



PARALOID EXL™ 2314 Impact Modifier

Weatherable Impact Modifier For Engineering Resins

Regional Product Availability

- North America
- Japan/Korea
- Asia
- Europe

Introduction

PARALOID EXL™ 2314 Impact Modifier is a high efficiency acrylic toughening agent for engineering resins. This modifier has been tailored to be used successfully in a wide range of engineering polymers as well as a variety of polymer blends.

For over 30 years, Acrylic Impact Modifiers from Dow have contributed to the impact modification of multiple polymers such as polyesters, polycarbonate, polyamide as well as blends and alloys.

The PARALOID EXL™ 2300 and 3300 series have established themselves as a world-wide industry standard offering a distinct combination of impact resistance, stiffness, processability and weatherability.

The development of PARALOID EXL™ 2314 Impact Modifier represents another major step forward both in terms of impact efficiency and overall cost performance.

The excellent efficiency of PARALOID EXL™ 2314 in a wide range of engineering resins allows a rationalisation of the impact modifiers range required in a typical compounding operation.

Advantages

PARALOID EXL™ 2314 Impact Modifier offers the following benefits in all major engineering resins:

- High impact strength
- High heat stability and weatherability
- Good retention of part rigidity
- Excellent processability
- Excellent part finish
- Well defined rubber particle size, not influenced by compounding

Test Methods Used

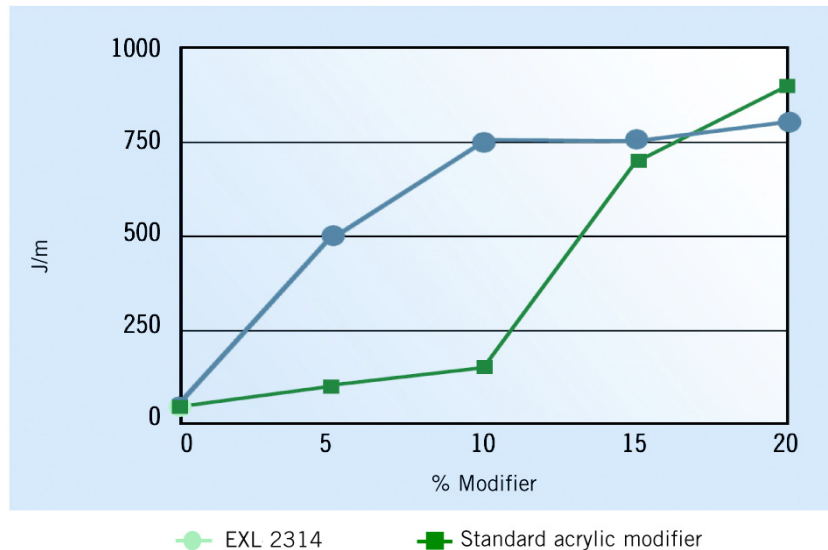
Notched Izod Impact:	ASTM D256, ISO180 4A
MFI:	ASO 1133
Falling weight impact :	Dow Method
Tensile properties:	ISO 527

Product Performance

PET

Notched Izod Impact of A-PET

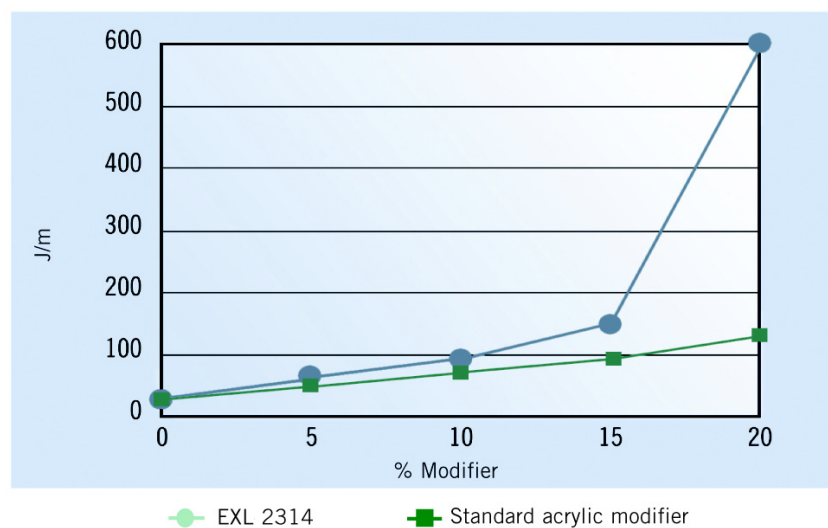
PARALOID EXL™ 2314 Impact Modifier through its improved compatibility with polyesters, shows high toughening at low addition levels in amorphous PET.



Notched Izod Impact of C-PET

Toughening of crystalline PET (C-PET) is limited mostly because of an insufficient compatibility between conventional impact modifiers and PET.

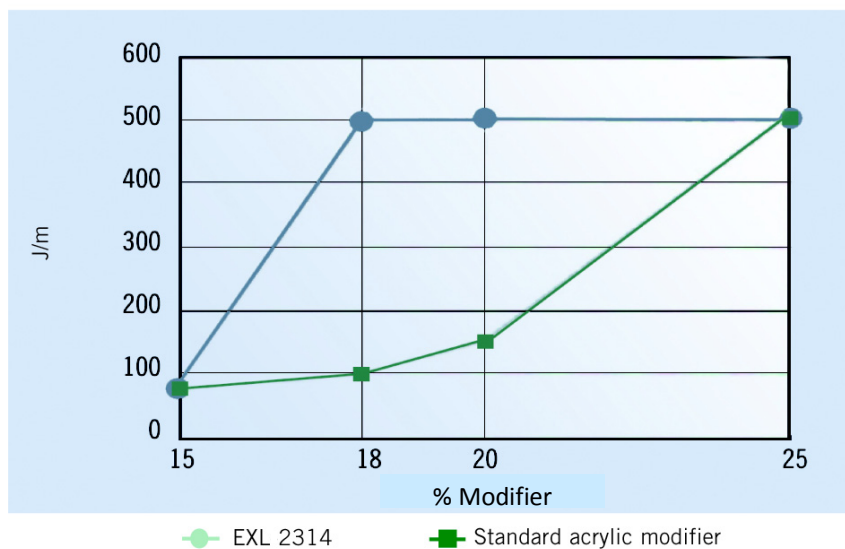
The specific shell chemistry of PARALOID EXL™ 2314 Impact Modifier allows the modifier particles to remain homogeneously distributed during the slow crystallisation of C-PET and therefore provides mouldings with a fully ductile behaviour.



PBT

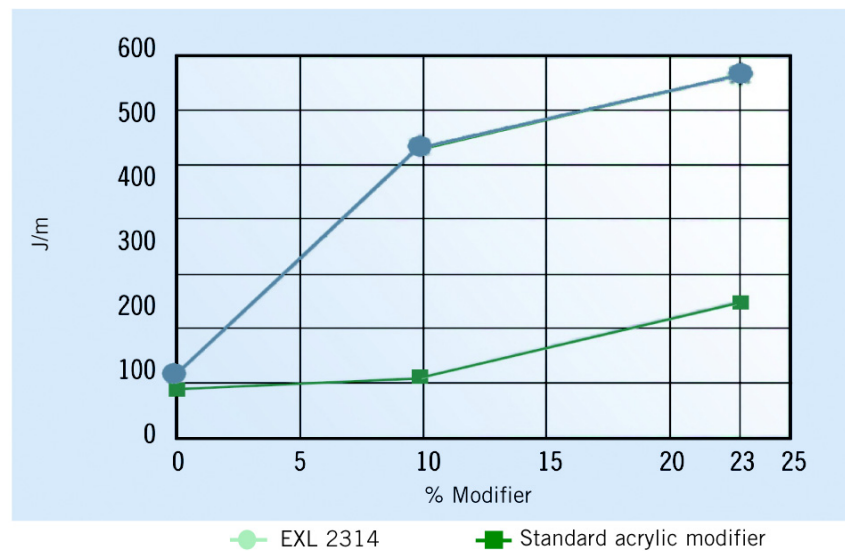
Notched Izod Impact of LMw PBT

The toughening of low molecular weight PBT is made more efficient by the use of PARALOID EXL™ 2314 Impact Modifier.



Notched Izod Impact of HMw PBT

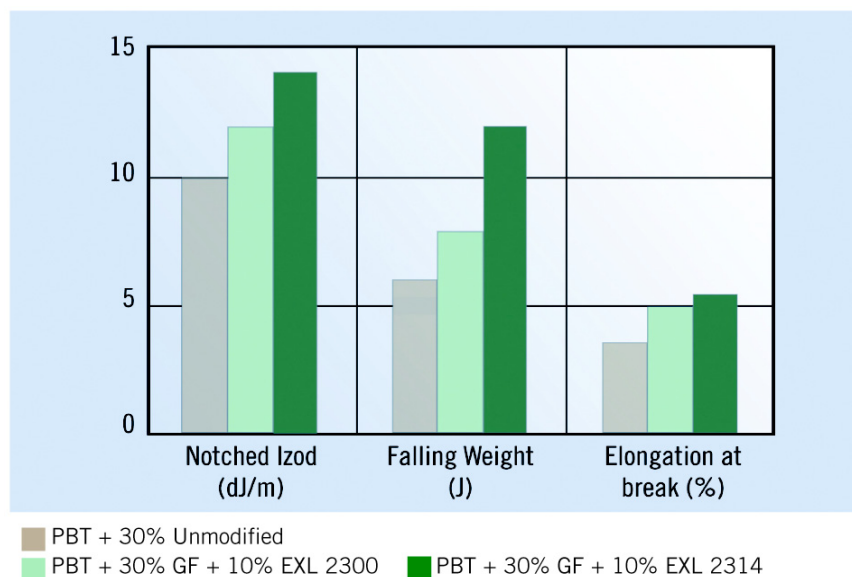
Acrylic impact modifiers provide excellent toughness at ambient temperatures. However, as demonstrated here, an improved acrylic impact modifier such as PARALOID EXL™ 2314, Impact Modifier can extend the usefulness of acrylic modifiers to lower temperatures.



Glass Fibre Reinforced Resins

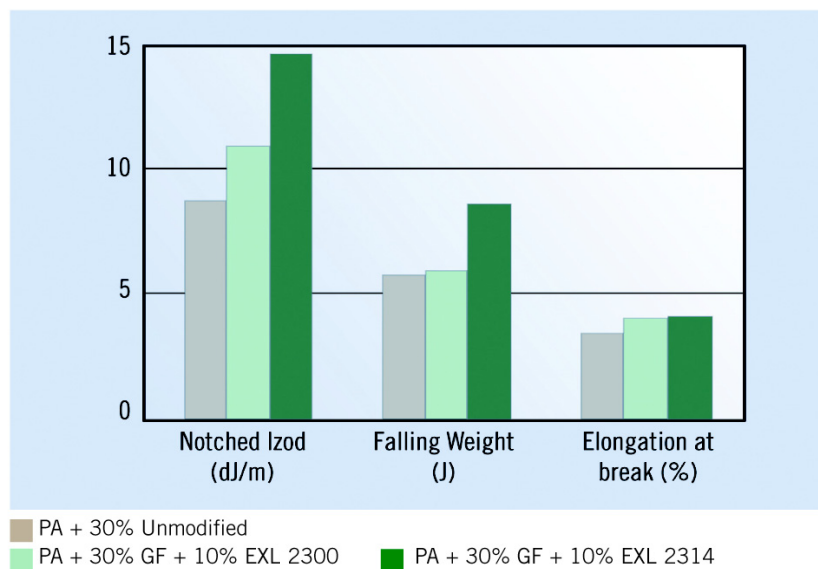
Impact performance of Glass filled (GF) PBT

The benefits observed in unreinforced PBT toughened with PARALOID EXL™ 2314 Impact Modifier translate into an overall improved property profile in glass reinforced PBT.



Property profile of Glass filled (GF) PA6

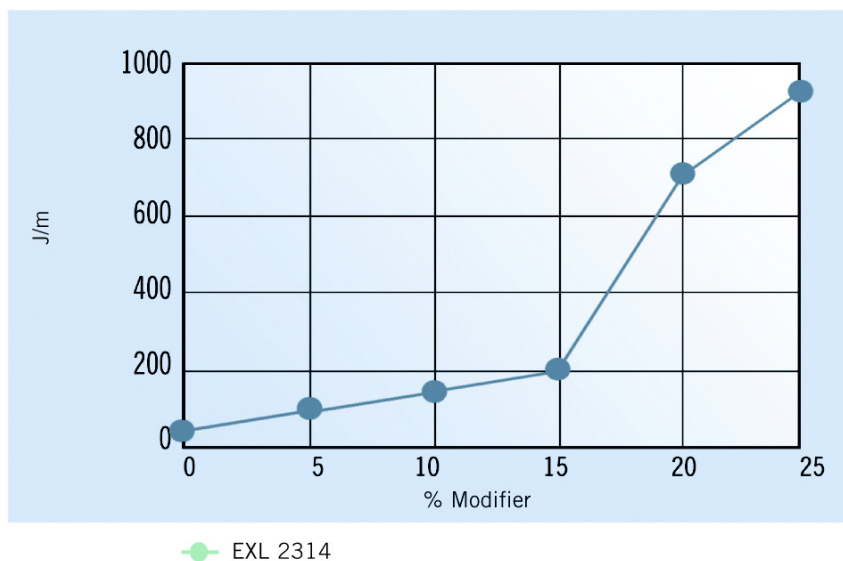
The benefits observed in glass reinforced PA6 toughened with PARALOID EXL™ 2314 Impact Modifier can also be seen in other polymer systems such as polyamides.



Polyamide

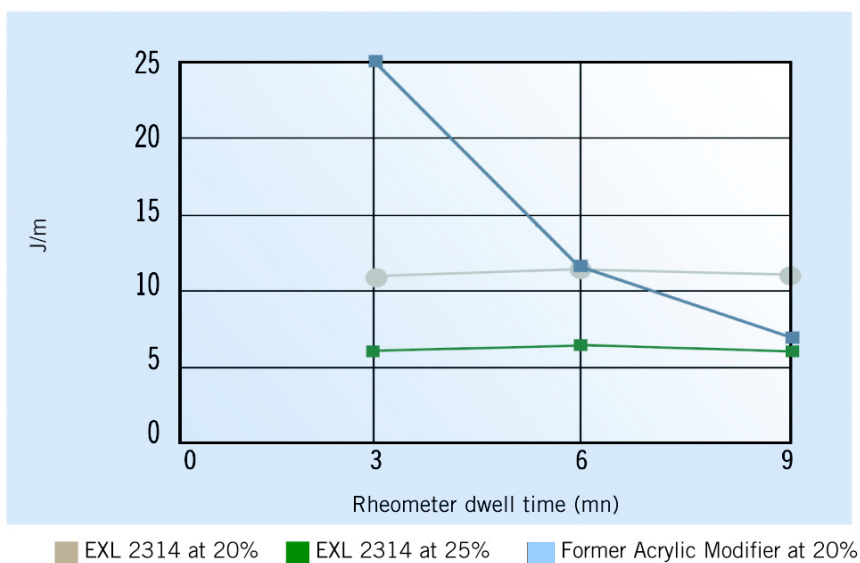
Notched izod impact of PA6

Due to the quite universal compatibility of the PARALOID EXL™ 2314 Impact Modifier shell, it also offers excellent toughness to polymers in the polyamide family.



Melt viscosity of PA6

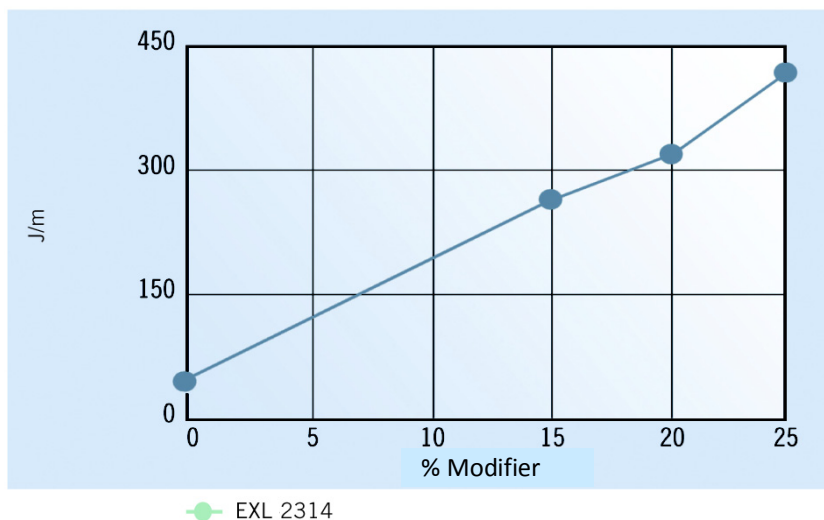
The very stable rheological behaviour shown here demonstrates the very good melt homogeneity and stability of PA6 toughened with PARALOID EXL™ 2314 Impact Modifier.



Polyamide (Continued)

Notched Izod impact of PA6-6

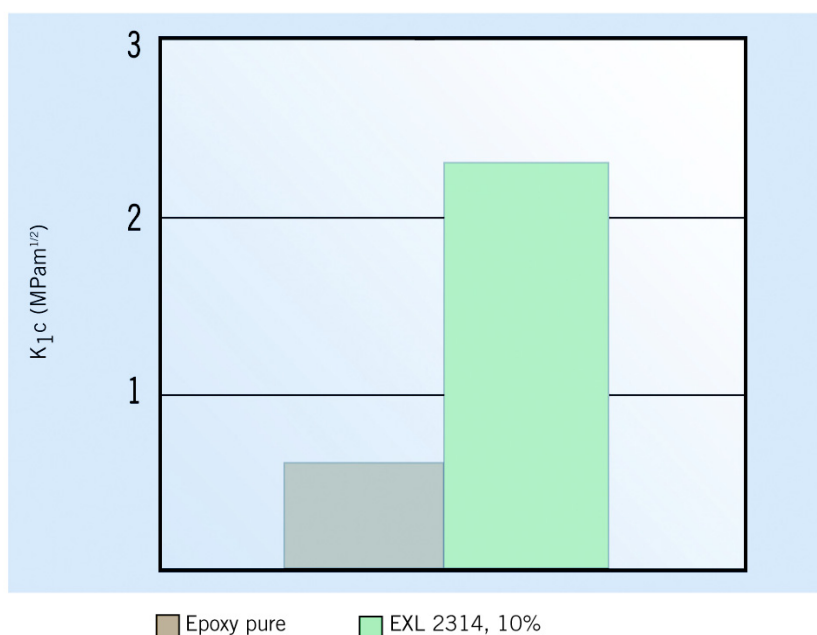
PARALOID EXL™ 2314 Impact Modifier also provides very significant toughening in PA6-6 allowing it, due to the good stability of the acrylic building blocks, to be a significant component of heat resistant impact modified PA6-6 blends.



Epoxies

Crack propagation

Beyond impact modification of engineering thermoplastics, PARALOID EXL™ 2314 Impact Modifier has also demonstrated its ability to improve the crack propagation behaviour of thermosets such as epoxy resins.



Compounding

PARALOID EXL™ 2314 Impact Modifier is particularly easy to disperse in matrices such as PC, PBT or PET and can be successfully compounded with those matrices on twin-screw extruders. With some nylon blends and reinforced matrices, twin-screw extruders with mixing zones are recommended.

Safe handling

PARALOID EXL™ 2314 Impact Modifier is a fine white powder that can produce air-borne dust in the work area with normal handling. This dust may be irritating to the eyes, respiratory tract and skin, and may also constitute an explosion hazard. Adequate ventilation should be used to keep this dust below hazardous levels. Material Safety Data sheets (MSDS) are available outlining hazards and safe handling methods. Contact Dow Plastics Additives for copies of MSDS and other handling information.

**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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