PARALOID™ EXL-2691A/3691A Impact Modifier

For polycarbonate and polycarbonate/ABS blends

Regional Product Availability

- Europe
- Latin America
- North America
- Asia-Pacific

Description

Dow Plastics Additives is a well known supplier of specialty additives used to improve the characteristics of a variety of engineering resin systems including polycarbonate, polyesters, polyamides, polyacetal and polymer blends. Dow Plastics Additives' product range consists of:

- PARALOID™ EXL MBS impact modifiers
- PARALOID™ EXL acrylic impact modifiers
- PARALOID™ EXL specialty modifiers

PARALOID™ EXL-2691A is a new MBS Impact Modifier from Dow that not only helps improve impact performance at low temperatures, but also maintains hydrolytic and thermal stability, two key performance features in current engineering resins applications. Similar to other MBS impact modifiers, PARALOID™ EXL-2691A also retains good melt flow, modulus, easy dispersion and processability in thermoplastics. PARALOID™ EXL-2691A Impact Modifier is also available in a pelletized form called PARALOID™ EXL-3691A Impact Modifier.

The improved performance of PARALOID™ EXL-2691A Impact Modifier versus a standard MBS impact modifier in a typical engineering resin formulation is summarized in the table below.

Properties	Standard MBS	PARALOID™ EXL-2691A Impact Modifier
Room temperature impact	+++	+++
Low temperature impact	++	+++
Hydrolytic stability	+	+++
Thermal stability	++	+++

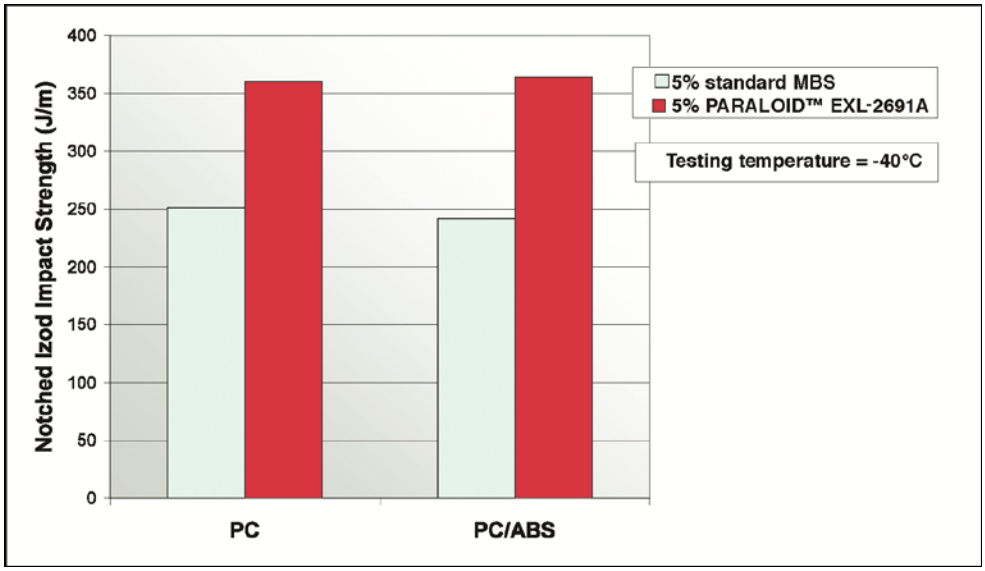
+++ Excellent
++ Very good
+ Good

PARALOID™ EXL-2691A Impact Modifier has a core shell structure and is based on butadiene rubber. It has a well defined rubber particle size that is not influenced by compounding under normal process conditions. PARALOID™ EXL-2691A Impact Modifier is produced using a unique coagulation technique, resulting in extremely low levels of impurities compared to standard spray-drying technologies.

The improved properties of PARALOID™ EXL-2691A Impact Modifier helps formulators address technical needs in engineering plastics that are not met by standard MBS modifiers on the market today.

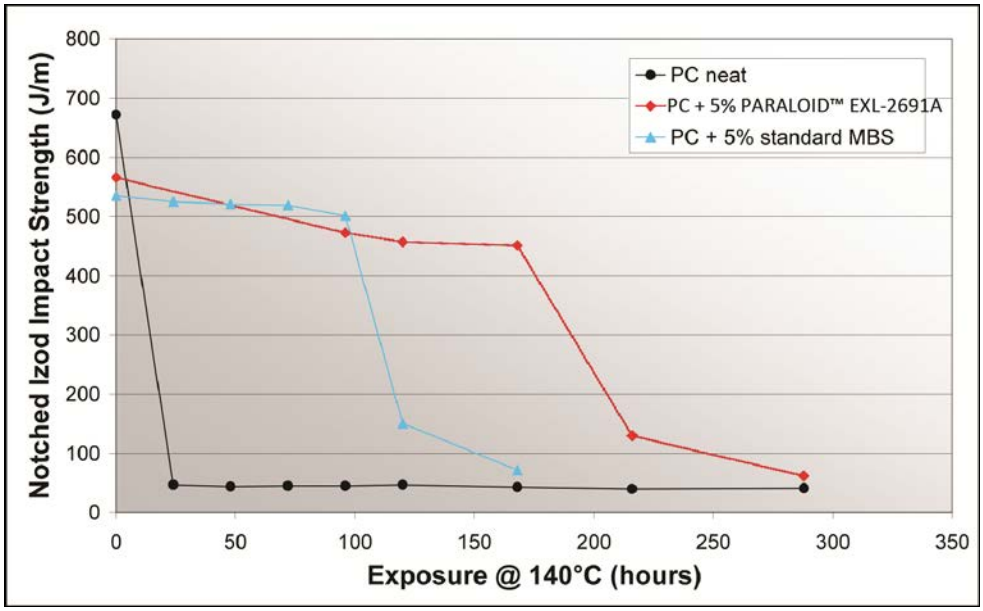
Low temperature impact modification

The low temperature toughness of polycarbonate and PC/ABS blends can be significantly improved with low addition levels of MBS impact modifiers. PARALOID™ EXL-2691A Impact Modifier displays improved impact performance at very low temperatures compared to standard MBS in both types of matrices.

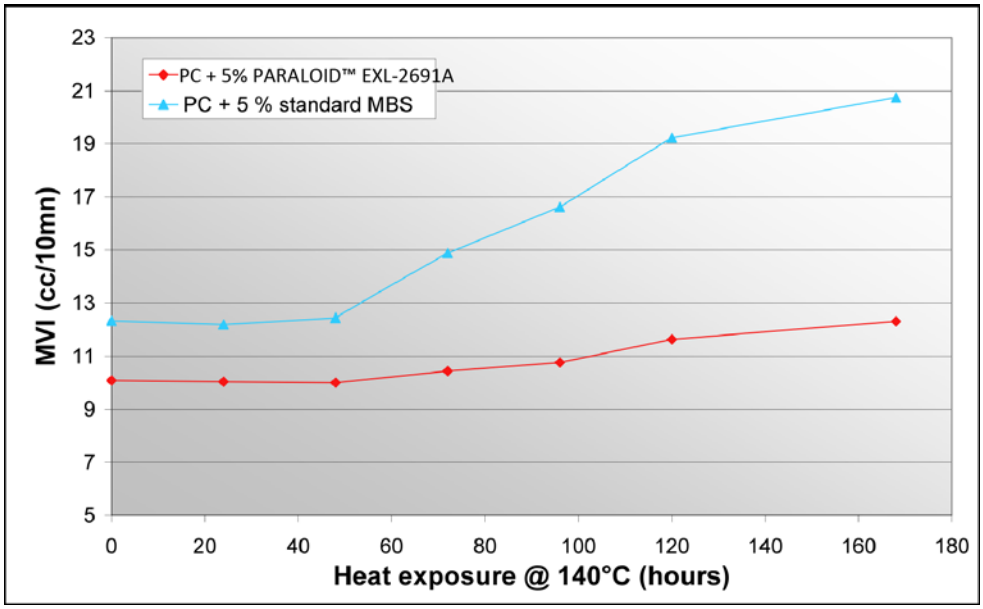


Improved stability

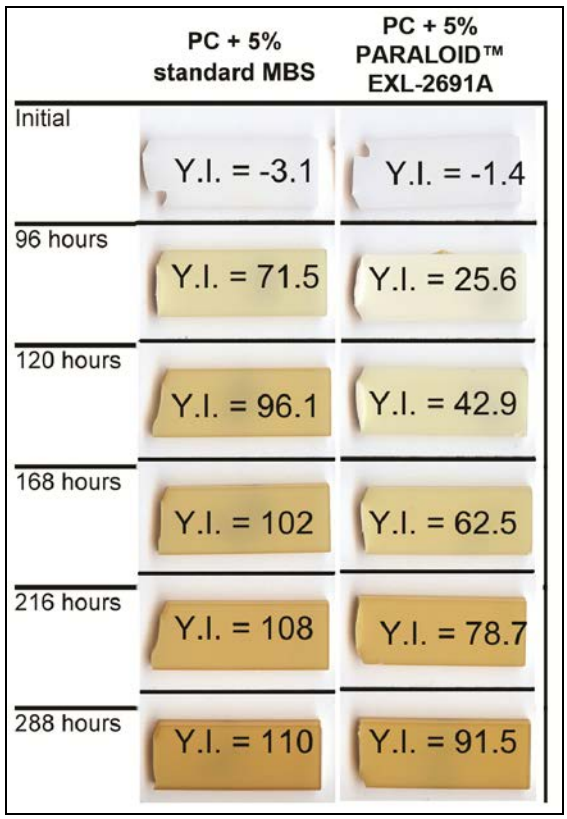
The impact retention of polycarbonate after ageing is improved considerably with the addition of PARALOID™ EXL-2691A Impact Modifier.



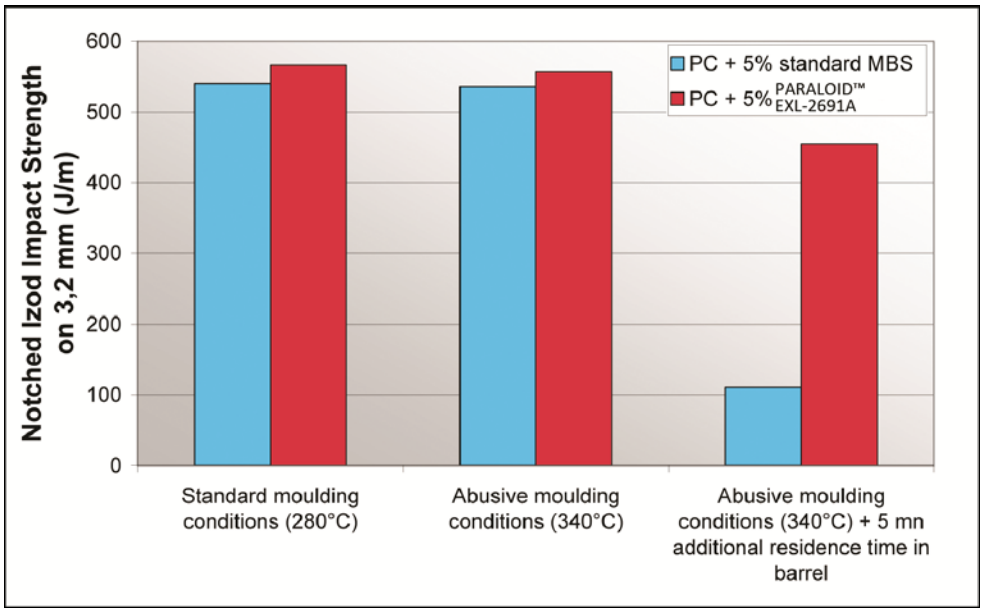
Melt flow measurements also indicate that PC toughened with PARALOID™ EXL-2691A Impact Modifier displays better molecular weight stability during heat ageing.



In addition to improved impact retention after ageing, PARALOID™ EXL-2691A Impact Modifier imparts a lower discoloration to the toughened compound compared with a standard MBS.

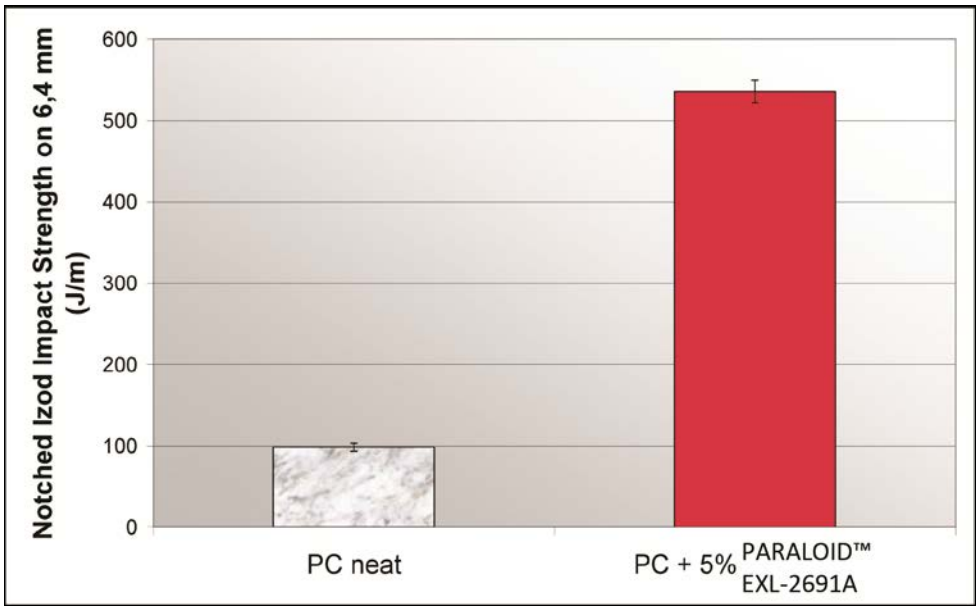


Thanks to its special stabilization package, PARALOID™ EXL-2691A Impact Modifier displays unrivalled stability under certain abusive moulding conditions, allowing it to be used in several demanding applications.

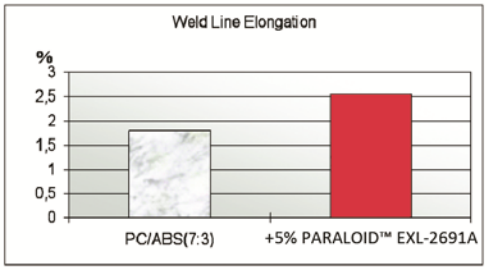


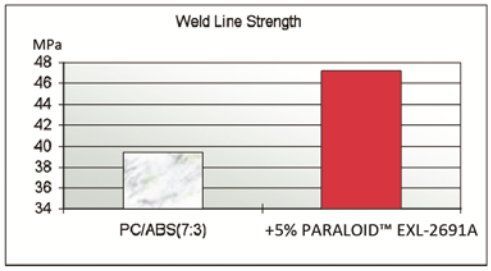
Performance enhancement in PC and its blends

PARALOID™ EXL-2691A Impact Modifier is particularly effective at improving the impact performance in the thick section of polycarbonate, which is typically notch sensitive and brittle.

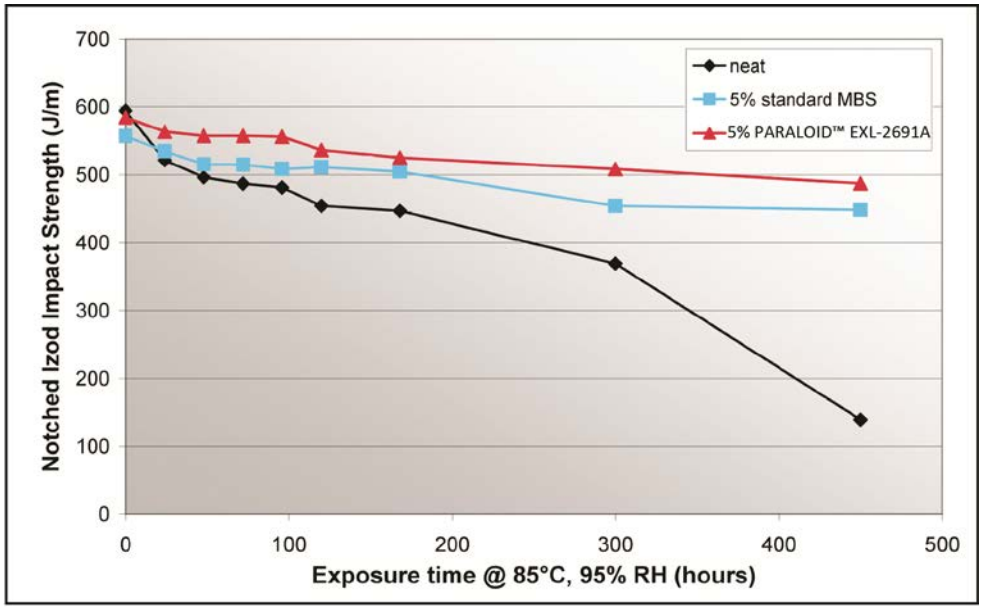


In binary blends such as PC/ABS, the primary core-shell particles of the PARALOID™ EXL-2691A Impact Modifier preferentially locate at the interface between both phases improving their compatibility. This results in improved welding line properties and improved heat stability.





The improved antioxidant package and the high purity of PARALOID™ EXL-2691A Impact Modifier gives improved hydrolytic stability versus standard MBS. This is particularly advantageous for automotive applications that are subject to hot and humid environments.



Compounding

PARALOID™ EXL-2691A Impact Modifier is particularly easy to disperse in engineering resins and can be successfully compounded using twin screw extruders. Adequate mixing zones are needed depending on the nature of the blend, more specifically with glass fiber reinforced systems.

Injection moulding

PARALOID™ EXL-2691A Impact Modifier only slightly influences the rheology of technopolymers. The magnitude of the melt flow reduction depends on the addition level of the impact modifier that is used. In some cases, minor modifications have to be made on injection moulding parameters versus those used for neat matrices.

Physical description

Appearance:	Free flowing white powder
Total residual volatiles:	<1%

Handling Precautions

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.

Medical Applications Policy

NOTICE REGARDING MEDICAL APPLICATION RESTRICTIONS: Dow will not knowingly sell or sample any product or service ("Product") into any commercial or developmental application that is intended for:

- long-term or permanent contact with internal bodily fluids or tissues. "Long-term" is contact which exceeds 72 continuous hours.
- 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 baloons and control systems, and ventricular bypassassisted devices);
- Use as a critical component in medical devices that support or sustain human life; or
- Use specifically by pregnant women in applications designed specifically to promote or interfere with human reproduction.

Dow requests that customers considering use of Dow products in medical applications notify Dow so that appropriate assessments may be conducted. Dow does not endorse or claim suitability of its products for specific medical applications. It is the responsibility of the medical device or pharmaceutical manufacturer to determine that the Dow product is safe, lawful, and technically suitable for the intended use. DOW MAKES NO WARRANTIES, EXPRESS OR IMPLIED, CONCERNING THE SUITABILITY OF ANY DOW PRODUCT FOR USE IN MEDICAL APPLICATIONS.

Disposal Considerations

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 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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