# Material Safety Data Sheet

## 1. Product and company information

**Product name**

**A. Product name :** WA-1103

**Product description :** Composite film of Co-polyester and Thermoplastic polyurethane

**B. Recommendation and limit of usage**

**Recommendation of usage :** Electronic, clotElectronic, clothing, medical, and other laminated substrates

**Limit of usage :**

**C. Company information**

**Company name**

**Name :** WAYBLE Co.,LTD

**Address :** 562-36, Wolpyeong-ro, Neungseo-myeon, Yeoju-si, Gyeonggi-do

**Telephone :** +82-(31)-429-3743

e-mail : tjjeong@wayble.kr

**Emergency telephone :** +82-(31)-429-3743

## 2. Hazards identification

**A. Harmful classification :** Unclassified

**B. Warning sign including precaution**

**Pictograph :** Not applicable

**C. Other harmfulness :** Unconfirmed

## 3. Composition / information on ingredients

*** Chemical name :** Thermoplastic Polyurethane film

*** Other name :** TPU film

*** CAS no :** 26375-23-5

*** Content :** 100%

## 4. First aid measures

**Instruction about first aid**

**A. Eye contact :** Wash the affected area right away with clean water. Remove contact lens if it is not difficult. Wash the eye with clean water in 15 minutes in case that hot matter splattered into the eye. Call or contact hospital or doctor right away.

**B. Skin contact :** Wash the affected area thoroughly with plenty of water and soap. If molten polymer contacts the skin, cool the skin rappidly with water or ice. See a physician for removal of any adhering materia and for treatment of the burn.

**C. Inhalation :** If any processing vapors, decomposition products or articulates are inhaled, remove individual(s) to fresh air.

**D. Ingestion :** No ingestion effects known

**If irritation or other symptoms (as notes above) occur or persist from any route of exposure, remove the affected individual from the area. See a physician/get medical attention.**

## 5. Fire fighting measures

**Dangerousness of general fire :** Unspecified dangerousness of specific fire or explosion.

**A. Appropriate (or inappropriate) extinguishing materials**

**Appropriate extinguishing material :** Use water spray, dry chemicals or foam. It is ineffective to use CO2 in case of big fire.

**Inappropriate extinguishing material :** Undecided

**B. Specific danger by chemicals :** Refer to the article 10 for additional information.

**C. Advice for fire fighting**

**Protection equipment / precaution on fire fighting :** Thermoplastic polymers can burn. Protect product from flames of any kind. Maintain proper clearance when using heat devices etc. Irritating or toxic substances will be emitted upon burning. Large masses of molten polymer held at elevated temperatures for extended periouds of time may auto-ignite.

**Specific personal protection equipment on fire fighting :** Recommended to wear self-contained breathing apparatus.

## 6. Accidental release measures

**A. Containment techniques :** No specific requirements known.

**B. Clean-up techniques :** Sweep up carefully and place into container for reuse or disposal. Do not sweep or flush product into sewers or waterways.

**C. Purification or removal techniques :** Reuse or disuse with gathering in solid status.

**D. Remark about other articles :** Refer to the article 8 & 13 for additional information.

## 7. Handling and storage

**A. Handling :** Conduct any operations emitting fumes or vapors (including clean up) under well-ventilated conditions. Avoid breathing process vapors. Do not hold product for extended periods of time at elevated temperature or allow thick masses of hot polymer to accumulate bacause they can decompose emiitting hazardous gases. Do not taste, swallow, or chew products. Wash thoroughly after processing. Do not store or consume food in processing areas. Do not use processing equipment to heat food.

Fume condensates may include hazardous contaminants from additives. Condensate may be combustible and should be periodically removed from exhaust hoods, ductwork and other surfaces. Impervious gloves should be worn during cleanup operations to prevent skin contact.

Post thermal processing activities necessary to produce molded article (such as cutting, sanding, sawing, grinding, drilling, or regrinding) may create dust or 'fines'. Powders, dust, and/or fines may pose a dust explosion hazard.

Electrostatic buildup may occur when pouring or transferring this product from its container. The spark produced may be sufficient to ignite vapors of flammable liquids. Always transfer product by means which avoid static buildup. Avoid pouring product directly from its container into combustible or flammable solvent.

**Pyrolysis temperature :** 230℃

**B. Storage :** Store in a cool, dry place. Keep containers tightly closed to prevent moisture absorption and contamination. Avoid excessive heat. Do not store near flammable agents.

**Maximum storage temperature :** Undecided

## 8. Exposure controls / personal protection

**A. Engineering controls :** Ventilation use local exhaust to completely remove vapors and fumes liverated during hot processing from the work place.

**B. Personal protection**

**General information :** Wear appropriate personal protection equipment.

**Eye / Face protection :** Safety glasses or goggles required.

**Hand protection :** Protective gloves required to handle hot material during processing.

**Body protection :** Recommended to wear long sleeve shirts.

**Respiratory protection :** Wear an approved respirator (e.g., an organic vapor respirator, a full face air purifying repirator for organic vapors, or a self-contained breathing apparatus) whenever exposure to aerosol, mist, spray, fume or vapor exceed the exposure limit(s) of any chemical substance listed in this MSDS. Cutting operations may create small particles from this product. If inhalation of particulates cannot be avoided, wear a dust respirator.

## 9. Physical and chemical properties

**Physical and chemical properties**

**A. Appearance (Physical status, color etc.)**

**Physical status :** solid

**Form :** film

**Color :** Transparent

**B. Odor :** Slight

**C. pH :** No specific requirements known.

**D. Melting point :** 195 ℃

**E. Beginning boiling point and its range :** No specific requirements known.

**F. Flashing point :** 240 ℃

**G. Evaporation rate :** No specific requirements known.

**H. Flammability (solid and gas) :** No specific requirements known.

**I. Upper/Lower bound of ignition or explosion range**

**Upper bound :** No specific requirements known.

**Lower bound :** No specific requirements known.

**J. Vapor pressure :** No specific requirements known.

**K. Vapor density (atmosphere=1) :** No specific requirements known.

**L. Specific gravity :** 1.21

**M. Solubility**

**Solubility in water :** Insoluble

**Solubility in others :** No specific requirements known.

**N. Partition coefficient :** No specific requirements known.

**O. Self-ignition temperature :** No specific requirements known.

**P. Pyrolysis temperature :** No specific requirements known.

**Q. Viscosity :** No specific requirements known.

## 10. Stability and reactivity

**A. Conditions to avoid :** Overheating.

**B. Incompatibility with other materials :** None known

**C. Hazardousdecomposition product :** Volatiles may be evolved during overheating, combustion, or decomposition. These potential decomposition gases have not been fully determined but may include CO, CO2, and small amounts of hydrogen cyanide, oxides of nitrogen, hydrocarbons, isocyanates, water vapor and/or comvinations of the previous, and smoke. Substances listed under Thermal Processing Emissions may also be present.

**D. Additional reactivity :** None

**E. Stability information :** Pyrolysis temperature >230℃(Heating rate : 5 K/min)

**F. Thermal processing emissions :** Volatiles from melt processing are expected to be the primary hazard in an occupational setting. Well-ventilated conditions are necessary to control exposure to fumes and vapors. The major off-gases from normal melt processing are expected to be water vapor and carbon dioxide. Other trace volatile organic components may also be emitted as off-gas.

## 11. Toxicological information

**Caution must be exercised through the prudent use of protective equipment and handling procedures to minimize exposure.**

**No toxicity information available for this product.**

**No toxicity studies have been conducted on this product.**
**Under decomposition conditions, isocyanates may be generated from this product. Isocyanates can cause skin sensitization and/or respiratory sensitization.**

## 12. Ecological information

**Biodegradation :** **Caused some biodegradation**

**Fish toxicity :** **LC50>100mg/l(96h,zebra fish)**

**Water flea :** **>100mg/l(48hr, daphnia Magna)**

**Bird :** **NOEC>180mg/l(scenedesmus subspicatus)**

**Bacteria :** **EC50 = 1.968mg/l(3h, activated sludge)**

## 13. Disposal information

**A. Disposal method :** Handling, storage, transportation and disposal must be followed the regulations of its jurisdiction.
Follow the warning label even the container is empty because of the residual of material inside.

**B. Precaution for disposal :** Be careful in container packaging stage.

## 14. Transportation information

**A. ICAO/IATA class :** Not applicable

**B. IMDG class :** Not applicable

**C. Hazard class :** Not applicable

**D. TDG class :** Not applicable

**E. Packing group :** Not applicable

## 15. Regulatory information

**A. Regulation by the occupational safety and health act**

**Administrated toxic substance :** Not existed or exist less than regulations

**Prohibited toxic substance :** Not existed or exist less than regulations

**Permitted toxic substance :** Not existed or exist less than regulations

**B. Regulation by the toxic chemicals control act**

| | |
|---|---|
| **Toxic material :** | Not existed or exist less than regulations |
| **Prohibited material :** | Not existed or exist less than regulations |
| **Restricted material :** | Not existed or exist less than regulations |
| **Permitted material :** | Not applicable |
| **Existing chemicals on registration :** | Not regulated |
| **C. Regulation by the safety control of dangerous substances act :** | Not regulated |
| **D. Regulation by the wastes control act :** | Disuse as per all applicable regulations. |
| **E. Regulation by domestic and foreign law** | |
| **Australia(AICS) :** | All components must follow the regulation of chemicals registration of Australia. |
| **Canada(DSL/NDSL) :** | All components must follow the regulation of chemicals registration of Canada. |
| **China(IECSC) :** | All components of this product listed on the existing chemicals list in China. |
| **EU(REACH) :** | Send the e-mail to get the information about compliance status of this product on REACH. REACH@SDSInquiries.com |
| **Japan(ENCS) :** | All components must follow the regulation of chemicals registration of Japan. |
| **Korea(ECL) :** | All components must follow the regulation of chemicals registration of Korea. |
| **New Zealand(NZIoC) :** | All components must follow the regulation of chemicals registration of New Zealand. |
| **Philippines(PICCS) :** | All components must follow R.A.6969 on 1990 in Philippines. |
| **Swiss(SWISS) :** | All components must follow the regulation of chemicals registration of Swiss. |
| **Taiwan(TCSCA) :** | All components of this product listed on the existing chemicals list in Taiwan. |
| **USA(TSCA) :** | All components of this product listed on TSCA in USA or is exempted. |

## 16. Other information

| | |
|---|---|
| **A. Source of data :** | In-company data and other openly available resource. |
| **B. First date of preparation :** | 02-Sep-22 |
| **C. Others :** | Ask to manufacturer. (refer to the article 1) |

**D. Disclaimer :**

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