SAFETY DATA SHEET

Eastman(TM) n-Butyronitrile

Version 2.1 Revision Date: 02/20/2019 SDS Number: 150000000149 Date of last issue: 09/06/2016

PRD SDSUS / Z8 / 0001 Date of first issue: 09/06/2016

SECTION 1. IDENTIFICATION

Product name : Eastman(TM) n-Butyronitrile

Product code : 02106-00, P0210600, P0210602, P0210604, P02106E1, P02106E2, P02106E3, E0210602, E0210601

Manufacturer or supplier's details

Company name of supplier : Eastman Chemical Company

Address : 200 South Wilcox Drive
          Kingsport TN 37660-5280

Telephone : (423) 229-2000

Emergency telephone : CHEMTREC: +1-800-424-9300, +1-703-527-3887 CCN7321

Recommended use of the chemical and restrictions on use

Recommended use : Chemical intermediate

Restrictions on use : None known.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Flammable liquids : Category 2

Acute toxicity (Oral) : Category 3

Acute toxicity (Inhalation) : Category 3

GHS label elements

Hazard pictograms : 

Signal Word : Danger

Hazard Statements : H225 Highly flammable liquid and vapor.
                   H301 + H331 Toxic if swallowed or if inhaled.

Precautionary Statements : Prevention:
                           P210 Keep away from heat/sparks/open flames/hot surfaces.
                           No smoking.
                           P233 Keep container tightly closed.
                           P240 Ground/bond container and receiving equipment.
                           P241 Use explosion-proof electrical/ ventilating/ lighting/ equip-
ment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ eye protection/ face protection.

Response:
P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-butyronitrile</td>
<td>109-74-0</td>
<td>100</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

If inhaled: Move to fresh air.
Treat symptomatically.
If symptoms persist, call a physician.

In case of skin contact: Wash off with soap and water.
If symptoms persist, call a physician.

In case of eye contact: In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

If swallowed: Call a physician or poison control center immediately.
If swallowed, and the victim is conscious and alert, induce...
Most important symptoms and effects, both acute and delayed:

- Watch victim for several hours because of possible delayed signs of poisoning.
- Symptoms, such as loss of consciousness, may be delayed, even when no other symptoms of exposure are apparent.
- Toxic if swallowed or if inhaled.

Notes to physician:

- Treat symptomatically.
- In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media:
- Carbon dioxide (CO2)
- Dry chemical
- Water spray

Unsuitable extinguishing media:
- Water spray jet

Specific hazards during fire fighting:
- Water may be ineffective.
- The product will float on water and can be reignited on surface water.

Hazardous combustion products:
- Burning produces obnoxious and toxic fumes.
- Hydrogen cyanide

Further information:
- Flammable liquid and vapor.
- Use water spray to cool unopened containers.

Special protective equipment for fire-fighters:
- Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
- Use personal protective equipment.
- Local authorities should be advised if significant spillages cannot be contained.

Environmental precautions:
- Avoid release to the environment.

Methods and materials for containment and cleaning up:
- Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).
- After cleaning, flush away traces with water.
- Eliminate all ignition sources if safe to do so.

SECTION 7. HANDLING AND STORAGE

Advice on protection against:
- None known.
fire and explosion

Advice on safe handling:
- Do not swallow.
- Wash thoroughly after handling.
- Keep away from fire (No Smoking).
- Keep away from fire, sparks and heated surfaces.
- Do not use sparking tools.

Conditions for safe storage:
- Keep container closed when not in use.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-butyronitrile</td>
<td>109-74-0</td>
<td>TWA</td>
<td>8 ppm 22 mg/m³</td>
<td>NIOSH REL</td>
</tr>
</tbody>
</table>

Engineering measures:
- Ensure adequate ventilation.

Personal protective equipment

Respiratory protection:
- Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Hand protection

Remarks:
- Wear suitable gloves.

Eye protection:
- Safety glasses

Protective measures:
- Remove respiratory and skin/eye protection only after vapors have been cleared from the area.
- Ensure that eye flushing systems and safety showers are located close to the working place.
- Use personal protective equipment as required.

Hygiene measures:
- Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:
- liquid

Color:
- colorless

Odor:
- bitter almond

Odor Threshold:
- not determined
SAFETY DATA SHEET

Eastman(TM) n-Butyronitrile

Version 2.1
Revision Date: 02/20/2019
SDS Number: 150000000149
SDSUS / Z8 / 0001

Date of last issue: 09/06/2016
Date of first issue: 09/06/2016

SECTION 10. STABILITY AND REACTIVITY

Reactivity: Stable
Chemical stability: Stable under normal conditions.
Possibility of hazardous reactions: Stable
Conditions to avoid: Heat, flames and sparks.

pH: not determined
Melting point/freezing point: -170 °F / -112 °C
Boiling point/boiling range: 241 °F / 116 °C
Flash point: 70 °F / 21 °C
   Method: Tag closed cup
Evaporation rate: not determined
Upper explosion limit / Upper flammability limit: not determined
Vapor pressure: 19.7 mbar (68 °F / 20 °C)
Relative vapor density: 2.4
Relative density: 0.794 (68 °F / 20 °C)
Solubility (ies)
   Water solubility: Moderate
Partition coefficient: n-octanol/water: No data available
Autoignition temperature: 910 °F / 488 °C
   Method: ASTM D2155
Decomposition temperature: Method: DTA
   No exotherm to 450°C
Viscosity
   Viscosity, dynamic: 0.57 mPa.s (68 °F / 20 °C)
   Viscosity, kinematic: not determined
Explosive properties: No data available
Oxidizing properties: No data available
Incompatible materials: Strong oxidizing agents

Hazardous decomposition products:
- Carbon dioxide (CO2)
- Carbon monoxide
- Cyanides
- Oxides of nitrogen.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity
Toxic if swallowed or if inhaled.

Product:
- Acute oral toxicity: LD50 Oral (Rat): 350 mg/kg
  Method: OECD Test Guideline 425
- Acute inhalation toxicity: LC50 (Rat): > 1200 ppm
  Exposure time: 1 h
- Acute dermal toxicity: LD50 Dermal (Rat): > 2,000 mg/kg
  Method: OECD Test Guideline 402

Skin corrosion/irritation
Not classified based on available information.

Product:
- Species: Guinea pig
- Exposure time: 24 h
- Assessment: Not classified
- Method: Acute Dermal Irritation / Corrosion
- Result: slight

Serious eye damage/eye irritation
Not classified based on available information.

Product:
- Species: Rabbit
- Result: slight
- Method: Acute Eye Irritation / Corrosion

Respiratory or skin sensitization

Skin sensitization
Not classified based on available information.

Respiratory sensitization
Not classified based on available information.

Product:
- Remarks: No data available
Germ cell mutagenicity
Not classified based on available information.

Product:
Genotoxicity in vitro: Test Type: Salmonella typhimurium assay (Ames test)
Metabolic activation: +/- activation
Method: Bacterial Reverse Mutation Assay
Result: negative

Test Type: Mutagenicity - Mammalian
Metabolic activation: +/- activation
Method: In vitro Mammalian Cell Gene Mutation Test
Result: negative

Carcinogenicity
Not classified based on available information.

Product:
Remarks: This information is not available.

IARC
No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA
No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

NTP
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity
Not classified based on available information.

Product:
Effects on fertility: Remarks: No data available

STOT-single exposure
Not classified based on available information.

Product:
Remarks: No data available

STOT-repeated exposure
Not classified based on available information.

Product:
Remarks: No data available

Aspiration toxicity
Not classified based on available information.

Product:
No aspiration toxicity classification
Information on likely routes of exposure

**Product:**

Inhalation  Remarks: Toxic if inhaled.

Skin contact Remarks: None known.

Eye contact Remarks: None known.

Ingestion Remarks: Toxic if swallowed.

Further information

**Product:**

Remarks None known.

SECTION 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

No data available

**Persistence and degradability**

No data available

**Bioaccumulative potential**

No data available

**Mobility in soil**

No data available

**Other adverse effects**

**Product:**

Ozone-Depletion Potential Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

SECTION 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

Waste from residues Dispose of in accordance with local regulations.

SECTION 14. TRANSPORT INFORMATION

International Regulations
IATA-DGR
UN/ID No. : UN 2411
Proper shipping name : Butyronitrile
Class : 3
Subsidiary risk : 6.1
Packing group : II
Labels : Flammable Liquids, Toxic
Packing instruction (cargo aircraft) : 364
Packing instruction (passenger aircraft) : 352

IMDG-Code
UN number : UN 2411
Proper shipping name : BUTYRONITRILE
Class : 3
Subsidiary risk : 6.1
Packing group : II
Labels : 3 (6.1)
EmS Code : F-E, S-D
Marine pollutant : no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Domestic regulation

49 CFR
UN/ID/NA number : UN 2411
Proper shipping name : Butyronitrile
Class : 3
Subsidiary risk : 6.1
Packing group : II
Labels : Class 3 - Flammable Liquid, Class 6 - Toxic Substance (Division 6.1)
ERG Code : 131
Marine pollutant : no

Special precautions for user
The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.
Eastman(TM) n-Butyronitrile

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Component TPQ (lbs)</th>
</tr>
</thead>
</table>
| SARA 311/312 Hazards | | Fire Hazard
| | | Acute Health Hazard
| SARA 313 | | This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act
This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

California Prop. 65
This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

The ingredients of this product are reported in the following inventories:

- **TSCA**: On TSCA Inventory
- **DSL**: All components of this product are on the Canadian DSL
- **AICS**: On the inventory, or in compliance with the inventory
- **ENCS**: On the inventory, or in compliance with the inventory
- **KECI**: On the inventory, or in compliance with the inventory
- **PICCS**: On the inventory, or in compliance with the inventory
- **IECSC**: On the inventory, or in compliance with the inventory

**TSCA list**
No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.
SECTION 16. OTHER INFORMATION

Further information

NFPA 704:

- **Flammability**: 3
- **Health**: 0
- **Physical Hazards**: 3

HMIS® IV:

- **Health**: 2
- **Flammability**: 3
- **Physical Hazard**: 0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

- NIOSH REL: USA. NIOSH Recommended Exposure Limits
- NIOSH REL / TWA: Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECS - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECl - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic Substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.