Ⓚ Kyungin Tech	Material Safety Data Sheet

1. Information about chemical products and company

1) Product name

Lithium Bromide

2) Recommended use of the product and restrictions on use

Recommended Use of the product

Wetting agent (Akron) used in air management system

Restriction on use for products

No data

3) Information about supplier (Register domestics supplier's information that we can contact in the case of import)

Company name

Kyungin Tech.

Address

614-1, Manyeon-ro, Jungnam-myeon, Hwaseong city, Gyeonggi-do, Korea.

Emergency Telephone No.

031- 366-1094

2. Hazardous and Dangerous

1) Classification about Hazardous and dangerous

Acute toxicity (oral) : Classification 4

2) Warning items including precautionary words

Pictorial symbol

Signal words

Caution

Harmful. Hazardous words

H302 : Harmful if swallowed

Precautions

P264 : Wash the handling part thoroughly after handling.

P270 : Don't eat, drink or smoke when using this product.

Countermeasure

P301+P312 : If swallowed, feel uncomfortable, please get medical treatment (doctor).

P330 : Wash your mouth.

Storage

No data

Discard

P501 : (according to contents described in the relevant laws and regulations) Please discard the contents.

3) Other Harmfulness. Hazard that are not included harmful and hazard classification standards (ex. danger of dust explosion)

No data

3. Titles of compositions & Content

Materials Name

Lithium Bromide

Nick name (Usual name)

L-117 :

Classification standard

Materials names	CAS No.	KE No.	EU No.	Contents
LiBr	7550-35-8	KE-22549	231-439-8	52-56%
Water	7732-18-5	KE-35400	231-791-2	44-48%

4. Method of Emergency measures

1) Get into eyes

Receive emergency medical treatment.

If you touch with the material, immediately wash skin and eyes with running water for more than 20 minutes.

2) When touched with skin

Shake the material off skin, and soak in cold water or wrap with a wet bandage.

Receive emergency medical treatment.

Remove contained clothing and shoes, Isolate contaminated area.

If you touch with the material, immediately wash skin and eyes with running water for more than 20 minutes.

In the case of light touched with skin, prevent the spread of contaminated areas.

3) If inhaled

Move to clean air.

Keep warm and stable.

4) If eaten

If swallowed, feel uncomfortable, please receive medical (doctor) treatment.

Please wash your mouth.

In case of eaten or inhalation, do not use artificial respiration by mouth-to-mouth resuscitation and use appropriate respiratory medical equipment.

5) Other doctor's precautions

Enure medical personnel are aware of the material and take protective measures.

5. Measures about explosion. fire

1) Proper (improper) fire extinguishing

Use alcohol foam, carbon dioxide or water spray when extinguishing with this material.
In the case of extinguishment by smothering, use dry sand or soil.

2) Specific harmful from chemicals

Generates flammable gas when contacting with water.
May explode containers when heating.
Leakage may burn/explode.
Generates inflammable gas when contacting with water.
May reignite after the extinguishing fire.
May fire some parts, but not ignited easily.
May ignite when it comes into contact with water or moist air.
Non-flammable, the material itself does not burn, but may decompose when heating to produce corrosive / toxic fumes.
During burning, irritating and very toxic gases may be generated

3) Protective equipment and precautions for fire-fighting

Rescuers should wear a proper protective equipment.
Keep safe distance way from the area and extinguished.
Be careful as it may melt and be transported.
Dig a ditch to dispose of extinguishing water and prevent material from.
If not risk, move containers from fire area.
When fired a tank, extinguish at maximum distance or use unmanned fire extinguisher.
Make sure that no water gets inside the container.
When fired a tank, cool a container with plenty amount of water after extinguishing.
When fired a tank, step back immediately in case of high-pitched in the pressure relief system or discoloration of a tank.
When fired a tank, step back from a tank in flames.
When fired a tank, use unmanned fire extinguisher in massive fire, if impossible, let it go back.
If impossible, step back and let it burn.

6. Measures in leakage accident

1) Necessary measures and protective equipment to protect human body

Wipe spills immediately and follow protective precautions.

Remove all ignition sources.
Use water mist to reduce steam, but make sure that no spills or water get into the container.
Reduce steam using water mist or do not touch water with the spilled material by flowing a vapor cloud.

Stop leakage if it's not dangerous.
Do not touch damaged containers or leakage without a proper protective clothing.
Do not clean or dispose of without professional supervision.
Stop to spread by covered with plastic sheet.
Pay attention to the materials and conditions to avoid.

2) Necessary measures to protect the environment

Prevent flow into waterways, drains, basements or enclosed areas.

3) Cleaning or removing method

Absorb spills with inert materials (e.g. dry sand or soil) and place in chemical waste containers.
Put chemical waste into the container.
Absorb liquid and wash contaminated areas with soap and water.
Cover with dry sand/soil or other non-combustible material and then cover with a plastic sheet to prevent diffusion and contact.
Dig a ditch and do not spray water unless instructed to do so.
In case of powder leakage, cover it with a plastic sheet to prevent diffusion and keep it dry.

7. Handling and storage method

1) Safe handling

Avoid contact with water as there was a potential for violent reaction and fire.
Handle in the presence of inert gas and prevent moisture.
Wash thoroughly after handling.
When use this product, do not eat, drink or smoke.
Do not pressurize, cut, weld, solder, bond, puncture, polish or expose to heat, flames, static electricity, or other sources of ignition.
Please follow all MSDS/ labelling precautions after emptying a container, because the product residue may remain.
Pay attention to the materials and conditions to avoid.
Work with engineering controls and personal protective equipment.

2) Safe storage method

Handle in the presence of inert gas and prevent moisture.
Store a dry place. Store a locked container.
Empty drums should be drained water completely and properly blocked and immediately returned to a drum control or placed properly.
Avoid food and drinks.

8. Prevent exposure and personal protective equipment

1) Exposure standard of chemicals, biological exposure standard, etc.

Domestic regulations

No data

ACGIH Regulations

Biological exposure standard

No data

Extra exposure standard

No data

2) Proper engineering management

Pleas install washing-up facility and safety shower at the stored or used equipments of this material.

3) Personal protective equipment

No data

Respiratory protection :

Wear a respiratory protective that is suitable to physical and chemical properties of the exposed particulate matter and recognized by Korea Occupational Safety Health Agency.

For particulate matter, the following respiratory protection is recommended.

Face filter type dust mask or air filter type dust mask (high efficiency particulate filter material) or electric fan adhesion prevention mask (filter material for dust, mist, fume)

In case of lack of oxygen (<19.6%), Please wear a breathing mask or self-contained breathing apparatus.

Eyes protection

Wear breathable safety goggles to protect your eyes from straight fractures that can cause eye irritation or other health hazards.

Install emergency washing facilities (shower type) and face-wash facilities in a location where workers can easily access.

Hands protection

Wear suitable protective gloves in consideration of the physical and chemical properties of the chemical.

Physical body protection

Wear suitable protective gloves in consideration of the physical and chemical properties of the chemical.

9. Physical and chemical properties

1) Externals

No data

Icon

Liquid

Colors
White

2) Smell
Odorless

3) Smell inverse
No data

4) PH
No data

5) Melting point/Freezing point
547℃

6) Initial boiling point and boiling range
153℃

7) Flashing point
29℃

8) Evaporating rate
No data

9) Flammability (Solid, Liquid)
No data

10) Upper / lower limit of flammable or explosive range
-/-

11) Steam pressure
50mmHg

12) Solubility
395000mg/L

13) Vapor density
No data

14) Specific gravity
3.464

15) n-Octanol/Water Partition Coefficient (Kow)

No data

16) Spontaneous Ignition Point

No data

17) Decomposition temperature

No data

18) Viscosity

No data

19) Molecular weight

86.85

10. Stability and Reactivity

1) Chemical stability and possibility of hazardous reactions

Generates flammable gas on contact with water.
Do not touch with water as it may cause violent reaction and fire.
Generates flammable gas when reacting violently with water.
May explode the container when heating.
Leaked material poses a fire/explosion hazard.
Generates flammable gas on contact with water.
May be re-ignited even after extinguishing.
Can be ignited by heat, sparks, or flames.
Some react violently with water.
Some are burn, but do not ignite easily.
May be ignited in case of touching water or humid air.
Non-flammable, material itself can dehydrate, but decompose when heated to generate corrosive/toxic/fume.
May form irritable, corrosive, toxic gas in fire.

2) Conditions to avoid

Moisture
Ignition sources such as Heat, Spark, flames

3) Materials to avoid

Do not touch with water as it may cause violent reaction and fire.
Handle in inert gas and prevent moisture.
Combustible material, reducing material.
Water

4) Hazardous Decomposition Products

Corrosive/toxic fumes

Irritable/corrosive, toxic gas

11. Information about toxic

1) Information about strong possibility of exposure routes

Respiratory exposure may cause irritation, ringing in the ears, nausea and vomiting.

Oral exposure may cause ringing in the ears, nausea and vomiting.

Touch with skin may cause corrosion and irritation in the mouth, esophagus, and mucous membranes.

May cause irritation when touching with eyes.

2) Information about health harmful

Acute toxic

Oral

LD50 1800mg/kg Experimental species : Rat (Rat LD50=1800mg/kg(NLM : ChemIDPlus))

Skin

No data

Inhale

No data

Skin corrosion or irritation

No data

Serious eyes damage or irritation

No data

Respiratory sensitization

No data

Skin sensitization

No data

Carcinogenicity

Occupational Safety and Health Act

No data

Notification by Ministry of Employment and Labor

No data

IARC

No data

OSHA

No data

ACGIH

No data

EU CLP

No data

Germ cell mutagenicity

No data

Reproduction-toxicity test

No data

Target organ/ Systemic toxic substances (one-time expose)

No data

Target organ/ Systemic toxic substances (repeated expose)

No data

Aspiration hazard

No data

Other harmful effects

No data

12. Effects on the environment

1) Ecotoxicity

Fish

No data

Crustacean

EC50 110 mg/ℓ 48hr Daphnia magna (21d-NOEC (Daphnia magna)=10mg/L (breeding))

Birds

ErC50 290 mg/ℓ 72hr Selenastrum capricornutum

(Bird (Selenastrum capricornitum) : 72h-NOEC=10mg/L(Growth rate))

2) Persistence and degradability

Persistence

No data

Degradability

No data

3) Bioaccumulation

Condenasability :

No data

Biodegradability

No data

4) Soil portability

0.477

5) Other harmful effect

No data

13. Precautions in disposal

1) Method of disposal

Discard contents and container according to waste related management regulations.

2) Precautions in disposal : Discard contents in the case of specified according to (related regulations of waste management.)

14. Information about Transportation

1) UN No.

No classification information about UN transport dangerous products

2) Proper Shipping names

N/A

3) Dangerous degree in Transportation in UN

N/A

4) UN container class

N/A

5) Marine pollutant

No data

6) Special safety measures that the user needs or needs to know about transport or means of transport

Emergency measures in fire

N/A

Emergency measures in spill

N/A

15. Lawful regulations states

1) Regulations by Occupation Safety and Health Acts.

N/A

2) Regulations by Toxic Chemicals Control Act.

N/A

3) Regulations by Safety Control of Dangerous Substance Act.

N/A

4) Regulations by Wastes Control Act.

N/A

5) Regulations by other domestic and foreign laws

Domestic regulations

Other domestic regulations

N/A

Foreign regulations

USA operation information (OSHA regulations)

N/A

USA operation information (CERCLA regulations)

N/A

USA operation information (EPCRA 302 regulations)

N/A

USA operation information (EPCRA 304 regulations)

N/A

USA operation information (EPCRA 313 regulations)

N/A

USA operation information (Rotterdam Convention Material)

N/A

USA operation information (Montreal Protocol Material)

N/A

EU classification information (Confirmed classification result)

N/A

EU classification information (Hazardous words)

N/A

EU classification information (Safety words)

N/A

16. Other references

1) Source of data

Akron Uni. (Smell)
Akron Univ. (Colors)
Akron Uni. (Icon)
Akron Univ. (Solubility)
Akron Uni. (Flashing point)
Akron Univ. (Vapor pressure)
NITE (Shellfish)
NITE (Melting point/Freezing point)
NITE (Specific gravity)
NITE (Birds)
NITE (Initial boiling point and boiling range)
NLM ; ChemIDPus; (Oral)
PUBCHEM (Molecular Weight)

2) Date of initial preparation

December 28, 2019

3) Number of revisions and final revision date

Number of revisions

No data

Final revision date

December 28, 2020

4) Other

No data