

XAREC[®] EA 533

Crystalline Polymers – 30% Glass Filled, Ignition Resistant, Impact Modified Polymer for Electronic and Electrical Applications

| Properties ¹ | Test Method | Value | |
|--|------------------------|----------|----------------------------|
| Physical | | | |
| Density, g/cm ³ | ISO 1183 | 1.38 | |
| Glass Content, % | | 30 | |
| Water Absorption at 24 hrs. 50% RH, % | ISO 62 | 0.01 | |
| Mold Shrinkage, flow direction, 2 mm, % | IDEMITSU ² | 0.1–0.3 | |
| Mold Shrinkage, cross flow direction, 2 mm, % | IDEMITSU ² | 0.4–0.7 | |
| Mechanical | | | |
| Tensile Strength at Break, MPa | ISO 527 | 125 | |
| Tensile Modulus, MPa | ISO 527 | 10,700 | |
| Tensile Elongation at Break, % | ISO 527 | 2.0 | |
| Flexural Strength, MPa | ISO 178 | 195 | |
| Flexural Modulus, MPa | ISO 178 | 10,500 | |
| Izod Impact | | | |
| Notched at 23°C, kJ/m ² | ISO 180 | 10 | |
| Unnotched at 23°C, kJ/m ² | ISO 180 | 33 | |
| Charpy Impact | | | |
| Notched at 23°C, kJ/m ² | ISO 179 | 12 | |
| Unnotched at 23°C, kJ/m ² | ISO 179 | 42 | |
| Thermal | | | |
| DTUL at 1.80 MPa, °C | 80°C tool / 150°C tool | ISO 75 A | 235 / 245 |
| DTUL at 0.45 MPa, °C | 80°C tool / 150°C tool | ISO 75 B | 265 / 265 |
| Coefficient of Linear Thermal Expansion | | | |
| Flow direction, -30 – 30°C, mm/mm/°C | TMA | | 19 x 10 ⁻⁶ |
| Cross flow direction, -30 – 30°C, mm/mm/°C | TMA | | 39 x 10 ⁻⁶ |
| Electrical | | | |
| Comparative Tracking Index, PLC level | IEC 60112, Solution A | | 2 |
| Dielectric Constant at 1MHz | IEC 60250 | | 3.2 |
| Volume Resistivity, Ohm-cm | IEC 60093 | | > 1.0 x 10 ¹⁶ |
| Dielectric Strength, kV/mm | ASTM D149 | | 31 |
| Dissipation Factor | IEC 60250 | | 0.002 |
| High Voltage Arc Tracking Rate (HVTR), PLC level | UL 746A | | 0 |
| Hot Wire Ignition (HWI), PLC level | UL 746A | | |
| | @ 1.5 mm | | 1 |
| | @ 3.0 mm | | 0 |
| High Ampere Arc Resistance (HAI), PLC level | UL 746A | | |
| | @ 1.5 mm | | 0 |
| | @ 3.0 mm | | 0 |
| Arc Resistance, PLC level | ASTM D495 | | 6 |
| Flammability | | | |
| Flammability, V-0 thickness, mm | UL 94 | | 1.5 |
| RTI, Electrical, Listing, °C | UL 746B | | 125 |
| RTI, Mechanical with impact, Listing, °C | UL 746B | | 120 |
| RTI, Mechanical without impact, Listing, °C | UL 746B | | 120 |
| Processing | | | |
| Melt Temperature, °C | | | 280 – 310 ³ |
| Mold Temperature, °C | | | 50 – 80 |
| For optimal gloss and heat resistance | | | 130 – 155 |
| Pre-drying | | | 120°C x3-5hrs ⁴ |

Data in this Catalogue shows sample figures measured under certain specific conditions. **Usage of products in this Catalogue does not warrant the successful results of applications of the product for specific usage.** Flammability rating in this Catalogue is not intended to reflect hazards presented by this or any other material under actual fire conditions. See “Handling Considerations” on next pages.

¹ All test samples molded with a 80°C temperature, except for DTUL samples where the results for both 80°C and 150°C are reported.

² Test conducted on 80 x 80 x 2mm injection molded specimen

³ Flame retardant additives in XAREC[®] EA533 can degrade and cause corrosion in processing equipment if permitted to remain for long periods of time at high temperatures. It is recommended that XAREC[®] be purged from processing equipment with general-purpose (GP) polystyrene or high-density polyethylene (HDPE) if processing is suspended for more than 15 minutes.

⁴ XAREC[®] EA533 is non-hygroscopic. Thus pre-drying may not always be necessary. However, high humidity conditions or wide temperature fluctuation from cold to hot, may result in the generation of surface moisture on the pellets. Under these conditions pellet pre-drying at 120°C for 3-5hrs is recommended.

Product Information

Safety and Handling Consideration

Material Safety Data (MSD) sheets for XAREC[®] Crystalline Polymers 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 XAREC[®] Crystalline Polymers 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

This resin contains glass fibers as a reinforcing component. XAREC[®] Crystalline Polymers have 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, including small particles of glass fibers. 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 XAREC[®] Crystalline Polymers. Use gloves with insulation for thermal protection, when needed.

Combustibility

XAREC[®] Crystalline Polymers 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. Dense black smoke is produced when product burns. Toxic fumes are 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 Information

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 your convenient sales office listed below.

| | | | |
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- 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 in package directly contact with medicine or in instrument or container directly 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.

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This policy applies to all Engineering Plastics products including the following resins:

XAREC[®] Crystalline Polymer

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