Polymer Modification Enhance Mechanical Performance

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Introduction

Polyamide (Nylon) is a thermoplastic polymer with excellent characteristics and is widely used, such as fibers, films, and engineering plastics. ELASTAMINE[®] Polyetheramine can be used to modify Polyamide (Nylon) to improve its multiple properties, such as flexibility, elasticity and low-temperature performance.

Modified polyamide (Nylon) is widely used in various industries due to its unique properties, such as textiles and garments, automotive and transportation, electronics and electrical, sports and leisure, medical and health, etc.

(A) INTRODUCTION

ELASTAMINE® polyetheramine can be used for the modification of polyamide (Nylon) by introducing Polyetheramine into the polymer backbone to improve its multiple properties, such as elasticity, flexibility, impact resistance, process-ability and low temperature performance, etc.

Polyetheramine is more suitable for Nylon modification than polyether glycol, because amine reacts faster, and amide groups are more resistant to hydrolysis than ester groups.





(B) APPLICATIONS & BENEFITS

APPLICATIONS	BENEFITS	
Super elastic nylon fiber	 Enhanced flexibility – The polyether chain imparts the product excellent flexibility. Improved hydrophobicity – The backbone structure helps reduce water absorption. 	
Cable and pipe		
Footwear material	• Higher reactivity – The activity of the terminal amino group is higher than that of	
Sports goodsMedical equipment, etc	the hydroxyl group. Thus the condensation reaction does not require a catalyst, an could proceed with simple operation.	
	• Better processing performance – Polyether flexible segment can improve product melt flow.	
	• Better low temperature toughness – The polyether flexible segment gives better impact resistance.	
	• Versatility – Applicable to various types of Nylon-such as Nylon 6, Nylon 66 and long-chain Nylon (Nylon 12, Nylon 610, Nylon 612, etc.)	

(C) PRODUCT RANGE

PRODUCT NAME	TYPICAL PROPERTIES*			
	COLOUR, Pt-Co	WATER, wt%	VISCOSITY, cST	
RP-400	30 max	0.25 max	22 (25°C)	
RP-2000	30 max	0.25 max	248 (25°C)	
RT-1000	50 max	0.50 max	121 (40°C)	
RP3-5000	75 max	0.20 max	819 (25°C)	
RP3-400	50 max	0.25 max	72 (25°C)	

* Properties are for reference only. Please approach Huntsman Corporation for actual specifications.



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Huntsman Performance Products

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