

PRODUCT INFORMATION SHEETS

- 《Note》
- The product given below does not fall into any category of the materials shown in "Guidelines on Provision of Information about Safety of Chemical Substances." Therefore, it is difficult to provide information in the form of Material Safety Data Sheets (MSDS) and we provide information about the product in a similar form.
 - The information given below has been compiled based on materials, information and data available at present and thus it may be revised when a new finding is obtained.
 - Precautions are given on the assumption that the product is handled in a usual manner. If the product is to be used in a special manner or environment, proper safety measures must be taken according to the application and method used.
 - The values shown in these sheets are not guaranteed and should be used as reference only.

Established on April 20, 2011
Revised on

1. Chemical Substances and Company Identification:

Company name : TAKIRON Co., LTD., Ibogawa Plant
 Address : 1228-1, Umaba, Ibogawa-cho, Tatsuno, Hyogo Prefecture, Japan
 Phone : 0791-76-5556
 Fax : 0791-76-5880
 Issued by : Environment and Quality Assurance Dept.
 Prepared by : Technical Group

Product Name

Takiron Polycarbonate Plate
CNPC 7810 (plastic board)

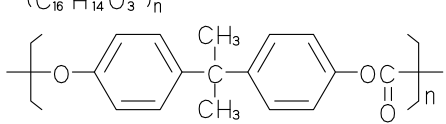
2. Hazards Identification

Name of classification : N/A to the classification standard.
 The most important hazards : N/A
 Specific hazards : N/A

3. Composition and Information on Ingredients

Division of single product and mixture : Mixture
 Chemical name : Poly (4,4'-isopropylidene-diphenyl carbonate)
 : Carbon

Information on chemical properties:

| Component | Contents (wt %) | Structural formula | CAS No. | Official gazette notification No. (The law concerning the Examination and Regulation of Manufacture etc. of Chemical Substances) |
|--------------------------|-----------------|---|-------------|--|
| Polycarbonate | 98.5% or more | $(C_{16}H_{14}O_3)_n$  | 103598-77-2 | 7-738 |
| Carbon | Less than 0.5% | N/A | 7782-42-5 | N/A |
| Coloring agent and other | Less than 1.0% | N/A | N/A | N/A |

Hazardous component : N/A

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4. First Aid Measures
- In case of eye contact : N/A because the product is a solid board shape.
- In case of skin contact : No problem as far as the product is handled in the usual manner.
- In case of inhalation : N/A because the product is a solid board shape.
However, when heat-treating or cutting the product, gases are released. If a large amount of gas is inhaled, move victim to fresh air. Get medical attention if severe coughing, breathing difficulties or other symptoms appear.
- In case of ingestion : N/A because the product is a solid board shape.
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5. Fire Fighting Measures
- Extinguishing media : Water spray, water, fire foam and dry chemicals can be used. Use of water is desirable from a viewpoint of cooling effect.
- Extinguishing method : Use the same extinguishing method as used for general fire. When the product burns, caution should be exercised because harmful gases including carbon monoxide as well as carbon dioxide will be given off.
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6. Accidental Release Measures:
- Personal precautions : N/A because the product is a solid board shape.
- Environmental precautions : N/A because the product is a solid board shape.
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7. Caution to Observe When Handling and Storage
- Handling : Avoid using fire in the workplace unless necessary, though it may not ignite at room temperature.
- Storage : The product must be stored, laid down on a level surface away from heat and ignition source and not exposed to direct sunlight.
Creep deformation occurs with time even at room temperature.
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8. Exposure Controls / Personal Protection
- Facility : There is no problem as far as the product is handled in the usual manner because it is a board shape. Sufficient ventilation must be ensured using local ventilation systems when cutting or heat-treating, because cracked gas is released.
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9. Physical and Chemical Properties
- Appearance : Brown smoked board
- Odor : Odorless
- Boiling point : None
- Steam pressure : Negligible
- Volatility : None
- Melting point : No clear melting point, but it pours at 240°C or more.
- Specific gravity : 1.2 (20/4°C)
- Solubility (water) : Insoluble
- Solubility (methylene chloride) : 0.33 ml
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10. Stability and Reactivity
- Flashing point : 522°C¹⁾
- Ignition point : 550°C¹⁾
- Combustibility : Polycarbonate resin is handled as a flame retardant material with OI of about 26²⁾ or more under the Fire Service Act
- Ignitability
(hypergolic property, reaction to water): None
- Oxidativity : None
- Dust explosion : No problem because the product is a board shape.
- Stability and reactivity : Stable at room temperature and normal pressure
- Thermal decomposition temperature : About 380°C
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 11. Potential Health Effects

| | |
|--|---|
| Corrosiveness to skin | : Not known |
| Irritation (skin, eye) | : Gases released when the product is dried or melts might cause irritation to the eye or skin. |
| Sensitization | : Not known |
| Acute toxicity (including 50% lethal dose and others) | : Not known |
| Sub-acute toxicity | : 30-40 male and female rats were bred for 8 weeks without limiting their intake of porridge-like food containing 6% pulverized polycarbonate. As a result, their weight did not drop. Findings of blood picture, radiological examination, pathological anatomy, and histological examination of organs were normal. |
| Chronic toxicity | : Not known |
| Carcinogenicity | : Not known |
| Mutagenicity (microorganism, chromosome aberration) | : None |
| Genital toxicity | : The reproductive function was normal (in the same test as sub-acute toxicity test) |
| Teratogenicity | : Not known |
| Others (including the release of harmful gases by reaction with water) | : None |

12. Environmental Effect

The product does not adversely affect the environment. Not readily biodegradable.

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| Degradability | : Not known |
| Accumulation | : Not known |
| Fish poison | : Not known |

13. Disposable Considerations

For burying the product in the ground, it is necessary to comply with the "Waste Disposal and Public Cleansing Law," or ask a certified industrial waste contractor or a local public body if it is engaged in the disposal of this kind of substance³⁾.

For burning the product, use a burning facility taking measures to comply with the relevant laws including the Air Pollution Law. Corrugated cardboards used as packing materials are classified as "Corrugated cardboards (papers)" and discarded accordingly.

14. Transport Information

Information on codes and classifications

according to international regulations for transport : Not known

Stack the product, laid down on a level carrier. Use caution to prevent the stack from collapsing.

15. Regulatory Information

Rules Concerning the Regulations

of Hazardous Materials : N/A

Industrial Safety and Health Law: Substances subject to the law are not contained.

Poisonous and Deleterious

Substances Control Law : Substances subject to the law are not contained.

PRTR Law: : N/A

Waste Disposal and Public

Cleansing Law : To be classified as industrial wastes and waste plastics.

16. Others

This document was prepared using MSDS's of other plastics makers as reference.

- 1) R.M. Asseva and G.E. Zaikov: "Combustion of Polymer Materials" Hanser Publishes, P.46 (1986)
 - 2) JPIF Newsletter No. 48, The Japan Plastics Industry Federation (Nov. 1, 1979)
 - 3) Waste Plastics Q&A, The Industrial Thermoplastic Technology Committee (1992)
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Should a question arise as to the description in the English version, it should be interpreted according to the original version written in Japanese.