

B·N Co., Ltd.

May. 19th. 2023

SAFETY DATA SHEET

1. Chemical Product and Company Identification

Product Name : Chafing Fuel
 Product Code :
 Company name : B·N Co., Ltd.
 Address : 2-7-6 Shigino-nishi Jyoto-ku Osaka City Japan
 Telephone : +(81)-6-6962-2781
 Fax : +(81)-6-6963-3765
 e-mail address : m_baba@b-n.co.jp
 Emergency Telephone : +(81)-6-6962-2781
 RECOMMENDED USE OF : Fuel

2. Hazard Identification

GHS Classification of the Substance or Mixture

PHYSICAL HAZARDS

• Flammable liquids : Not classified

HEALTH HAZARDS

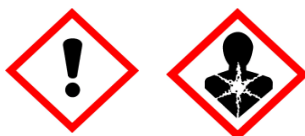
• Acute toxicity (Inhalation: Mist) : Category 4
 • Skin corrosive / Irritation : Category 2
 • Serious eye damage/eye irritation : Category 2B
 • Specific target organ toxicity;single exposure : Category 1
 (central nervous system, Kidney,
 blood system)
 (Respiratory tract irritation, narcotic effect) : Category 3

ENVIRONMENTAL HAZARDS

• Hazardous to the aquatic environment (ACUTE) : Not classified

GHS LABEL ELEMENTS INCLUDING PRECAUTIONARY STATEMENTS

SYMBOL:



SIGNAL WORD: Danger

HAZARDS STATEMENT : Toxic if inhaled mist.
 Causes skin irritation
 Causes eye irritation

Causes damage to organs(central nervous system, Kidney, blood system)

May cause respiratory irritation

May cause drowsiness or dizziness

PRECAUTIONARY STATEMENTS

【Prevention】

- Do not handle until all safety precautions have been read and understood.
- Obtain special instructions before use.
- Do not eat, drink, or smoke when using this product.
- Use personal protective equipment or ventilators to avoid exposure.
Wear protective gloves/safety glasses/protective mask.
- Use only outdoors or in a well-ventilated area.
- Do not breathe mist/vapor/spray. Wash hands thoroughly after handling.

【Emergency measures】

- In the event of fire, use suitable fire fighting procedures.
- After inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing.
- After eye contact: Rinse cautiously with water for several minutes.
- Rinse without contact lenses if they can easily be removed.
- In case of skin contact: Wash with plenty of soap and water.
- In case of skin (or hair) contact: Remove/take off immediately all contaminated clothing. Wash contaminated clothing before reuse.
- If skin irritation occurs, seek medical advice/attention.
- If exposed or concerned: Get medical advice/attention.
- If eye irritation persists, get medical advice/attention.
- Get medical advice/attention, if you feel unwell.

【Storage】

- Keep containers locked up and tightly closed, and store in a well-ventilated, cool place.

【Disposal】

- Disposal of contents and containers should be entrusted to a waste disposal company.

3. Composition/Information on Ingredients

SUBSTANCE/MIXTURE :

CHEMICAL NAME :

CHEMICAL NAME	% (W/W)	Cas No.	ENCS	Synonyms
Ethylene glycol	90~100%	107-21-1	(2)-230	Ethane-1, 2-diol

4. FIRST AID MEASURES

After inhalation

- Immediately move into fresh air and keep at rest in a position comfortable for

breathing. Keep quiet and warm. Seek medical advice.

- Make person affected blow their nose and gargle. In the event of weak respiration or cessation of breathing, loosen the person's clothes, and maintain their air passages open. If the person is breathing and vomiting, turn the head sideways.
- If the person is unconscious, do not give them anything to drink, and do not cause them to vomit.
- Even if there are no immediate symptoms, be sure to seek medical advice.

In case of skin contact

- Immediately remove contaminated clothing and shoes, thoroughly wash the affected area with soap and plenty of water, and seek medical advice.
- Even if there is no pain or change in appearance, be sure to seek medical advice, as problems may develop later.
- Wash contaminated clothing before reuse.

After eye contact

- Immediately rinse with plenty of water for at least 15 minutes, and seek medical advice. If not fixed, remove contact lenses before rinsing.
- Open the eyelids with the fingers and rinse so that water can spread over the eyeballs and eyelids.
- Delayed or inadequate rinsing may result in eye injuries.
- Even if there is no immediate pain, be sure to undergo examination by an ophthalmologist, as problems may develop later.

After swallowing

- Wash mouth thoroughly and seek medical attention immediately.
- Cover the body with blankets etc. for warmth and direct person to rest quietly.
- Seek immediate medical advice.
- If the person is unconscious, do not give them anything to drink, and do not cause them to vomit.
- Even if there are no symptoms, be sure to seek medical advice.

Possible acute and delayed symptoms

- Cough, headache, dizziness, shortness of breath, vomiting, diarrhea, stomach ache, and unconsciousness.
- Since symptoms may develop later, medical follow-up is necessary.

Most important signs and symptoms

Protection for person performing first aid

- When removing the contaminated clothing or protective equipment of the person affected, gloves etc. should be worn in order to avoid contact with hazardous substances.
- Protective equipment suitable for the situation should be worn.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

- Water spray fog Alcohol resistance foam, carbon dioxide, dry chemical powder.

Prohibited extinguishing media

- Straight streams.

Specific hazards during fire fighting

- Containers may explode when heated. Fire may produce toxic gases (See "10. Stability and reactivity"). Risk of fire and explosion on contact with incompatible materials.

Specific fire fighting methods

- If possible, fight fire from protected position. Keep upwind. Keep unauthorized personnel away. If possible, remove containers exposed to heat or cool with water. Do not scatter spilled material with high pressure water streams. Dike fire water for later disposal; do not spread the material.

Protection for firefighters

- Wear regional, national, and local standards approved fire fighting turnout gear and positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Structural firefighters' protective clothing will only provide limited protection from heat, and may not provide adequate protection from the harmful vapors or liquids.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment, and emergency measures**

- Wear appropriate protective equipment. Use personal protection recommended in "8. Exposure control/personal protection". Isolate spill or leak area for proper distance in all directions. Provide adequate ventilation. Keep upwind. Do not touch or walk through spilled material. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Keep out of low areas.

Environmental precautions

- Prevent entry spilled material and runoff from spillage control into waterways, sewers, basements or confined areas. Avoid release to the environment.

Recovery/ neutralization

- Stop leak if possible without any risk. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in dry earth, sand or other non-combustible material and remove to safe place. Use clean non-sparking tools to collect absorbed material. For large spill, dike far ahead of liquid spill for later disposal. See "13. Disposal considerations".

Prevention of secondary accidents

- Use explosion-proof electrical equipment and lighting. Use clean non-sparking tools. For large spill; Consider initial downwind evacuation for proper distance

7. HANDLING AND STORAGE**Handling****Technical measures**

- Handle in closed system. Eliminate all ignition sources! Use explosion-proof

electrical/ventilating/lighting/equipment. DO NOT use compressed air for filling, discharging, or handling!

Local/overall ventilation

- Ventilate by appropriate method. (See "8. Exposure control/personal protection")
Install appropriate equipment and wear appropriate protective clothing.
(See "8. Exposure control/personal protection")

Advice on safe handling

- Wash hands and face thoroughly after handling. Eating, drinking and smoking in work areas is prohibited. Contaminated work clothing should not be allowed out of the workplace. No smoking.
Keep containers tightly closed.

Avoiding contact

- See "10. Stability and reactivity."

Storage

Technical measures

- Well ventilate by proper manner according to regional, national and local regulations. Protect against direct sunlight. Keep in a fire-proof designed place.

Storage conditions

- Separate from incompatible materials. See "10. Stability and reactivity". Keep away from food and feedstuffs. Keep in a cool place.

Incompatible substances

- See "10. Stability and reactivity."

Container/ packaging materials

- Use container ruled in laws and regulations regarding this product in each country.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS

Component(s)	ACGIH	Remarks
Ethylene glycol	50ppm	

Engineering controls

- Use a system of local and/or general exhaust to maintain product vapor, mist concentrations in air below occupational exposure standards. Wear gas respirators or positive pressure self-contained breathing apparatus (SCBA) in an emergency (e.g. unavailability of adequate ventilation, generation of mist or aerosol) and in emergency procedures and cleaning for accidental release. Personal protective equipment (PPE) should be chosen only according to specific regulatory requirements. Maintain eye wash fountain and quick-drench facilities in work area.

Protective equipment

Respiratory protection

- Breathing protective equipment should be chosen only according to specific regulatory requirements. Wear positive pressure self-contained

breathing apparatus (SCBA) in circumstance above occupational exposure standards for dust including emergency procedures and cleaning for accidental release.

Hand protection

- Hand protective equipment should be chosen only according to specific regulatory requirements. Impervious gloves.

Eye protection

- Eye protective equipment should be chosen only according to specific regulatory requirements. Chemical safety goggles

Skin and body protection

- Suitable impervious protective clothing, including protective footwear, gloves, lab coat, apron or coveralls.

Hygiene measures

- Avoid inhalation of mist. Avoid contact with skin and eyes. Do not eat, drink or smoke during work. Wash thoroughly after handling and before eating or drinking.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Clear colorless liquid
 Odor : Odorless
 Specific gravity : 1.116
 Solubility : Easily soluble in water, Organic solvent.

Melting point/Boiling point/Flash point/Upper/lower explosivelimits/

Vapor pressure/Spontaneous ignition temperature indicates the value of the component element because there is no data as a product

Melting point	-13°C
Boiling point	198°C
Flash point	111°C
Upper/lower explosivelimits	3.2vol%~15.3vol%
Vapor pressure	7Pa
Spontaneous ignition temperature	398°C

10. STABILITY AND REACTIVITY

Stability

- Stable under normal ambient temperature and pressure.

Possible hazardous reactions

- Reacts with strong oxidants and strong bases.

Conditions to avoid

- No data.

Incompatible substances

- Strong oxidizers, strong bases.

Hazardous decomposition products

- Combustion produces irritating gases.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Inhalation:Mist

- Rat LC50 value (1 hour) is 10.9 mg/L (4 hour conversion value: 2.7 mg/L)Based on (PATTY (6th, 2012)), it was set as "Category 4".

Skin corrosion/irritation

- In a patch test on 103 humans, 0.2 mL of undiluted solution showed irritation. (SIDS (2009)), it was classified as "Category 2".

Serious eye damage/eye irritation

- As a human accident example, as a result of eye exposure to this substance (concentration unknown), conjunctivitis, edema,Delayed light reflexes and severe keratitis were observed, but were reported to have resolved after 4 weeks. (DFGOT vol.4 (1992)), but details such as concentration are unknown. Based on the above results, it was set as "Category 2B".

Specific target organ systemic toxicity after single exposure

- In humans, the toxic effects after oral ingestion are mainly divided into the following three stages.Phase 1 (0.5-12 hours after ingestion): effects on the central nervous system (intoxication, lethargy, convulsions, coma) and metabolic disorders (acidosis, hyperkalemia, hypocalcemia), Phase 2 (12-24 hours after ingestion) Cardiac and pulmonary effects (tachycardia, hypertension, compensatory hyperventilation) severe metabolic acidosis, hypoxic congestive heart failure, adult respiratory distress syndrome), Phase 3 (24-72 hours after ingestion): Nephrotoxicity (calcium oxalate deposition, hematuria, acute urinary Tubular necrosis, renal failure) (SIDS (2009) CEPA (2000), Ministry of the Environment Risk Assessment Volume 3(2004)). In addition, effects seen 6-14 days after ingestion, or later, and a fourth stage, in addition to central nervous system effects, neurological effects (facial palsy, unknown (including slurred speech, loss of motor skills, and visual impairment) were observed, suggesting cranial nerve damage. (NITE initial risk assessment report (2007), ACGIH (7th, 2001), DFGOTvol.4 (1992)).

In addition, the lethal dose by oral ingestion in humans is About 0.4-1.3g/kgbw (CEPA (2000)) and 1.6g/kgbw (SIDS (2009) NITE Initial Risk Assessment Report(2007), ACGIH (7th, 2001)). Although there is little information on the route of inhalation in humans,At 55ppm exposure, throat and upper respiratory tract pain started 1.5 minutes later, and at 79ppm and above,There are reports of severe pain (NITE Initial Risk Assessment Report (2007), ACGIH (7th, 2001)).In the inhalation route, 1.5 minutes after the start of inhalation in a 55ppm inhalation exposure test by volunteers There is pain in the throat and upper respiratory tract from the upper respiratory tract.It was intolerable (NITE Initial Risk Assessment (2007), ACGIH (7th, 2001)). Rat, in mice, there was a dose-related central nervous system depressant effect, Drowsiness, paralysis, ataxia, and death.

In addition, tachycardia, tachypnea, bronchopneumonia, pulmonary edema, Congestive heart failure, metabolic acidosis, polydipsia with renal impairment, polyuria, urinary urine Calcium borate crystal precipitation has been reported.

Histopathologically, calcium oxalate Degeneration of the renal tubular epithelium due to crystalline deposits, interstitial edema, and hemorrhagic necrosis of the renal cortex were observed. (NITE Initial Risk Assessment Report (2007) SIDS (2009) CEPA (2000), ACGIH (7th, 2001)). These effects are not recognized within the scope of the guidance value category. Based on the above, it was classified as "Category 1 (central nervous system, blood system, kidney)" and "Category 3 (respiratory tract irritation, narcotic effect)".

12. ECOLOGICAL INFORMATION

Hazardous to the aquatic environment (ACUTE)

- Medaka LC50 (96hr) > 100mg/L
- Daphnia magna EC50 (48hr) > 1120mg/L
- Pseudokirchneriella subcapitata ErC50 (72hr) > 1000mg/L

Hazardous to the aquatic environment (CHRONIC)

- Rapidly degradable. (BOD resolution after 14 days: 90% (existing inspection, 1988))
- Water soluble.

13. DISPOSAL CONSIDERATIONS

Comply with the applicable laws and regulations regarding this product in each country.

14. TRANSPORT INFORMATION

International regulations

Maritime regulation information

- Follow IMO rules.
- UN No. : Not regulated.
- Proper Shipping Name : Not regulated.
- UN Hazard Class : Not regulated.
- UN Subsidiary Risk : Not regulated.
- UN Packing Group : Not regulated.
- Marine Pollutant : Not regulated.

Aviation regulation information

- Follow ICAO/IATA rules.
- UN No. : Not regulated.
- Proper Shipping Name : Not regulated.
- UN Hazard Class : Not regulated.
- UN Subsidiary Risk : Not regulated.
- UN Packing Group : Not regulated.

Domestic regulations

Onshore regulation information

- Follow provisions of Fire Service Act.
- UN No. : Not regulated.
- Proper Shipping Name : Not regulated.
- UN Hazard Class : Not regulated.
- UN Subsidiary Risk : Not regulated.
- UN Packing Group : Not regulated.
- Marine Pollutant : Not regulated.

Maritime regulation information

- Follow provisions of Ship Safety Act.
- UN No. : Not regulated.
- Proper Shipping Name : Not regulated.
- UN Hazard Class : Not regulated.
- UN Subsidiary Risk : Not regulated.
- UN Packing Group : Not regulated.

Aviation regulation information

- Follow provisions of Civil Aeronautics Act.
- UN No. : Not regulated.
- Proper Shipping Name : Not regulated.
- UN Hazard Class : Not regulated.
- UN Subsidiary Risk : Not regulated.
- UN Packing Group : Not regulated.

Special safety measures

- Load dangerous substances in a manner that prevents them from falling, and which ensures that their transportation containers do not fall over, fall, or become damaged.
- Transport dangerous substances in a manner that prevents their containers from subjecting them to significant friction or shaking.
- When, during transportation of dangerous substances, the possibility arises of a disaster occurring (e.g. due to substantial leakage of a dangerous substance), take emergency preventative measures and inform the nearest fire department and other relevant agencies.
- When transporting dangerous substances, load them in a manner that prevents damage, corrosion, or leakage of their containers, protect from direct sunlight, and be sure to prevent collapse of the cargo. Do not pile heavy objects on top of the containers.
- Do not transport together with food or animal feed.

15. REGULATORY INFORMATION

Comply with the applicable laws and regulations regarding this product in each country.

16. OTHER INFORMATION

The reference company name of written contents

1 : Cosmo Yuka Co. Ltd.

Disclaimer

This data sheet is based on currently available documents, information, and data, and does not provide definitive information on any of the contents, physicochemical properties, hazards, toxicity, or other details of the product. In addition, the precautions given in this document are based on ordinary handling. In special handling situations, implement safety measures suitable to the purpose and usage.