MATERIAL SAFETY DATA SHEET

Emergency Telephone Number
+82-63-260-1114 (24hours)

Established Data 2020.04.01

Revision No. : 1 – 02(Revision Date : 2021.04.01)

1. IDENTIFICATION

A. PRODUCT NAME

- Product Name : Biaxial Oriented Polypropylene Film
- Grade : Anti Scuff Thermal BOPP Film/DNS
- General Property : Non-Colored & Transparent Film

B. Recommended Use and Restriction on Use

General use : Pamphlet, Paper Bag, Paper Box

Restriction on Use : MEDICAL APPLICATION CAUTION

Do not use above mentioned DL FnC's Film material in medical applications involving permanent implantation in the human body or permanent contact with internal body fluids or tissues.

C. Information of Manufacturer/Supplier/Distributer

Manufacturer

Company Name : DL FnC Co., Ltd.
Address : 802. Gwahak-ro, Bongdong-Up, Wanju-Gun, Jeollabuk-do, Korea
Division in charge : Technical Team, DL FnC
Person in charge : Person in charge of MSDS
Telephone number : +82-63-260-1159
Fax number : +82-63-261-0149

Supplier/Distributer

Company Name : DL FnC Co., Ltd.
Address : 175, LS-RO, GUNPO-SI, GYEONGGI-DO, 15808 REP. OF KOREA
Division in charge : Film Sales
Person in charge : Person in Charge of Sales

Telephone number : +82-31-688-3421

Fax number : +82-70-7547-4201

2. HAZARD IDENTIFICATION

A. GHS Classification :

This product is not classified according to the UN GHS guideline as data is limited.

B. GHS label elements

Hazard symbols : Not available

Signal word : Not available

Hazard statement : Not available

Precautionary statements : Not available

C. Other hazards which do not result in classification :

NFPA Classification (0~4 steps) : Health=1, Flammability=1, Reactivity=0

Slipping Hazard. May causes irritation if contact with eyes, skin, mucous membranes. If contact with non-refrigerated product, may cause burns.

Eye Contact: Solid or dust may cause irritation or corneal injury due to mechanical action. Elevated temperatures may generate vapor levels sufficient to cause eye irritation. Effects may include discomfort and redness.

Skin Contact: Prolonged contact is essentially nonirritating to skin. Mechanical injury only. Under normal processing conditions, material is heated to elevated temperatures; contact with the material may cause thermal burns.

Skin Absorption: No adverse effects anticipated by skin absorption.

Inhalation: No adverse effects are anticipated from single exposure to dust. Vapors released During thermal processing may cause respiratory irritation.

Ingestion: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. May cause choking if swallowed.

3. COMPOSION/INFORMATION ON INGREDENTS

Product Grade	Chemical Name	CAS No. or Reference No.	Contents (%)
Polypropylene	1-Propene homopolymer	9003-07-0	71 ~ 91%
Polyethylene		9002-88-4	5 ~ 15%
Acrylic Copolymer			2 ~ 12%
Silica dioxide	Silica	112926-00-8	1% Under Max.
Common ingredients	Additive		1% Under Max.

4. FIRST-AID MESURES

A. Eye Contact :

Heated material : Immediately flush eyes with plenty of water at least 15 min. If on eyes, get medical advice for removing this material.

Refrigerated material : Immediately flush eyes with plenty of water or saline solution till remove perfectly. If eye irritation persists, get medical advice. Remove contact lenses, if worn.

B. Skin Contact :

Heated material : Remove immediately all contaminated clothing, flush the contact part with cool water at least 15 min. Call a physician. The use of vegetable oil or mineral oil is recommended for removal of this material from the skin.

Refrigerated material : Flush contaminated part with plenty of water and soap completely. Wash contaminated clothing before reuse. If experiencing symptoms, get medical advice.

C. Inhalation :

If inhaled, move victim to fresh air. Perform artificial respiration if stop breathing. Use supplied-oxygen respirator if difficulty in breathing. Call a physician if necessary.

D. Ingestion :

Do not induce vomiting. Lay the patient down as head would be lower than body for suffocation prevention if occur vomiting. Do not give anything to mouth if patient is unconscious. Rinse the mouth and give 2~4 glasses of milk or water if patient is conscious. If patient be conscious, rinse the mouth. Call a physician if necessary. If large quantities of this material are swallowed, call a physician immediately.

E. Delayed and immediate effects and also chronic effects from short and long term exposure:

May occur stomach stimulus and diarrhea if ingestion.

May causes irritation slightly if contact with skin.

Repeated exposure may cause skin dryness or cracking. Heated material can cause thermal burns.

Exposure to aerosols or particulates from heated material may cause adverse lung effects if high concentrations are inhaled.

F. Notes to Physician

Medical personnel may leave this material in place to minimize physical damage to the skin or cover the material with a burn gel to prevent adhesion of the dressing to the material.

Treatment may vary with condition of victim and specifics of incident.

5. FIRE RIGHTING MEASURES

A. Suitable (Unsuitable) extinguishing media

Extinguishing media : Water fog or fine spray, Dry chemical, Carbon dioxide, Foam

Unsuitable extinguishing media : indoor or outdoor hydrant facilities, sprinkler, water jet

B. Specific hazards arising from the chemical

Irritating and highly toxic gases, carbon oxides such as carbon dioxide, carbon monoxide may be generated by thermal decomposition or combustion.

During a fire, thermal depolymerization may produce flammable vapour.

C. Fire fighting procedures and equipments

Fire Fighting Procedures : Keep people away. Do not inhale the material or its combustion products. Go against the wind and keep out of low areas. Isolate fire and deny unnecessary entry. Soak thoroughly with water to cool and prevent re-ignition. If material is molten, do not apply direct water stream. Cool surroundings with water to localize fire zone. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires.

Fire-fighting protective equipment : Full firefighting turn-out gear(bunker gear), Supplied-air respirator(full facepiece), Self- contained breathing apparatus(pressure-demand or other positive-pressure mode in combination). Move container from fire area if it can be done without risk. Do not scatter spilled material with high-pressure water streams. Fire may be spread by water use. Use fine water spray or foam.

6 . ACCIEDNTAL RELEASE MEASURES

A. Personal Precautions, Protective Equipment and Emergency procedures :

- Perform in accordance with『See section 8 . EXPOSURE CONTROLS/PERSONAL PROTECTION』. Put on appropriate personal protective equipment.
- Wash thoroughly after handling.
- Spilled materials may cause a slipping hazard.
- Remove all source of ignition around the leak – sparks, flames, No smoking.

B. Environmental Precautions

Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers.

If large spills, advise emergency services. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. 『See Section 12, ECOLOGICAL INFORMATION』.

C. Methods and materials for containment and cleaning up :

For small spills, sweep up, and place in an approved chemical container.

For large spills dike spilled material or otherwise contain material to ensure runoff dose not reach a

waterway.

If water spill, remove from surface by skimming or with suitable absorbent.

If molten liquid material is spilled, allow it to cool and solidify before proceeding with disposal methods.

Place absorbent and other waste in an appropriate container for disposal.

Dispose in accordance with The Waste Control Law.

7. HANDLING AND STORAGE

A. Handling :

Perform in accordance with『See section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION』. Put on appropriate personal protective equipment. Keep away from open flames, shut off the - 『8. production of source of ignition(electricity·static electricity sparks·heat·material of high-temperature). Ground/bond all containers and receiving equipment, use equipment of prevention of explosion. Do not breathe dust when using this material. Ventilate enclosed storage areas, such as trailers and railcars, before entering. Have emergency equipment for fires and spills readily available. Use caution to avoid creation of dusts and to prevent inhalation of product dust (fines).

B. Storage Precautionary Statements :

Keep away from heat, sparks, open flames, source of ignition.

Store in a cool, dry, well-ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure Limits

Exposure limit under ISHL(KOREA) : Not available

ACGIH : Not available

Biological exposure limits : Not applicable

B. Engineering Controls

Ventilation: Local exhaust ventilation may be necessary for some operations. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations.

C. Personal Protective Equipment :

Eye Protection : Wear primary eye protection such as splash resistant safety goggles with a secondary protection faceshield. Provide an emergency eye wash station and quick drench shower in the immediate work area.

Hand Protection : Wear chemical resistant protected gloves if there is hazard potential for direct skin contact. Wear heat resistant protected gloves to withstand the temperature of molten product.

Body Protection : Wear chemical resistant protected clothing if there is hazard potential for direct contact.

Respiratory Protection : None required under normal conditions of use. If heated material generates vapor or fumes that are not, adequately controlled by ventilation wear a respirator be given official approval.

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance : Non-Colored & Transparent Film

B. Odor : Not available

C. Odor threshold : Not available

D. pH : Not available

E. Melting point/Freezing point : Melting : 160~180℃, Freezing : -

F. Initial Boiling Point/Boiling Ranges : Not available

G. Flash point : > 260℃

H. Evaporating Rate : Not available

I. Flammability(solid, gas) : Not available

J. Upper/Lower Flammability or explosive limits : Not available

K. Vapour pressure : Not available

L. Solubility : Insoluble in water, Soluble in Petroleum naphtha, Xylene, Toluene, Trichloroethylene, Highly heated Mineral Oil.

M. Vapour density : Not applicable

N. Specific Gravity : 0.91 – 0.93 (Water = 1)

O. Partition coefficient of n-octanol/water : Not available

P. Autoignition Temperature : 360℃

Q. Decomposition Temperature : Not available

R. Viscosity : Not available

S. Molecular weight : Not available

10. STABILITY AND FEACTIVITY

A. Stability

This material is stable under normal ambient and recommended storage and handling conditions of temperature and pressure.

B. Possibility of Hazardous Reaction : Not expected to occur.

C. Conditions to Avoid

Avoid to heat, open flames, sparks and other source of ignition.

D. Materials to Avoid : Not available

E. Hazardous Decomposition Products

Combustion may produce carbon oxides such as carbon monoxide, carbon dioxide.

During a fire, thermal depolymerization may produce flammable vapour.

Low molecular weight hydrocarbons, aldehydes, acids and ketones can be formed during thermal processing.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

Respiratory tracts : Not Classifiable

Oral : Not Classifiable

Eye ·Skin : Not Classifiable

B. Delayed and immediate effects and also chronic effects from short and long term exposure

Acute toxicity :

Oral: No data available

Dermal: No data available

Inhalation: No data available

Skin corrosion/irritation : This material is not expected to be irritating to the skin.

Serious eye damage/irritation : This material is not expected to be irritating to the eyes.

Respiratory sensitization : Not available

Skin sensitization : Not available

Carcinogenicity : Not available

Germ cell mutagenicity : Not available

Reproductive toxicity : Not available

Specific target organ toxicity(single exposure) : Not available

Specific target organ toxicity(repeated exposure) : Not available

Aspiration hazard : Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity : Not available

B. Persistence and degradability :

This material is not expected to be readily biodegradable.

C. Bioaccumulative potential :

This material is not expected to be bioaccumulated by environmental food chain.

D. Mobility in soil :

This material is not likely to move rapidly with surface or groundwater flows.

E. Other adverse effects :

Not expected to be acutely toxic, but material in pellet or bead form may mechanically cause adverse effects if ingested by waterfowl or aquatic life.

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

The user of this product must properly characterize the waste/container generated from the use of this product in accordance with all applicable federal, state and/or local laws and regulations in order to determine the proper disposal of the waste in accordance with all applicable federal, state and/or local laws and regulations.

B. Special precautions for disposal :

The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.

Dispose of waste in accordance with local regulation.

14. TRANSPORT INDORMATION

A. UN number : Not classified as a dangerous good under transports regulation.

B. Proper shipping name : Not applicable

C. Hazard class : Not applicable

D. Packing group : Not applicable

E. Marine pollutant : Not applicable

F. Special precautions for user related to transport or transportation measures.

Local transport follows in accordance with Dangerous goods Safety Management Law.

Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.

15. REGULATORY INFORMATION

A. ISHL(The industrial Safety and Health Law in Korea)

This product is not subject to the chemical needs monitoring workplace exposure limit under ISHL Article 42.

This product is not subject to the chemical specified the exposure limit under ISHL Article 42., Public

notice 2008-2.

B. TCCA(The Toxic Chemical Control Act in Korea)

This product is not classified as Toxic chemical and Observational chemical under TCCA Article 2.3. and 2.4.

C. Other regulations

POPs Management Law : Not applicable

Rotterdam Convention on Harmful Chemicals & Pesticides : Not applicable

Stockholm Convention on Persistent Organic Pollutants : Not applicable

Montreal Protocol on Substances That Deplete the Ozone Layer : Not applicable

Information of EU Classification : Not classification

Information of U.S.A :

OSHA regulation(29CFR1910.119): Not applicable

CERCLA 103 regulation(40CFR302.4): Not applicable

EPCRA 302 regulation(40CFR355.30): Not applicable

EPCRA 304 regulation(40CFR355.40): Not applicable

EPCRA 313 regulation(40CFR372.65): Not applicable

16. OTHER INFORMATION

A. Reference

This MSDS is prepared based on the MSDS provided by DL FnC Co. Ltd, Korea Test & Research Institute, and many other databases and translated into English in accordance with ISHL Article 41 and MOL Public notice 2008-01. This information only concerns the above-mentioned product and does not need to be valid if used with other(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and sufficiently complete for their particular use of this product.

B. Issue date : 2020. 04. 01

C. Revision number and Last date revised : Rev. 02 / 2021. 04. 01

D. Other information :

This MSDS is prepared according to the Globally Harmonized System (GHS).

This MSDS conforms to regulations 1907/2006/EC (REACH). This product has been classified in accordance with 67/548/EEC, 1999/45/EC, 1272/2008 (CLP) and amendments.