SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision Date 09-Sep-2020
Version 2.02

Section 1: PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product name</th>
<th>Butyl Isocyanate(n-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product code</td>
<td>022-07603,026-07601</td>
</tr>
</tbody>
</table>

Manufacturer
FUJIFILM Wako Pure Chemical Corporation
1-2 Dosho-machi 3-Chome
Chuo-ku, Osaka 540-8605, Japan
Phone: +81-6-6203-3741
Fax: +81-6-6203-5964

Supplier
FUJIFILM Wako Pure Chemical Corporation
1-2 Dosho-machi 3-Chome, Chuo-ku, Osaka 540-8605, Japan
Phone: +81-6-6203-3741
Fax: +81-6-6203-2029

Emergency telephone number
+81-6-6203-3741 / +81-3-3270-8571

Recommended uses and restrictions on use
For research purposes

Section 2: HAZARDS IDENTIFICATION

GHS classification
Classification of the substance or mixture
Flammable liquids Category 2
Acute toxicity - Oral Category 4
Acute toxicity - Inhalation (Vapors) Category 1
Skin corrosion/irritation Category 1
Serious eye damage/eye irritation Category 1
Skin sensitization Category 1
Specific target organ toxicity (single exposure) Category 1
   respiratory system
Short-term (acute) hazardous to the aquatic environment Category 3

Pictograms

Signal word
Danger

Hazard statements
H225 - Highly flammable liquid and vapor
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H302 - Harmful if swallowed
H330 - Fatal if inhaled
H317 - May cause an allergic skin reaction
H402 - Harmful to aquatic life
H370 - Causes damage to the following organs: respiratory system

Precautionary statements-(Prevention)
• Wash face, hands and any exposed skin thoroughly after handling
• Do not eat, drink or smoke when using this product
• Do not breathe dust/fume/gas/mist/vapors/spray
• Wear protective gloves/protective clothing/eye protection/face protection
• Contaminated work clothing should not be allowed out of the workplace
• Avoid release to the environment
• Keep away from heat/sparks/open flames/hot surfaces. — No smoking
• Keep container tightly closed
• Ground/bond container and receiving equipment
• Use explosion-proof electrical/ventilating/lighting/equipment
• Use only non-sparking tools
• Take precautionary measures against static discharge

Precautionary statements-(Response)
• IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
• Immediately call a POISON CENTER or doctor/physician
• IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
• Wash contaminated clothing before reuse.
• If skin irritation or rash occurs: Get medical advice/attention
• IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
• IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
• Rinse mouth.
• Do NOT induce vomiting.
• In case of fire: Use CO2, dry chemical, or foam for extinction

Precautionary statements-(Storage)
• Store locked up.
• Store in a well-ventilated place. Keep cool

Precautionary statements-(Disposal)
• Dispose of contents/container to an approved waste disposal plant

Others
Other hazards Not applicable

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Single Substance or Mixture Substance

Formula CH₃(CH₂)₃NCO

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Weight-%</th>
<th>Molecular weight</th>
<th>ENCS</th>
<th>ISHL No.</th>
<th>CAS RN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butyl isocyanate</td>
<td>95.0</td>
<td>99.13</td>
<td>(2)-1690</td>
<td>公表</td>
<td>111-36-4</td>
</tr>
</tbody>
</table>

Impurities and/or Additives : Not applicable

Section 4: FIRST AID MEASURES

Inhalation
Remove to fresh air. If symptoms persist, call a physician.

Skin contact
Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.

Eye contact
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.

Ingestion
Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Do not induce vomiting without medical advice.

Protection of first-aiders
Use personal protective equipment as required.

Section 5: FIRE FIGHTING MEASURES
Suitable extinguishing media
Water spray (fog), Carbon dioxide (CO2), Foam, Extinguishing powder, Sand

Unsuitable extinguishing media
No information available

Specific hazards arising from the chemical product
Thermal decomposition can lead to release of irritating and toxic gases and vapors. Vapors may form explosive mixtures with air

Special extinguishing method
No information available

Special protective actions for fire-fighters
Use personal protective equipment as required. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
For indoor, provide adequate ventilation process until the end of working. Deny unnecessary entry other than the people involved by, for example, using a rope. While working, wear appropriate protective equipments to avoid adhering it on skin, or inhaling the gas. Work from windward, and retrait the people downwind.

Environmental precautions
To be careful not discharged to the environment without being properly handled waste water contaminated.

Methods and materials for contaminant and methods and materials for cleaning up
Absorb dry sand, earth, sawdust and the waste. Collect empty container that can be sealed.

Recovery, neutralization
No information available

Secondary disaster prevention measures
Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE

Handling
Technical measures
Highly flammable. Avoid contact with high temperature objects, spark, and strong oxidizing agents. Use with local exhaust ventilation.

Precautions
Do not rough handling containers, such as upsetting, falling, giving a shock, and dragging. Prevent leakage, overflow, and scattering. Not to generate steam and dust in vain. Seal the container after use. After handling, wash hands and face, and then gargle. In places other than those specified, should not be smoking or eating and drinking. Should not be brought contaminated protective equipment and gloves to rest stops. Deny unnecessary entry of non-emergency personnel to the handling area.

Safety handling precautions
Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

Storage
Safe storage conditions
Storage conditions
Keep container protect from light, store in well-ventilated place at room temperature (preferably cool). Keep container tightly closed. Packed with an inert gas.

Safe packaging material
Glass

Incompatible substances
Strong oxidizing agents

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls
In case of indoor workplace, seal the source or use a local exhaust system. Provide the safety shower facility, and hand- and eye-wash facility. And display their position clearly.
Exposure limits
This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Personal protective equipment
- Respiratory protection: gas mask for organic gas
- Hand protection: Impermeable protective gloves
- Eye protection: protective eyeglasses or chemical safety goggles
- Skin and body protection: Long-sleeved work clothes

General hygiene considerations
Handle in accordance with good industrial hygiene and safety practice.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Form
- Color: Colorless - yellow
- Turbidity: clear
- Appearance: liquid

Odor: Pungent odor, Lachrymator

Melting point/freezing point: <-70 °C
Boiling point, initial boiling point and boiling range: 115 °C
Flammability: Highly flammable liquid and vapor
Evaporation rate: No data available
Flammability (solid, gas): No data available
Upper/lower flammability or explosive limits: No data available
Upper: No data available
Lower: No data available
Flash point: 17 °C
Auto-ignition temperature: No data available
Decomposition temperature: No data available
pH: No data available
Viscosity (coefficient of viscosity): No data available
Dynamic viscosity: No data available
Solubilities: water decomposed with .
n-Octanol/water partition coefficient:(log Pow): No data available
Vapour pressure: No data available
Specific Gravity / Relative density: 0.886 - 0.896 g/mL
Vapour density: No data available
Particle characteristics: No data available

Section 10: STABILITY AND REACTIVITY

Stability
Reactivity: No data available
Chemical stability: May be altered by light. Decomposed by the absorption of moisture.

Hazardous reactions
None under normal processing

Conditions to avoid
- Extremes of temperature and direct sunlight, Heat, flames and sparks, static electricity, spark

Incompatible materials
- Strong oxidizing agents

Hazardous decomposition products
- Carbon monooxide (CO), Carbon dioxide (CO2), Nitrogen oxides (NOx)

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butyl isocyanate</td>
<td>360 mg/kg  ( Rat )</td>
<td>N/A</td>
<td>59 mg/m³ ( Rat ) 4 h</td>
</tr>
</tbody>
</table>
Chemical Name | Acute toxicity -oral- source information | Acute toxicity -dermal- source information | Acute toxicity -inhalation gas-source information
--- | --- | --- | ---
Butyl isocyanate | Based on the NITE GHS classification results. | Based on the NITE GHS classification results. | Based on the NITE GHS classification results.

| Chemical Name | Acute toxicity -inhalation vapor-source information | Acute toxicity -inhalation dust-source information | Acute toxicity -inhalation mist-source information
--- | --- | --- | ---
Butyl isocyanate | Based on the NITE GHS classification results. | Based on the NITE GHS classification results. | Based on the NITE GHS classification results.

**Skin irritation/corrosion**

| Chemical Name | Skin corrosion/irritation source information
--- | ---
Butyl isocyanate | Based on the NITE GHS classification results.

**Serious eye damage/irritation**

| Chemical Name | Serious eye damage/irritation source information
--- | ---
Butyl isocyanate | Based on the NITE GHS classification results.

**Respiratory or skin sensitization**

| Chemical Name | Respiratory or Skin sensitization source information
--- | ---
Butyl isocyanate | Based on the NITE GHS classification results.

**Reproductive cell mutagenicity**

| Chemical Name | Germ cell mutagenicity source information
--- | ---
Butyl isocyanate | Based on the NITE GHS classification results.

**Carcinogenicity**

| Chemical Name | Carcinogenicity source information
--- | ---
Butyl isocyanate | Based on the NITE GHS classification results.

**Reproductive toxicity**

| Chemical Name | Reproductive toxicity source information
--- | ---
Butyl isocyanate | Based on the NITE GHS classification results.

**STOT-single exposure**

| Chemical Name | STOT -single exposure- source information
--- | ---
Butyl isocyanate | Based on the NITE GHS classification results.

**STOT-repeated exposure**

| Chemical Name | STOT -repeated exposure- source information
--- | ---
Butyl isocyanate | Based on the NITE GHS classification results.

**Aspiration hazard**

| Chemical Name | Aspiration Hazard source information
--- | ---
Butyl isocyanate | Based on the NITE GHS classification results.

### Section 12: ECOLOGICAL INFORMATION

**Ecotoxicity**

No information available

**Other data**

| Chemical Name | Short-term (acute) hazardous to the aquatic environment source information | Long-term (chronic) hazardous to the aquatic environment source information
--- | --- | ---
Butyl isocyanate | Based on the NITE GHS classification results. | Based on the NITE GHS classification results.

**Persistence and degradability**

No information available

**Bioaccumulative potential**

No information available

**Mobility in soil**

No information available

**Hazard to the ozone layer**

No information available

### Section 13: DISPOSAL CONSIDERATIONS

**Waste from residues**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

**Contaminated container and contaminated packaging**

W01W0102-0760 JGHEEN Butyl Isocyanate(n-)

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Section 14: TRANSPORT INFORMATION

ADR/RID
UN number                      UN2485
Proper shipping name:          n-Butyl Isocyanate
UN classification              6.1
Subsidiary hazard class        3
Packing group                  I
Marine pollutant               Not applicable

IMDG
UN number                      UN2485
Proper shipping name:          n-Butyl Isocyanate
UN classification              6.1
Subsidiary hazard class        3
Packing group                  I
Marine pollutant (Sea)         Not applicable
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
No information available

IATA
UN number                      UN2485
Proper shipping name:          n-Butyl Isocyanate
UN classification              6.1
Subsidiary hazard class        3
Packing group                  Environmentally Hazardous Substance
Marine pollutant               Not applicable

Section 15: REGULATORY INFORMATION

International Inventories
EINECS/ELINCS listed
TSCA listed

Japanese regulations
Fire Service Act
Poisonous and Deleterious Substances Control Law
Industrial Safety and Health Act
Regulations for the carriage and storage of dangerous goods in ship
Civil Aeronautics Law
Pollutant Release and Transfer Register Law
Export Trade Control Order
Category IV, Class I petroleum, dangerous grade 2
Dangerous Substances - Flammable Substance (Enforcement Order Attached Table 1 Item 4)
Toxic Substances - Poison (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)
Forbidden (Ordinance Art.194)
Not applicable

Section 16: OTHER INFORMATION

Key literature references and sources for data etc.
NITE: National Institute of Technology and Evaluation (JAPAN)
http://www.safe.nite.go.jp/japan/db.html
IATA dangerous Goods Regulations
RTECS: Registry of Toxic Effects of Chemical Substances
Japan Industrial Safety and Health Association GHS Model SDS
Chemical Dictionary, Kyoritsu Publishing Co., Ltd.
etc
Disclaimer
This SDS is according to JIS Z 7253: 2019. The information provided in this 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, 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.
GHS Classification is according to JIS Z7252(2019). *JIS: Japanese Industrial Standards

End of Safety Data Sheet