAFETY DATA SHEET

n-Butyric acid AF
10460A

Version / Revision 3.02

Suitable extinguishing media
foam, dry chemical, carbon dioxide (CO2), water spray

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

5.2. Special hazards arising from the substance or mixture

Under conditions giving incomplete combustion, hazardous gases produced may consist of:
carbon monoxide (CO)
carbon dioxide (CO2)
Combustion gases of organic materials must in principle be graded as inhalation poisons
Vapours are heavier than air and may spread along floors
Vapours may form explosive mixture with air

5.3. Advice for firefighters

Special protective equipment for firefighters
Fire fighter protection should include a self-contained breathing apparatus (NIOSH-approved or EN 133) and full
fire-fighting turn out gear.

Precautions for firefighting
Keep people away from and upwind of fire. Cool containers / tanks with water spray. Water run-off and vapor cloud
may be corrosive. Dike and collect water used to fight fire.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: For personal protective equipment see section 8. Avoid contact with skin and eyes.
Avoid breathing vapors or mists. Keep people away from and upwind of spill/leak. Ensure adequate ventilation,
especially in confined areas. Keep away from heat and sources of ignition.
For emergency responders: Personal protection see section 8.

6.2. Environmental precautions

Prevent further leakage or spillage. Do not discharge product into the aquatic environment without pretreatment
(biological treatment plant).

6.3. Methods and material for containment and cleaning up

Methods for containment
Stop the flow of material, if possible without risk. Dike spilled material, where this is possible.

Methods for cleaning up
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. If liquid has been spilt in large
quantities clean up promptly by scoop or vacuum. Dispose of in accordance with local regulations. Take necessary
action to avoid static electricity discharge (which might cause ignition of organic vapours).
6.4. Reference to other sections

For personal protective equipment see section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Provide sufficient air exchange and/or exhaust in work rooms.

Hygiene measures
When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

Advice on the protection of the environment
See Section 8: Environmental exposure controls.

Incompatible products
bases
amines
strong oxidizing agents

7.2. Conditions for safe storage, including any incompatibilities

Advice on protection against fire and explosion
Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). In case of fire, emergency cooling with water spray should be available. Ground and bond containers when transferring material. Vapours may form explosive mixture with air.

Technical measures/Storage conditions
Keep containers tightly closed in a cool, well-ventilated place. Handle and open container with care.

Suitable material
stainless steel, Polyethylene

Unsuitable material
iron

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Exposure limits United States of America

No exposure limits established.
8.2. Exposure controls

Appropriate Engineering controls
General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

Individual protection measures, such as personal protective equipment

General industrial hygiene practice
Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Ensure that eyewash stations and safety showers are close to the workstation location.

Hygiene measures
When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

Eye protection
Tightly fitting safety goggles. In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face.

Hand protection
Wear protective gloves. Recommendations are listed below. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.

<table>
<thead>
<tr>
<th>Suitable material</th>
<th>butyl-rubber</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation</td>
<td>according to EN 374: level 6</td>
</tr>
<tr>
<td>Glove thickness</td>
<td>approx 0.7 mm</td>
</tr>
<tr>
<td>Break through time</td>
<td>approx 480 min</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Suitable material</th>
<th>nitrile rubber</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation</td>
<td>according to EN 374: level 6</td>
</tr>
<tr>
<td>Glove thickness</td>
<td>approx 0.55 mm</td>
</tr>
<tr>
<td>Break through time</td>
<td>&gt; 480 min</td>
</tr>
</tbody>
</table>

Skin and body protection
Impervious clothing. Wear face-shield and protective suit for abnormal processing problems.

Respiratory protection
Respirator with filter for organic vapour. Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (vapor or mist). Equipment should conform to NIOSH.

Environmental exposure controls
If possible use in closed systems. If leakage can not be prevented, the substance needs to be suck off at the emersion point, if possible without danger. Observe the exposure limits, clean exhaust air if needed. If recycling is not practicable, dispose of in compliance with local regulations. Inform the responsible authorities in case of leakage into the atmosphere, or of entry into waterways, soil or drains.

SECTION 9: Physical and chemical properties
9.1. Information on basic physical and chemical properties

**Appearance**
- liquid

**Colour**
- colourless

**Odour**
- foul smelling

**Odour threshold**
- 0,001 mg/m³

**pH**
- 2 (50 % in water @ 20 °C (68 °F))

**Melting point/range**
- 19 °F (-7 °C) (Pour point)

**Boiling point/range**
- 327 °F (164 °C) @ 1 atm (101,3 kPa)

**Flash point**
- 160 °F (71 °C) @ 1 atm (101,3 kPa)

**Evaporation rate**
- No data available

**Flammability (solid, gas)**
- Does not apply, the substance is a liquid

**Lower explosion limit**
- 2 Vol %

**Upper explosion limit**
- 10 Vol %

### Vapour pressure

<table>
<thead>
<tr>
<th>Method</th>
<th>Values [hPa]</th>
<th>Values [kPa]</th>
<th>Values [atm]</th>
<th>@ °C</th>
<th>@ °F</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIN EN 13016-2</td>
<td>1</td>
<td>0,1</td>
<td>0,001</td>
<td>20</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>0,9</td>
<td>0,009</td>
<td>50</td>
<td>122</td>
</tr>
</tbody>
</table>

**Vapour density**
- 3,0 (Air = 1) @ 20 °C (68 °F)

**Relative density**
- 0,957 @ 20 °C (68 °F)

**Solubility**
- No data available

**Water solubility**
- miscible OECD 105

**log Pow**
- 1,1 (measured) OECD 117

**Autoignition temperature**
- 815 °F (435 °C)

**Decomposition temperature**
- No data available

**Viscosity**
- 1,67 mPa*s @ 68 °F (20 °C)

### 9.2. Other information

**Molecular weight**
- 88,11

**Molecular formula**
- C4 H8 O2

**Oxidizing properties**
- Does not apply, substance is not oxidising. There are no chemical groups associated with oxidizing properties

**Refractive Index**
- 1,398 @ 68 °F (20 °C)

**Explosive properties**
- Does not apply, substance is not explosive. There are no chemical groups associated with explosive properties

**Surface tension**
- 68,5 mN/m (1 g/l @ 20°C (68°F)), OECD 115
SECTION 10: Stability and Reactivity

10.1. Reactivity
The reactivity of the product corresponds to the typical reactivity shown by the substance group as described in any text book on organic chemistry.

10.2. Chemical stability
Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4. Conditions to avoid
Avoid contact with heat, sparks, open flame and static discharge. Avoid any source of ignition.

10.5. Incompatible materials
bases, amines, strong oxidizing agents.

10.6. Hazardous decomposition products
No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Likely routes of exposure Ingestion, Inhalation, Eye contact, Skin contact

Butyric acid, CAS: 107-92-6
Main symptoms nausea, vomiting, convulsions, shortness of breath.
Target Organ Systemic Toxicant - Single exposure
Based on available data, the classification criteria are not met for: STOT SE
Target Organ Systemic Toxicant - Repeated exposure
Based on available data, the classification criteria are not met for: STOT RE

Acute toxicity
Butyric acid (107-92-6)
Routes of Exposure Endpoint Values Species Method
Oral LD50 1630 mg/kg rat, male/female OECD 401

Emergency telephone number in USA, call 800 424 9300; outside USA, call USA 703 527 3887, collect calls accepted
8 / 14 USA (A-US)
n-Butyric acid AF
10460A

<table>
<thead>
<tr>
<th>Dermal</th>
<th>LD50</th>
<th>6096 mg/kg</th>
<th>rabbit</th>
<th>OECD 402</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalative</td>
<td>LC0</td>
<td>5.1 mg/l (4h)</td>
<td>rat, male/female</td>
<td>OECD 403</td>
</tr>
</tbody>
</table>

**Butyric acid, CAS: 107-92-6**

**Assessment**
The available data lead to the classification given in section 2

**Irritation and corrosion**

<table>
<thead>
<tr>
<th>Butyric acid (107-92-6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target Organ Effects</td>
</tr>
<tr>
<td>Skin</td>
</tr>
<tr>
<td>Eyes</td>
</tr>
</tbody>
</table>

**Butyric acid, CAS: 107-92-6**

**Assessment**
The available data lead to the classification given in section 2

For respiratory irritation, no data are available

**Butyric acid, CAS: 107-92-6**

**Assessment**
Skin sensitization was not tested due to the corrosive properties of the substance

For respiratory sensitization, no data are available

**Subacute, subchronic and prolonged toxicity**

<table>
<thead>
<tr>
<th>Butyric acid (107-92-6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Subchronic toxicity</td>
</tr>
</tbody>
</table>

**Butyric acid, CAS: 107-92-6**

**Assessment**
Based on available data, the classification criteria are not met for:
STOT RE

**Carcinogenicity, Mutagenicity, Reproductive toxicity**

<table>
<thead>
<tr>
<th>Butyric acid (107-92-6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Mutagenicity</td>
</tr>
<tr>
<td>Mutagenicity</td>
</tr>
<tr>
<td>Mutagenicity</td>
</tr>
<tr>
<td>Developmental Toxicity</td>
</tr>
<tr>
<td>Developmental Toxicity</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET

n-Butyric acid AF
10460A

<table>
<thead>
<tr>
<th>Reproductive toxicity</th>
<th>NOAEC: 2000 ppm</th>
<th>rat, male/female</th>
<th>OECD 416</th>
<th>read across</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mutagenicity</td>
<td>CHO (Chinese Hamster Ovary) cells</td>
<td>negative</td>
<td>OECD 476 (Mammalian Gene Mutation)</td>
<td></td>
</tr>
</tbody>
</table>

**Butyric acid, CAS: 107-92-6**

**CMR Classification**
The available data on CMR properties are summarized in the table above. They do not indicate a classification into categories 1A or 1B

**Evaluation**
In vitro tests did not show mutagenic effects
Did not show mutagenic effects in animal experiments
In the absence of specific alerts no cancer testing is required

**Butyric acid, CAS: 107-92-6**

**Aspiration toxicity**
Due to the viscosity, this product does not present an aspiration hazard

**Other adverse effects**
Components of the product may be absorbed into the body by inhalation.

**Note**
Handle in accordance with good industrial hygiene and safety practice. Further details on substance data can be found in the registration dossier under the following link:

**SECTION 12: Ecological information**

**12.1. Toxicity**

**Acute aquatic toxicity**

<table>
<thead>
<tr>
<th>Butyric acid (107-92-6)</th>
<th>Exposure time</th>
<th>Dose</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daphnia magna (Water flea)</td>
<td>48h</td>
<td>EC50: 51,25 mg/l</td>
<td>read across DIN 38412, part 11</td>
</tr>
<tr>
<td>Desmodesmus subspicatus</td>
<td>72h</td>
<td>EC50: 45,1 mg/l</td>
<td>read across DIN 38412, part 9</td>
</tr>
<tr>
<td>Pimephales promelas (fathead minnow)</td>
<td>96h</td>
<td>LC50: 66,4 mg/l</td>
<td>read across OECD 203</td>
</tr>
<tr>
<td>Pseudomonas putida</td>
<td>18 h</td>
<td>EC50: 78 mg/l (Growth inhibition)</td>
<td>DIN 38412, part 8</td>
</tr>
</tbody>
</table>

**12.2. Persistence and degradability**

**Butyric acid, CAS: 107-92-6**

**Biodegradation**
100 % (14 d), Sewage, aerobic, OECD 301 E.

**Abiotic Degradation**

Emergency telephone number
in USA, call 800 424 9300; outside USA, call USA 703 527 3887, collect calls accepted
SAFETY DATA SHEET

n-Butyric acid AF
10460A

Version / Revision 3.02

<table>
<thead>
<tr>
<th>Butyric acid (107-92-6)</th>
<th>Type</th>
<th>Result</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrolysis</td>
<td></td>
<td>not expected</td>
<td></td>
</tr>
<tr>
<td>Photolysis</td>
<td></td>
<td>No data available</td>
<td></td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Butyric acid (107-92-6)</th>
<th>Type</th>
<th>Result</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>log Pow</td>
<td></td>
<td>1,1</td>
<td>measured, OECD 117</td>
</tr>
<tr>
<td>log BCF</td>
<td></td>
<td>0,5</td>
<td>calculated</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

<table>
<thead>
<tr>
<th>Butyric acid (107-92-6)</th>
<th>Type</th>
<th>Result</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface tension</td>
<td></td>
<td>68,5 mN/m (1 g/l @ 20°C (68°F))</td>
<td>OECD 115</td>
</tr>
<tr>
<td>Adsorption/Desorption</td>
<td>log Koc: 1,69</td>
<td>log Koc: 1,69 @ pH 7</td>
<td>calculated</td>
</tr>
<tr>
<td>Distribution to environmental compartments</td>
<td>Air: 6,16 %</td>
<td>Soil: 57,1 %</td>
<td>Water: 36,7 %</td>
</tr>
</tbody>
</table>

12.5. Results of PBT and vPvB assessment

**Butyric acid, CAS: 107-92-6**

**PBT and vPvB assessment**

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

12.6. Other adverse effects

**Butyric acid, CAS: 107-92-6**

No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

**Product Information**

Disposal required in compliance with all waste management related state and local regulations. The choice of the appropriate method of disposal depends on the product composition by the time of disposal as well as the local statutes and possibilities for disposal.

**Uncleaned empty packaging**

Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for
SECTION 14: Transport information

D.O.T. (49CFR)

14.1. UN number  
UN 2820

14.2. UN proper shipping name  
Butyric acid

14.3. Transport hazard class(es)  
8

14.4. Packing group  
III

14.5. Environmental hazards  
no

14.6. Special precautions for user  
Reportable Quantity (RQ)  
5000 lb/ 2270 kg (Butyric acid)

Emergency Response Guide  
153

ICAO-TI / IATA-DGR

14.1. UN number  
UN 2820

14.2. UN proper shipping name  
Butyric acid

14.3. Transport hazard class(es)  
8

14.4. Packing group  
III

14.5. Environmental hazards  
no

14.6. Special precautions for user  
no data available

IMDG

14.1. UN number  
UN 2820

14.2. UN proper shipping name  
Butyric acid

14.3. Transport hazard class(es)  
8

14.4. Packing group  
III

14.5. Environmental hazards  
no

14.6. Special precautions for user  
EmS F-A, S-B

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Product name  
Butyric acid

Ship type  
3

Pollution category  
Y

SECTION 15: Regulatory information

Emergency telephone number  
in USA, call 800 424 9300; outside USA, call USA 703 527 3887, collect calls accepted
12 / 14
USA (A-US)
SAFETY DATA SHEET

n-Butyric acid AF
10460A

Version / Revision 3.02

Federal and State Regulations
Components of the product are listed in the quoted regulations. For details please refer to the regulations directly. This list is not exhaustive, please check for other applicable regulations.

Federal Regulations
This product is listed on the TSCA inventory

Butyric acid, CAS: 107-92-6
CERCLA Hazardous Substance
   CERCLA RQ 5000 LBS

State Regulations
Butyric acid, CAS: 107-92-6
   CA Hazardous Substances (Director’s) List
   IL Chemical Safety Act
   MA Hazardous Substances List
   MA RTK List
   NY RTK List
   PA RTK List
   RI RTK List

International Inventories
Butyric acid, CAS: 107-92-6
   AICS (AU)
   DSL (CA)
   IECSC (CN)
   EC-No. 2035323 (EU)
   ENCS (2)-608 (JP)
   ISHL (2)-608 (JP)
   KECI KE-03838 (KR)
   INSQ (MX)
   PICCS (PH)
   TSCA (US)
   NZIoC (NZ)
   TCSI (TW)

SECTION 16: Other information

Revision Date 12-Dec-2019
Issuing date 12-Dec-2019

Hazard Rating Systems

NFPA (National Fire Protection Association)
   Health Hazard 3

Emergency telephone number in USA, call 800 424 9300; outside USA, call USA 703 527 3887, collect calls accepted
USA (A-US) 13 / 14
SAFETY DATA SHEET

n-Butyric acid AF
10460A

Fire Hazard 2
Reactivity 0

HMIS (Hazardous Material Information System)
Health Hazard 3
Flammability 2
Physical Hazard 0

Training advice
For effective first-aid, special training / education is needed.

Sources of key data used to compile the datasheet
Information contained in this safety data sheet is based on Oxea owned data and public sources deemed valid or acceptable. The absence of data elements required by OSHA, ANSI or Annex II, Regulation 1907/2006/EC indicates, that no data meeting these requirements is available.

Further information for the safety data sheet
Changes against the previous version are marked by ***. Observe national and local legal requirements. For more information, other material safety data sheets or technical data sheets please consult the Oxea homepage (www.oxea-chemicals.com).
The use of a comma in section 3 and section 7 to 12 is the same as a period.

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For industrial use only. The information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. Oxea makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances. User has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards.

End of Safety Data Sheet