

Technical Bulletin

ELASTAMINE[®] Amines for Modification of Thermoplastic Polymers

INTRODUCTION

Thermoplastic polymers such as polyamides (nylon), polyolefins, or polyester find use in a variety of applications, ranging from fibres to films or membranes, to engineering plastics. These polymers generally have good properties, which make them suitable for these applications. However, several characteristics such as flexibility, hydrophilicity, low temperature properties, and surface energy can be improved through modification with ELASTAMINE[®] amines. ELASTAMINE[®] amines are a new and unique product range of specialty amines.

FEATURES of ELASTAMINE[®] AMINES

- Flexible polyether backbone
- Mono-, di-, or tri- functionality amines
- Low viscosity, essentially colourless, low vapour pressure
- High functionality, high amine conversion
- ELASTAMINE[®] amines can be made hydrophilic (PEG) or hydrophobic (PPG, PTMEG), depending on the choice of the polymer backbone.
- ELASTAMINE[®] amines can be highly reactive as a result of the presence of unhindered amine end groups. Benefits are shorter polymer production cycles, improved colour and mechanical properties.
- ELASTAMINE[®] amines can be prepared so to contain a significant amount of secondary amine as well as primary amine.

USE IN POLYAMIDES (NYLONS)

Applications:

- Polyamide elastomers
- Polyamide fibres

Benefits in elastomers:

- Increased elasticity and flexibility, also at low temperatures
- Improved hydrolysis resistance
- Improved compatibility with other elastomers

Benefits in fibres:

- Softer touch textiles
- Breathable textiles
- More elastic textiles
- Improved anti-static properties

USE IN POLYOLEFINS

Applications:

- Surface modification of polyolefins
- Hydrophilic polyolefins
- Coloured plastics, fibres or films
- Compatibilization of polymer alloys

Benefits

- Improved paintability
- Improved dyeability
- Improved printability
- Improved antistatic properties
- Improved interpolymer adhesion

USE IN ELASTANE

Applications:

- Modification of elastane (Spandex)

Benefits

- Amine end groups are much more reactive than alcohol end groups
- Flexibility from polyether backbone
- Improved colour retention
- Improved resistance to chlorine and other chemicals

USE IN OTHER POLYMERS - such as POLYESTER

Applications:

- Modification of polyester films
- Hydrophilic polyester
- Water-soluble, water-dispersible, water-swelling polymers
- Compatibilization of polymer alloys

Benefits

- Amine end groups are much more reactive than alcohol end groups
- Improved hydrolysis resistance
- Flexibility from polyether backbone
- Hydrophilicity, polarity and improved antistatic properties from polyethylene-glycol backbone
- Improved moisture transport in fibre and film applications

TOXICITY AND SAFETY

For additional information on the toxicity and safe handling of this product, please consult the Material Safety Data Sheet (Safety Data Sheet in Europe) prior to use of this product.

AVAILABILITY

ELASTAMINE[®] amines are available in 55-gallon (208 L) drums. Samples are available in North America and Asia by contacting our sample department at 1-800-662-0924. Samples in other locations, including Europe, are available by contacting any Huntsman Corporation sales office.

Technical bulletins and product literature are available at www.huntsman.com/cpr, or can be requested through contacting any Huntsman Corporation sales office.

ELASTAMINE® AMINE GRADE

Product Name	Backbone	Approx. Molecular Weight
RP-405	PPG	400
RP-409	PPG	400
RP-2005	PPG	2000
RP-2009	PPG	2000
RT-1000	PTMEG/PPG	1000
RE-600	PEG/PPG	600
RE-900	PEG/PPG	900
RE-2000	PEG/PPG	2000
HE-150	PEG	150
HE-1700	PEG	1700
HT-1700	PTMEG	1700
RE1-1000	PEG/PPG	1000
RE1-2005	PEG/PPG	2000
RE1-2007	PEG/PPG	2000
RP3-400	PPG	400
RP3-5000	PPG	5000

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