



PARALOID™ EXL-3808 Impact Modifier Maleic Anhydride Grafted (MAH) Polyolefin For Polyamides Applications

Regional Product Availability

- Asia Pacific
- Europe

Introduction

Polyamides are thermoplastic resins widely used for a variety of injection moulded applications, such as automotive, electrical or furniture parts. Among the several polyamide structures commercially available nowadays, Polyamide 6 and 6,6 certainly represent the largest production. Both resins can also be used in mineral filled, flame retardant and glass fiber-reinforced formulations. Although polyamides poses advantageous properties such as high stiffness, good flow and heat resistance, they must be modified to achieve good impact resistance, especially at low temperatures.

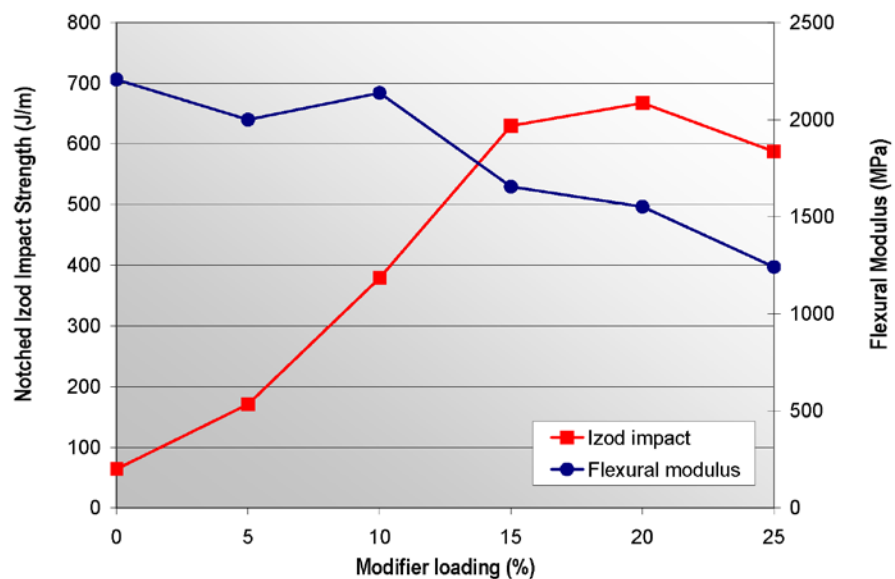
Description

PARALOID™ EXL-3808 Impact Modifier has been developed to fulfill this critical need. PARALOID EXL-3808 Impact Modifier is a low crystallinity ethylene-octene copolymer functionalized with maleic anhydride (MAH) by reactive extrusion. PARALOID EXL-3808 Impact Modifier displays excellent compatibility and bonding with polyamide matrices. Its low Tg, below -50°C, ensures outstanding performance at low temperatures. Its fully saturated backbone results in good thermal and oxidative stability yielding excellent weatherability.

Product Performance

PARALOID™ EXL-3808 Impact Modifier can be compounded on standard twin screw extruders and blended with Polyamide 6 or 6,6 without the need of processing conditions adjustments.

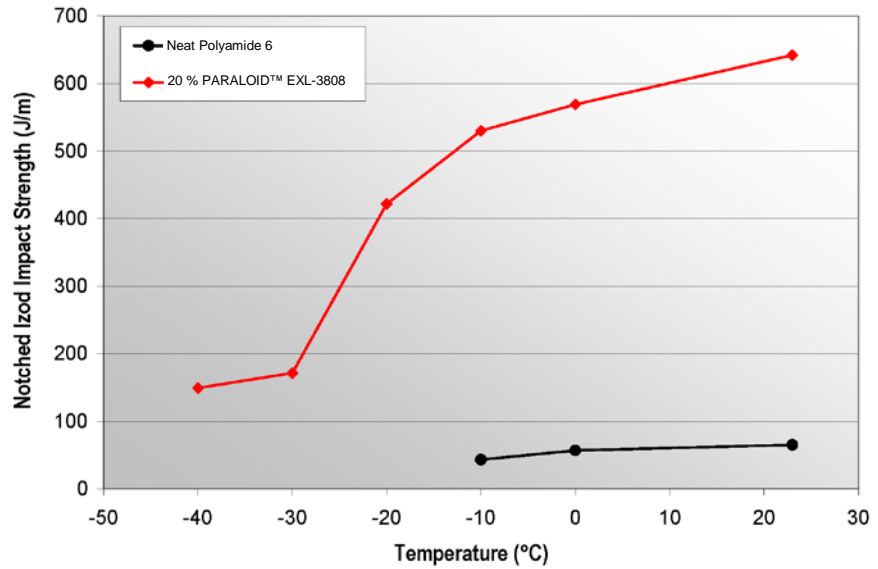
Figure 1. Impact resistance and flexural modulus of Polyamide 6 compound with increasing addition level of PARALOID EXL-3808 Impact Modifier.



Product Performance (Continued)

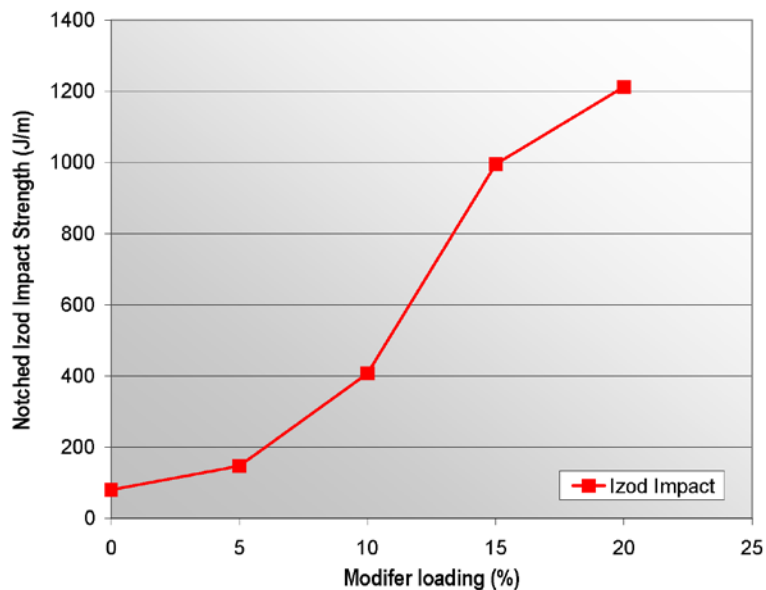
PARALOID™ EXL-3808 Impact Modifier displays optimum room temperature impact performance at 15 wt% in Polyamide 6, with good flexural modulus retention. Flexural modulus is unchanged up to 10 wt% PARALOID EXL-3808 Impact Modifier. The gradual increase in impact versus addition level allows adjusting impact of toughened compound according to specific customer's needs.

Figure 2. Low temperature impact performance of PARALOID EXL-3808 Impact Modifier at 20 wt% addition level in Polyamide 6.



PARALOID EXL-3808 Impact Modifier gives supertough performances at -20°C in Polyamide 6, and enhanced impact resistance for temperatures as low as -40°C at 20 wt% addition level.

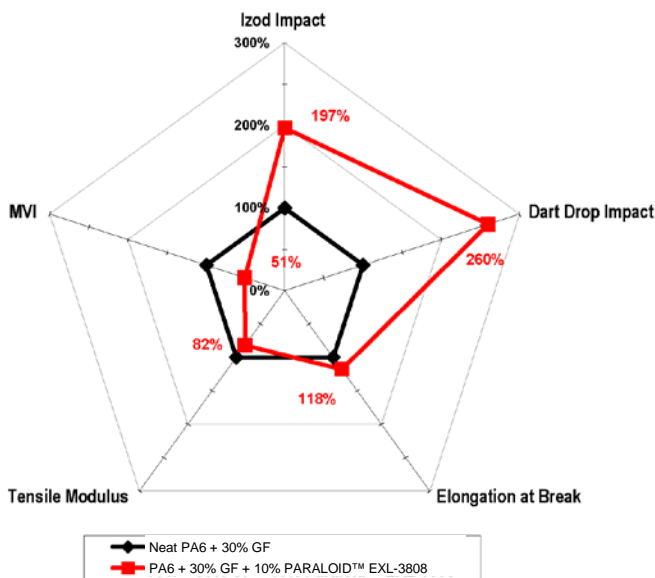
Figure 3. Impact resistance of Polyamide 6,6 compound with increasing addition level of PARALOID EXL-3808 Impact Modifier.



Product Performance (Continued)

PARALOID™ EXL-3808 Impact Modifier imparts excellent toughening effect in Polyamide 6,6 as measured by notched Izod impact with a good balance of modulus and flow.

Figure 4. Relative performance of impact modified glass reinforced Polyamide 6 compound with 10% PARALOID EXL-3808 vs. unmodified reinforced system.



PARALOID EXL-3808 Impact Modifier improves impact resistance of glass reinforced Polyamide 6 compounds, and has a positive effect on elongation at break for those highly stiff systems. This increased flexibility is an advantage for reducing post-processing issues such as part shattering during assembling, or for applications like snap-fit systems. Similar results are observed in Polyamide 6,6.

Regulatory Information

PARALOID™ EXL-3808 Impact Modifier is food contact approved according to European Directive on Food Packaging 2002/72/EC.

Processing Information

PARALOID™ EXL-3808 Impact Modifier is supplied in a dust-free pellet form, easy to handle. It can be mixed with polyamide granules.

PARALOID EXL-3808 Impact Modifier is easily dispersed into polyamides by controlled addition of the additive during melt mixing in a twin screw extruder, using standard heating profile used for polyamide resins.

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.

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 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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