MSDS (Material Safety Data Sheet)

Moplen HP602N

Date of issue: 2021-04-19 **Revision date: 2021-04-19** **Version: R0002.0001**

1. Information about chemicals and companies

가. Product Name

- Moplen HP602N

나. Recommended use and usage restrictions of the product

- Recommended use : Raw material and intermediate
- Usage restrictions : No data

다. Manufacturer/Supplier/Distributor Information

- Manufacturer : Ulsan PP Company Ltd.
- Address : 20 Sinhang-ro 716 beon-gil, Nam-gu, Ulsan, Republic of Korea
- Department in charge : HSE group
- Phone number : (052)901-6004
- Emergency phone number : 010-9638-9692 (Manager Lee Won Chang)

2. Hazards and risks

A. Hazard and risk classification

- Not Applicable

B. Warning signs including precautionary measures.

○ Picture text

- Not Applicable

○ Sign language

- Not Applicable

○ Hazardous and dangerous phrases

- Not Applicable

○ Preventive action statement

1) Prevention

- Not Applicable

2) Response

- Not Applicable

3) Storage

- Not Applicable

4) Disposal

- Not Applicable

C. Other hazards and risks not included in the hazardous and hazardous classification standards.

- Not Applicable

3. Name and content of components

Chemical name	Idiomatic name and other name	CAS number or Identification number	Content (%)
Polypropylene'	1-propene, Homopolymer	9003-07-0 / KE-29389	>98

※ Components not listed in the component table above are not hazardous/hazardous.

4. First Aid Measures

A. When it gets into your eyes

- Wash eye for at least 15 minutes with plenty of water open.
- Get medical attention immediately.

B. When come into contact with skin

- Immediately wash the area burned in the molten resin with plenty of cold water.
- Take off contaminated clothing and shoes and wash them immediately with soap and water for at least 15 minutes.
- Get medical attention if necessary.

C. When inhaled

- If you inhale a large amount of decomposed gas, relax and move to a place with clean air.
- If there is no breathing, perform artificial respiration.

D. When I ate

- Seek medical attention if ingested in large quantities.

E. Other medical precautions

- Proper treatment is required according to the symptoms

5. Handling method in case of explosion or fire

A. Appropriate (and inappropriate) extinguishing agent

- Water, foam, carbon dioxide, powder fire extinguisher, etc
- Wear fire suits, fire rescue helmets, fire safety shoes, fire safety gloves, and air respirators when fighting fires.

B. Specific hazards arising from chemicals

- Ignition source and heat source should be avoided.
- Dust particles are combustible solid particulates that pose a risk of fire and explosion in the air.
- It is possible to form a layer of molten polymer on a hot surface before firing.
- Hydrocarbon and formaldehyde compounds may occur at carbon dioxide during combustion, carbon monoxide in the event of lack of oxygen, and at the initial temperature of 400 to 700℃.

C. Protective equipment and preventive measures to be worn during fire suppression

- Move containers from fire area if possible without danger.
- Maintain a calorific value of approximately 8000 − 11000 kcal/kg when disassembled by combustion, and a safe distance when extinguishing.
- Flammable gas may be generated when melting or decomposing due to ignition heat.
- Do not approach the tank if it is in flames
- Find and use an evolutionary method suitable for your surroundings.
- Wear appropriate protective equipment if necessary.
- If the safety device is heard to operate or the tank is discolored due to a fire, evacuate immediately.
- Inform the fire department and tell them the location and harmful characteristics of the fire.
- Cool the storage container with plenty of water even after extinguishing the fire.

6. How to deal with leakage incidents

A. Actions and protective equipment necessary to protect the human body

- Special precautions are required under room temperature and atmospheric pressure, but may slip in case of leakage, and shall be placed with a shovel or vacuum cleaner.
- There is a possibility of combustible dust that may ignite, so be careful of leakage and force ventilation if necessary.
- Remove all sources of ignition as there is a possibility of static electricity.

B. Necessary measures to protect the environment

- Block leakage from entering sewage systems and water systems.
- If there is a large amount of leakage, report it to 911 or the Ministry of Environment, the local environmental management office, and the city and province (Environmental Guidance Department).

C. Purifying or removing methods

- Be careful not to generate dust and place it in a container in a mechanical manner.

7. Handling and Storage

A. Safety tips

- Avoid inhalation of decomposition gases generated during overheating and install ventilation facilities during molding process.
- Keep away from fire and ground containers for handling ignition sources (electric spark, electrostatic spark, heating, hot material, etc.) to prevent static electricity.
- If residues that occur after processing are left unattended, they should be disposed of quickly as there is a risk of fire and other hazards.
- Pay attention to potential dust generation as particulate dust in the leaked air is at risk of dust explosion by ignition sources.
- The surface temperature of a hot object should be limited to 270℃ or below to avoid direct ignition of dust clouds.
- In high concentration dust environments, ignition sources can cause dust ignition or dust explosion.

B. How to store it Safely

- Store in a dry, well-ventilated place and avoid contact with a source of flamingo.
- Avoid accumulation of excessive dust when handling synthetic resin powder.
- Semi-permanently seal the connections of each facility to prevent the powder from leaking to the outside.
- Appropriate ventilation facilities shall be installed.
- Deterioration may occur when exposed to heat, light and oxidants, and small amounts of hard hydrocarbons, oxidative mixtures, and aldehyde may
- Consideration should be given to sufficient safety for facilities that may be an ignition source during manufacturing, storage, handling, transportation, and use.
- The structure of the building shall be refractory or non-research, and all materials in the synthetic resin handling workshop shall be used with non-combustible materials, excluding sources of ignition from the processing process, and paying attention to the temperature of use.
- Check for leakage periodically.
- Recommended storage temperature and duration are up to 60 days at 50℃ or below and avoid intentional air injection and exposure to direct sunlight and heat sources during storage.

8. Exposure protection and personal protective equipment

A. Chemical exposure standards, biological exposure standards, etc.

o **Korea exposure standards**

- [Polypropylene] : Not applicable

o **ACGIH exposure standards**

- [Polypropylene] : 10 mg/m3

o **Biological exposure standards**

- [Polypropylene] : Not applicable

B. Proper engineering management

- For workplaces where gas, steam, mist, fume, or dust are emitted, it is recommended that these concentrations do not exceed the harmful effects of
- Ventilation facilities should be installed in the plastic work area.
- Dust handling facilities designed to prevent dust from leaking into the work area shall be used. (Prevent leakage of exhaust ducts, dust collectors, transport pipes and processing equipment)
- It is recommended to use equipment or equipment that meets the following specifications for handling and storage

1. Korea: KS C IEC 61241-10 / -14, 2. United States: NFTA 654, 3. Europe: EN1127-1 (ATEX 95/137)

C. Personal protection equipment

o **Respiratory protection**

- If there is a possibility of direct exposure or exposure to the substance, wear a dustproof mask certified by the relevant country.
- Respiratory protection is classified from minimum to maximum concentration.
- Consider warning characteristics before use.
- Respirator for dust, mist and fume.
- Air filter type respirator (high efficiency particulate filter).
- Respirator with electric fan (filter for dust, mist, and fume).
- Self-contained respirator with high efficiency particulate filter.
- Gas mask (a protective mask is required when handling molten resin).

o **Eye protection**

- Wear protective goggles for chemicals certified by the country if there is a possibility of direct exposure or exposure to the substance (especially when handling molten resin).
- Install facewash and emergency cleaning facilities (shower type) near the workplace.

o **Hand protection**

- Safety gloves for chemicals certified by the relevant country should be worn if there is a possibility of direct exposure or exposure to the substance (especially when handling molten resin).

o **Physical protection**

- Wear protective clothing for chemicals certified by the country when there is a possibility of direct exposure or exposure to the substance (especially when handling molten resin).

9. Physical and Chemical Characteristics

A. Appearance	
- Nature and condition	Solid (Pellet)
- Color	No data
B. Smell.	Odorless
C. Odor threshold	No data
D. pH	No data
E. Melting point/fishing point	50~170℃
F. Initial boiling point and boiling point range	No data
G. Flash point	No data
H. Evaporation rate	No data
I. Flammable (solid, gas)	No data
J. Upper/lower limit of the flammable or explosive range	No data
K. Vapor pressure	No data
L. Solubility	Water insoluble / partially dissolved organic solvents
M. Vapor density	No data
N. Weight	0.89~0.91 g/cm3 (20℃)
O. N-octanol/Water Distribution Coefficient	No data
P. Spontaneous ignition temperature.	>400 ℃
Q. Decomposition temperature	No data
R. Viscosity	No data
S. Molecular weight	(42)n, n>10

10. Stability and responsiveness

A. Chemical stability and potential for harmful reactions

- Stable for recommended storage and handling. room temperature/pressure stability

B. Conditions to avoid

- Avoid contact with non-mixing substances and conditions (excessive heat (starting decomposition at >300℃) and sources of ignition.

C. Substances to be avoided

- Chlorine (liquid), hydrogen peroxide, nitric acid (fume), oxidant (steel), potassium permanganate, solvents.

D. Hazardous substances produced during disassembly

- There is no decomposition under room temperature and pressure, but carbon dioxide, carbon monoxide, hydrocarbons and formaldehyde of low molecules may occur at high temperatures.

11. Information on toxicity

A. Information on potential exposure pathways

o **(Breath)**

- No data

o **(Eral)**

- No data

o **(Eyes and skin)**

- No data

B. Health Hazard Information

o **Acute toxicity**

*** Oral toxicity**

- Product (ATEmix): No data
- [Polypropylene]: No data

*** Percutaneous toxicity**

- Product (ATEmix): No data

- [Polypropylene]: No data

*** Inhalation toxicity**

- Product (ATEmix): No data
- [Polypropylene]: No data

o Corrosive or irritating skin

- [Polypropylene]: No data

o Severe eye damage or irritation

- [Polypropylene]: No data

o Respiratory hypersensitivity

- [Polypropylene]: No data

o Skin irritability

- [Polypropylene]: No data

o Carcinogenic

*** Korea Ministry of Environment's Chemical Management Act**

- [Polypropylene]: No data

*** IARC**

- [Polypropylene]: No data

*** OSHA**

- [Polypropylene]: No data

*** ACGIH**

- [Polypropylene]: No data

*** NTP**

- [Polypropylene]: No data

*** EU CLP**

- [Polypropylene]: No data

o Reproductive cell variability

- [Polypropylene]: No data

o Reproductive toxicity

- [Polypropylene]: No data

o Specific target organ toxicity (1 exposure)

- [Polypropylene]: No data

o Specific target organ toxicity (repeated exposure)

- [Polypropylene]: No data

o Harmful inhalation

- [Polypropylene]: No data

o Notice of the Ministry of Employment and Labor, Korea

*** Carcinogenic**

- [Polypropylene]: Not applicable

*** Reproductive cell mutagenicity**

- [Polypropylene]: Not applicable

*** Reproductive cell mutagenicity**

- [Polypropylene]: Not applicable

12. Environmental Impact

A. Ecotoxicity

o Fish

- [Polypropylene]: No data

o Crustaceae

- [Polypropylene]: No data

o Birds

- [Polypropylene]: No data

B. Residual and degradable

o Residuality

- [Polypropylene]: No data

o Decompositionability

- [Polypropylene]: No data

C. Bio-enriched

○ **Bio-concentration**

- [Polypropylene]: No data

○ **Biodegradability**

- [Polypropylene]: No data

D. Soil mobility

- [Polypropylene]: No data

E. Ozone Layer Hazard

- [Polypropylene]: No data

F. Other harmful effects

- [Polypropylene]: No data

13. Precautions for disposal

A. Disposal method

- Prevent the generation of wastes as much as possible and minimize the discharge of wastes by recycling them by themselves.
- Water separation is possible by water separation method.
- To be incinerated.
- Incinerate. If incineration is difficult, crush, cut, or melt to a size of not more than 15 centimeters in diameter and bury the designated waste in a managed landfill facility.

B. Precautions for disposal

- A business operator who discharges waste from a business establishment (a business site waste discharger) shall dispose of waste generated by the workplace on his own, or delegate it to a waste disposal business operator, another person's waste disposal, or a person who installs and operates it.
- Comply with the regulations under the Waste Management Act.

14. Information Required for Transport

A. United Nations Number (IMDG CODE/IATA DGR)

- Not applicable

B. United Nations Appropriate Shipping Name

- Not applicable

C. Class of risk in transportation

- Not applicable

D. Container rating (IMDG CODE/IATA DGR)

- Not applicable

E. Marine pollutants

- Not applicable

F. Special safety measures that users need to know or need to know about transportation or means of transportation.

- According to the Dangerous Goods Safety Management Act for Regional Transportation

Packing and transportation in accordance with DOT and other regulations.

- Type of emergency measures in case of fire: No data
- Type of emergency measures in case of leakage: No data

15. 법적 규제현황

A. Regulations under the Occupational Safety and Health Act, Korea

○ **Working environment measuring material**

- [Polypropylene]: Not applicable

○ **Exposure standard setting substance**

- [Polypropylene]: Not applicable

○ **Hazardous substances subject to management**

- [Polypropylene]: Not applicable

○ **Substances subject to special health examination**

- [Polypropylene]: Not applicable

○ **Prohibited substances such as manufacturing**

- [Polypropylene]: Not applicable

○ **Substances subject to permission**

- [Polypropylene]: Not applicable

○ **PSM (Process Safety Management) target substance**

- [Polypropylene]: Not applicable

B. Act on the Registration, Evaluation, etc. of Chemicals, Korea

○ **Existing chemicals subject to registration**

- [Polypropylene]: Not applicable

○ **Key management substances**

- [Polypropylene]: Not applicable

○ **CMR (cancerous, reproductive cell mutagenicity, reproductive toxicity) and CMR-caused substances**

- [Polypropylene]: Not applicable

C. Regulations under the Chemicals Control Act, Korea

○ **Toxic substances**

- [Polypropylene]: Not applicable

○ **Chemical substances subject to emission survey**

- [Polypropylene]: Not applicable

○ **Substances prepared for accidents**

- [Polypropylene]: Not applicable

○ **Restricted substances**

- [Polypropylene]: Not applicable

○ **Licensed substances**

- [Polypropylene]: Not applicable

○ **Prohibited substances**

- [Polypropylene]: Not applicable

D. Regulations under the Dangerous Goods Safety Management Act, Korea

- Not applicable to dangerous goods

E. Regulation under the Waste Management Act, Korea

- This product belongs to designated wastes (waste synthetic polymeric compounds) under the Enforcement Decree of the Waste Management Act [Attachment 1].

F. Other regulations under domestic and foreign laws.

○ **Residual organic pollutant management method, Korea**

- [Polypropylene]: Not applicable

○ **EU Classification Information**

*** Confirmed classification result**

- [Polypropylene]: Not applicable

○ **US Administration Information**

*** OSHA 규정 (29CFR1910.119)**

- [Polypropylene]: Not applicable

*** CERCLA 103 규정 (40CFR302.4)**

- [Polypropylene]: Not applicable

*** EPCRA 302 규정 (40CFR355.30)**

- [Polypropylene]: Not applicable

*** EPCRA 304 규정 (40CFR355.40)**

- [Polypropylene]: Not applicable

*** EPCRA 313 규정 (40CFR372.65)**

- [Polypropylene]: Not applicable

○ **Rotterdam Convention Material**

- [Polypropylene]: Not applicable

○ **Stockholm Convention Material**

- [Polypropylene]: Not applicable

○ **Montreal Protocol Material**

- [Polypropylene]: Not applicable

16. Other Notes

A. Source of data

- This MSDS is prepared based on Article 110 of the Occupational Safety and Health Act and 2020-130 of the Ministry of Employment and Labor (based on classification of chemicals, marking and material safety and health data) in Korea.
- This MSDS is based on KOSHA, NITE, ECHA, NLM, SIDS, IPCS, NCIS, etc.

B. Date of initial preparation

- 2021-04-19

C. Number of revisions and date of final revision

- 1st, 2021-04-19

D. Other

- This information is prepared based on the DB currently available to protect the health, environment and safety of workers.