

# TARFLON<sup>®</sup> IR1900

**Polycarbonate – transparent material with bluish edge color, with mould release agent**

**High flow material; for general injection molding use**

| Properties <sup>(1)</sup>              | Test Method         | Value              | Units                       |
|--|---------------------|--------------------|-----------------------------|
| <b>Physical</b>                        |                     |                    |                             |
| Density                                | ISO 1183 B          | 1.20               | g/cm <sup>3</sup>           |
| Melt Flow Index (300°C; 1,2 kg)        |                     | 19                 | g/10 min                    |
| Water Absorption (23°C; 24 h, 50% rh)  |                     | 0.23               | %                           |
| <b>Mechanical</b>                      |                     |                    |                             |
| Tensile Stress at Yield                | ISO 527             | 65                 | MPa                         |
| Tensile Stress at Break                | ISO 527             | 65                 | MPa                         |
| Nominal tensile strain at break        | ISO527              | 95                 | %                           |
| Modulus of elasticity in tension       | ISO527              | 2,000              | MPa                         |
| Flexural Strength                      | ISO 178             | 90                 | MPa                         |
| Modulus in Flexure                     | ISO 178             | 2,300              | MPa                         |
| Charpy Impact                          | notched at 23°C,    | 70                 | kJ/m <sup>2</sup>           |
|  | un-notched at 23°C, | n.b.               |                             |
| Rockwell Hardness                      | ISO2039             | 120/50             | R/M scale                   |
| Taber Abrasion                         | ASTM D1044          | 12                 | mg (1000 rounds)            |
| <b>Thermal</b>                         |                     |                    |                             |
| Vicat Softening Point (A/10N),         | ISO 306             | 145                | °C                          |
| HDT at 1.82 MPa,                       | ISO 75 A            | 125                | °C                          |
| Mold Shrinkage, flow direction, 1.6 mm | ISO 294             | 0.5 ~ 0.7          | %                           |
| Linear expansion factor                | ASTM D696           | 6,5                | x 10 <sup>-5</sup> cm/cm/°C |
| <b>Electrical</b>                      |                     |                    |                             |
| Dielectric Constant                    | IEC 60250           | 2.91               | 10 <sup>6</sup> Hz          |
| Dielectric Strength (1.6 mm)           | AIEC 60243-1        | 30                 | MV/m                        |
| Dissipation Factor                     | IEC 250             | 0,0092             | 10 <sup>6</sup> Hz          |
| Arc Resistance                         | ASTM D495           | 110                | sec                         |
| Volume Resistivity                     | ASTM D257           | 8x10 <sup>20</sup> | Ω x cm                      |
| <b>Optical</b>                         |                     |                    |                             |
| Refractive Index                       |                     | 1,586              |                             |
| Total Luminous Transmittance           | ISO 13468           | 85~89              | %                           |
| <b>Flammability<sup>(2)</sup></b>      |                     |                    |                             |
| Flammability Rating                    | UL 94               | V-2                | 0.36 ~ 1.90 mm              |
|  |                     | HB                 | > 1.90 mm                   |
| Limiting Oxygen Index                  | ISO4589             | 27                 |                             |
| HWI-class                              | UL94                | 3                  |                             |
| Glow Wire Ignition Test                | 1.46 mm             |                    |                             |
|  | 1.60 mm             | IEC 695-2-13       | 875 °C                      |
|  | 2.00 mm             |                    | 850 °C                      |
|  | 3.00 mm             |                    | 875                         |
| <b>Processing</b>                      |                     |                    |                             |
| Melt Temperature,                      |                     | 270 ~ 310          | °C                          |
| Mold Temperature,                      |                     | 60 ~ 90            | °C                          |
| Pre-drying                             |                     | 4 hours/120°C      |                             |
| <b>ISO description</b>                 |                     | PC                 |                             |

<sup>(1)</sup> Typical property values are not to be construed as sales specifications.

<sup>(2)</sup> This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions

## Product Information

### Safety and Handling Consideration

Material Safety Data (MSD) sheets for TARFLON® Polycarbonate are available from Idemitsu Kosan Co., Ltd. MSD sheets are provided to help customers satisfy their own handling, safety and disposal needs, and those that may be required by locally applicable health and safety regulations such as OSHA (USA), MAK (Germany) or WHMIS (Canada). MSD sheets are upgraded regularly, therefore, please request and review the most current MSD sheet before handling or using any product. The following comments are general and apply only to TARFLON Polycarbonate as supplied. Various additives and processing aids used in fabrication and other materials used in finishing steps have their own safe use profile and must be investigated separately.

#### Hazards and Handling Precautions

TARFLON Polycarbonate has a very low degree of toxicity and under normal conditions of use should pose no unusual problems from ingestion, eye or skin contact. However, caution is advised when handling, storing, using or disposing of these resins and good housekeeping and controlling of dusts are necessary for safe handling of product. Workers should be protected from the possibility of contact with molten resin during fabrication. Handling and fabrication of plastic resins can result in the generation of vapors and dusts. Dusts resulting from sawing, filing and sanding of plastic parts in post-molding operations may cause irritation to eyes and upper respiratory tract. In dusty atmospheres, use an approved dust respirator. Granules or beads may present a slipping hazard. Slight itching and irritation may result from skin contact. Repeated exposure to particles generated by grinding glass fiber-reinforced materials may result in implantation of particles in the skin. Good general ventilation of the polymer processing area is recommended. In addition, to accelerate cooling of large polymer masses, purge patties should be quenched in water. If quenching is not possible, purge patties should be removed from the general working area to a well-ventilated area to cool.

Processing may release fumes which may include polymer fragments and other decomposition products. Fumes can be irritating. At temperatures exceeding melt temperature, polymer fragments can occur. Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for some operations. Use safety glasses. If there is a potential for exposure to particles which could cause mechanical injury to the eye, wear chemical goggles. If vapor exposure causes eye discomfort, use a full-face respirator. No other precautions other than clean body-covering clothing should be needed for handling TARFLON Polycarbonate. Use gloves with insulation for thermal protection, when needed.

#### Combustibility

TARFLON Polycarbonate will burn, and once ignited, may burn rapidly under the right conditions of heat and oxygen supply. Do not permit dust to accumulate. Dust layers can be ignited by spontaneous combustion or other ignition sources. When suspended in air, dust can pose an explosion hazard. Toxic fumes may be released in fire situations. Fire fighters should wear positive-pressure, self-contained breathing apparatus and full protective equipment. Water or water fog are the preferred extinguishing media. Foam, alcohol resistant foam, carbon dioxide, or dry chemicals may also be used. Soak thoroughly with water to cool and prevent re-ignition.

#### Disposal

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. For unused or uncontaminated material, the preferred options include sending to a licensed recycler, re-claimer, incinerator or other thermal destruction device. For used or contaminated material, the disposal options remain the same, although additional evaluation is required (see, for example, in the USA 40 CFR, Part 261, "Identification and Listing of Hazardous Waste"). All disposal methods must be in compliance with Federal, State/Provincial and local laws and regulations.

As a service to its customers, Idemitsu can provide lists of companies which recycle, reprocess, or manage chemicals or plastics, and companies that manage used drums. Contact the nearest Idemitsu sales office for further details.

#### Environment

Generally speaking, in the environment lost pellets are not a problem except under unusual circumstances – when they enter the marine environment. They are inert and benign in terms of their physical environmental impact, but if ingested by waterfowl or aquatic life, they may mechanically cause adverse effects. Spills should be minimized and they should be cleaned up when they happen. Plastics should not be discarded into the ocean or any other body of water.

#### Product Stewardship

Idemitsu Kosan has a fundamental concern for all who make, distribute and use its products, and for the environment in which we live. This concern is the basis of our Product Stewardship philosophy by which we assess the health and environmental information on our products and then take appropriate steps to protect employee and public health and the environment. Our Product Stewardship program rests with every individual involved with Idemitsu products from the initial concept and research to the manufacture, sale, distribution, and disposal of each product.

#### Customer Notice

Idemitsu encourages its customers and potential users of Idemitsu products to review their applications for such products from the standpoint of human health and environmental quality. To help ensure that Idemitsu products are not used in ways for which they are not intended or tested, Idemitsu personnel will assist customers in dealing with ecological and product safety considerations. Your Idemitsu sales representative can arrange the proper contacts. Idemitsu literature, including Material Safety Data sheets, should be consulted prior to the use of Idemitsu products. These are available from the nearest Idemitsu sales office. For further information contact Idemitsu Kosan at +81-3-3213-9552. In U.S.A, call Idemitsu Chemicals U.S.A. Co. at +1 (248) 3559590. In Europe, call Idemitsu Chemicals Europe PLC, Düsseldorf, at +49 (211) 17734-0

### Medical Applications Policy for Engineering Plastic

Idemitsu will not knowingly sell or sample any products into any commercial or developmental application which is intended for:

- Internal body fluids or internal body tissues;
- Use in cardiac prosthetic devices regardless of the length of time involved (cardiac prosthetic devices include, but are not limited to, pacemaker leads and devices, artificial hearts, heart valves, intra-aortic balloons and control systems and ventricular bypass assisted devices);
- Use as a critical component in medical devices that support or sustain human life; or
- Use specifically by pregnant women or in applications designed specifically to promote or interfere with human reproduction;
- Use of package directly in contact with medicine, or with instrument or even container directly in contact with fluid injected in human body.

In addition, for Idemitsu Engineering Plastics products, new business opportunities require a business assessment prior to sale or sampling Idemitsu products.

Authorized distributors and resellers will adhere to the Engineering Plastics Business medical policy.

The Engineering Plastics business does not endorse or claim suitability of their products for specific medical applications. It is the responsibility of the medical device or pharmaceutical manufacturer to determine that the Idemitsu product is safe, lawful and technically suitable for the intended use.

IDEMITSU MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, CONCERNING THE SUITABILITY OF ANY IDEMITSU PRODUCT FOR USE IN MEDICAL APPLICATIONS

**This policy applies to engineering plastics including the following resins: TARFLON® Polycarbonate**

NOTICE: The information and data contained herein do not constitute sales specifications. The product properties may be changed without notice. No liability, warranty or guarantee of product performance is created by this document. It is the Buyer's responsibility to determine whether Idemitsu products are appropriate for Buyer's use and to ensure that Buyer's workplace and disposal practices are in compliance with applicable laws and regulations. No freedom from any patents or other industrial or intellectual property rights is granted or to be inferred. (November 2005)

### Food Applications

IR Series are produced in compliance with the FDA, BGVV and European food contact regulations (2002/72/EC)



Idemitsu Kosan Co.,Ltd.