PARALOID™ EXL-2690 IMPACT MODIFIER

For Polycarbonate and Polycarbonate Blends

Regional Availability

- **Asia Pacific**
- **EMEA**
- **North America**

Description

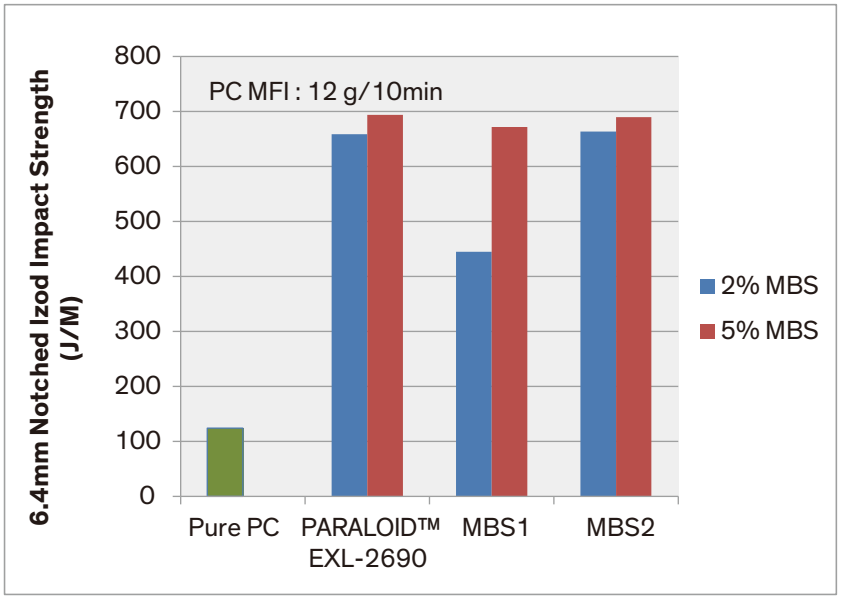
PARALOID™ EXL-2690 Impact Modifier is a methyl methacrylate-butadiene-styrene (MBS) core-shell copolymer, having excellent compatibility in polycarbonate (PC) and polycarbonate blends such as PC/ABS and PC/PBT, and providing superior toughness performance while maintaining good flexural modulus. The specially designed rubber core of PARALOID™ EXL-2690 Impact Modifier, with a glass transition temperature close to - 80°C, leads to good impact performance at low temperatures. The optimized production process and formulation also ensure PARALOID EXL-2690 Impact Modifier has good processing and aging stability vs. other general purpose MBS products.

Product Performance

Performances in Polycarbonate

PARALOID™ EXL-2690 Impact Modifier has excellent performance in polycarbonate. It improves the impact strength of low viscosity polycarbonate at room temperature, and also mitigates the thickness sensitivity of polycarbonate (figure 1).

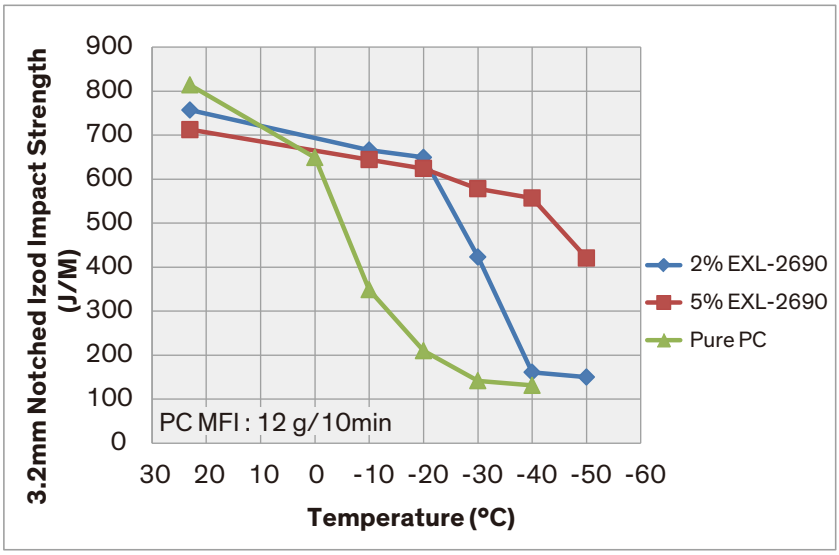
Figure 1. Performance of PARALOID™ EXL-2690 Impact Modifier at Room Temperature



Product Performance (Continued)

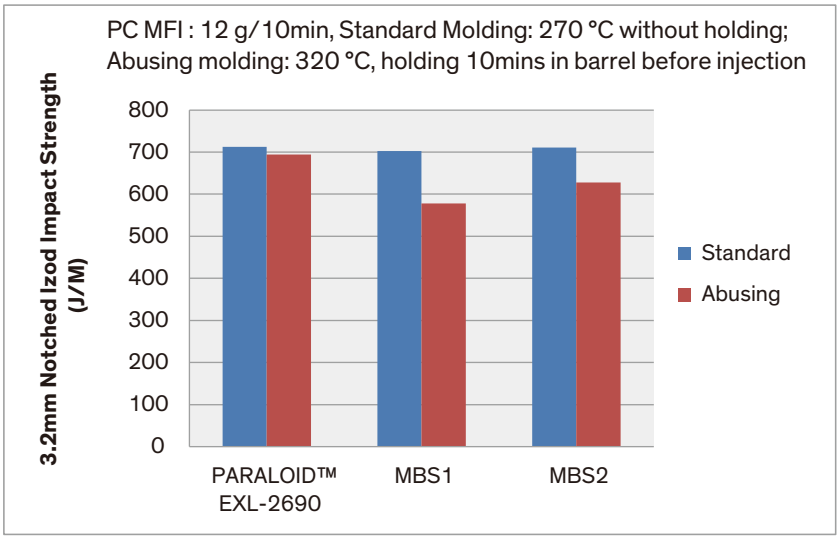
PARALOID™ EXL-2690 Impact Modifier also improves the impact strength of polycarbonate at very low temperatures, even to -50°C at 5% addition level (figure 2).

Figure 2. Low Temperature Impact Performance of Modified Polycarbonate with PARALOID™ EXL-2690



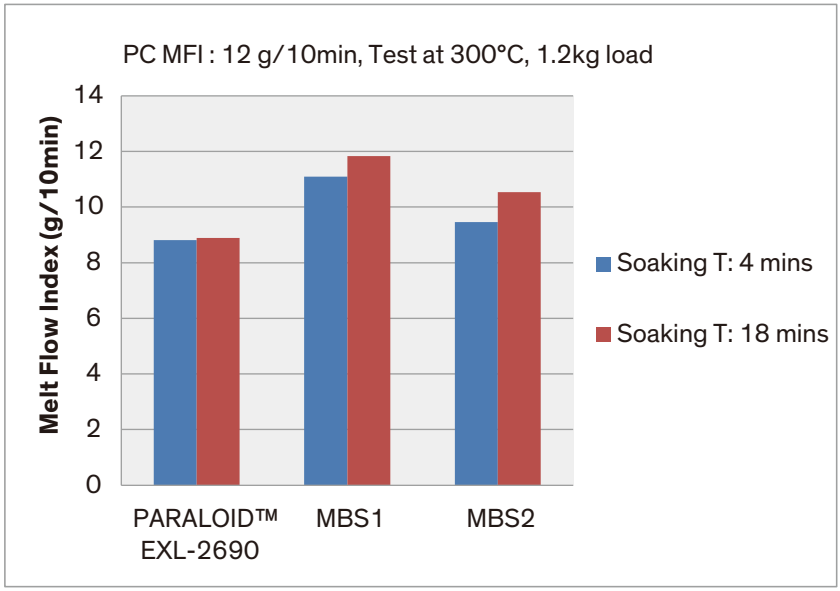
PARALOID™ EXL-2690 Impact Modifier has excellent processing stability due to the optimized process and formulation. Impact strength and melt flow index of polycarbonate modified with PARALOID™ EXL-2690 remain very stable under tough processing conditions (figure 3 and figure 4).

Figure 3. The Impact Strength of MBS Modified Polycarbonate with Standard and Abusing Molding



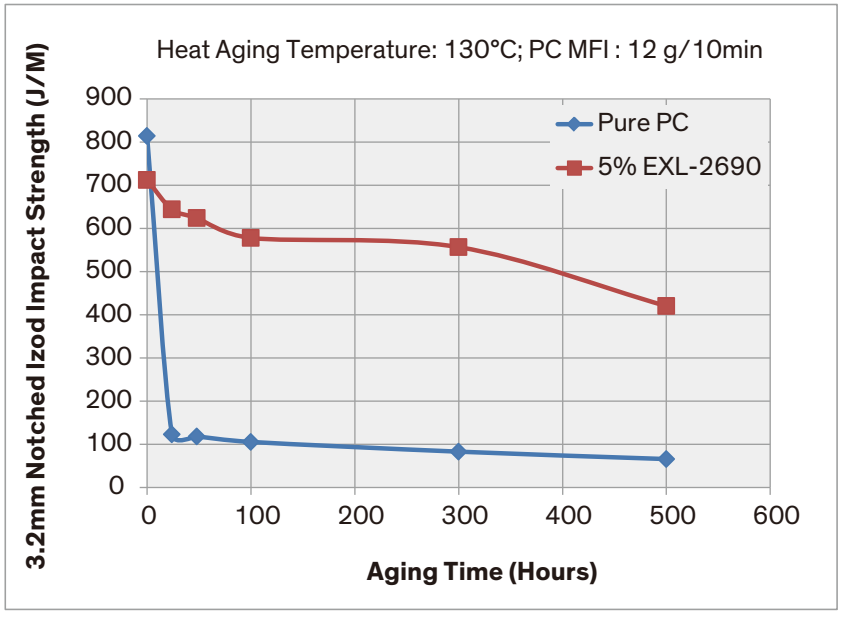
Product Performance (Continued)

Figure 4. The Melt Flow Index of MBS Modified Polycarbonate with Standard and Long Soaking Time Testing



PARALOID™ EXL-2690 Impact Modifier provides excellent retention of mechanical properties after long term heat aging (figure 5), while simultaneously minimizing discoloration (figure 6).

Figure 5. Impact Strength of PC Compound after Heat Aging Test



Product Performance (Continued)

Figure 6. Color Change of PC Compound After Heat Aging Test

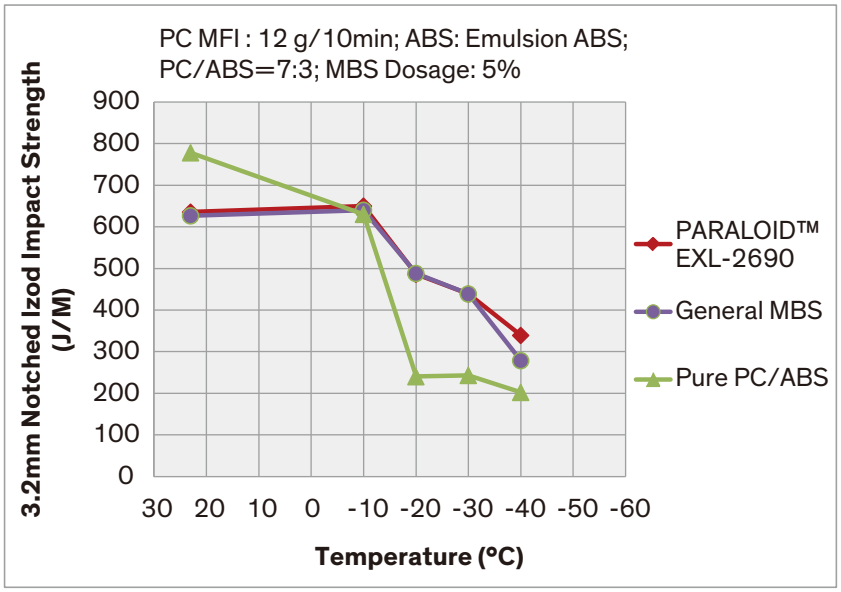
Heat Aging Test 5% dosage

	0 Hours	24 Hours	48 Hours	168 Hours	300 Hours	500 Hours
EXL-2690						
MBS						

Performances in PC/ABS Blend

PARALOID™ EXL-2690 Impact Modifier also has good efficiency in PC/ABS blend, improving thick-wall impact strength of PC/ABS, and enhancing the low temperature impact strength of PC/ABS (figures 7).

Figure 7. Impact Performance of PC/ABS blend

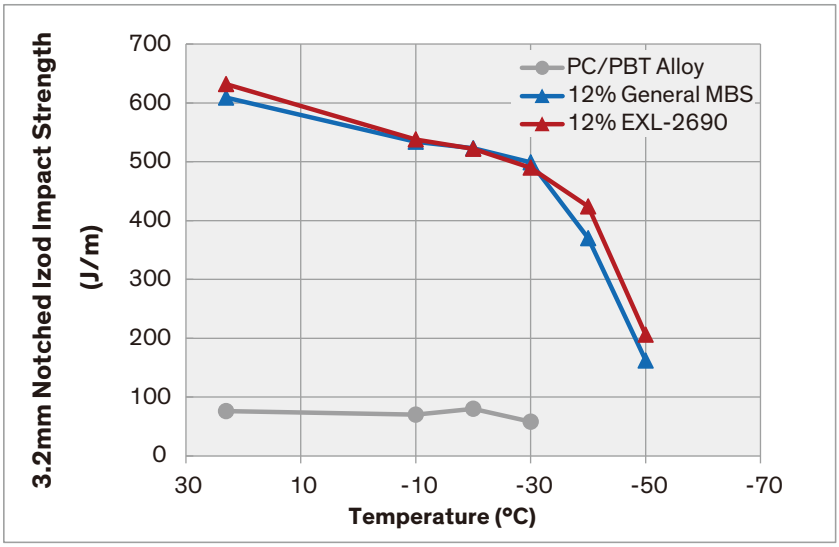


Performances in PC/PBT Blend

PARALOID™ EXL-2690 Impact Modifier has an outstanding performance in PC/PBT blends, improving impact strength dramatically at both room and low temperatures (Figure 8).

Product Performance (Continued)

Figure 8. Impact Performance of PC/PBT Blend



Processing Information

PARALOID™ EXL-2690 Impact Modifier is a free-flowing powder which can be handled easily. A standard co-rotative twin screw extruder is necessary to properly disperse PARALOID™ EXL-2690 Impact Modifier core-shell particles into a thermoplastic matrix.

Handling

Before using this product, consult the Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) for details on product hazards, recommended handling precautions and product storage.

CAUTION! Keep combustible and/or flammable products and their vapors away from heat, sparks, flames and other sources of ignition including static discharge. Processing or operating at temperatures near or above product flashpoint may pose a fire hazard. Use appropriate grounding and bonding techniques to manage static discharge hazards.

CAUTION! Failure to maintain proper volume level when using immersion heaters can expose tank and solution to excessive heat resulting in a possible combustion hazard, particularly when plastic tanks are used.

Storage

Store products in tightly closed original containers at temperatures recommended on the product label.

Disposal

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed of in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Plastics Additives Technical Representative for more information.

Product Stewardship

Dow 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 for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products–from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

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b. 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);

c. use as a critical component in medical devices that support or sustain human life; or

d. use specifically by pregnant women or in applications designed specifically to promote or interfere with human reproduction.

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