

**HUNTSMAN**

Enriching lives through innovation



**ELASTOMERE**

IROGRAN® connecting lives





Under the trademark IROGRAN® Huntsman offers an extensive range of thermoplastic polyurethanes for the entire cable industry based on polyester and polyether. The product range comprises cable extrusion, cable protecting systems and injected parts for various applications such as:

- injected grommets
- injected plugs
- highly flexible anti-kink sleeves

The polyurethanes of Huntsman are characterised by high quality as well as excellent processing properties. In addition to an excellent wear resistance and superior flexibility the use of IROGRAN® provides:

- absolutely tight cable feedthroughs and kink-proof injected plugs to reduce potential sources of defects
- excellent adhesion of injected parts on the cable jacket with superior haul-off properties
- easy installation even at extreme weather conditions

### Benefits of TPU

- High flexibility and elasticity over a wide temperature processing window
- Excellent abrasion resistance
- Very good tensile and cut resistance
- High dimensional stability
- Short cycle times

All polyurethanes are recyclable.

### Properties / Value

Performance and Benefits offer a maximum of cost efficiency. In details this means for you:

- **Easy release properties**  
means an increase of the production rates and reduce production times
- **High flexibility**  
simplify ease of installation of following downstream productions
- **Short cycle times**  
reduced production time and increased cost efficiency
- **Rapid crystallization of the melt**  
shorter cycle times and optimized dimensional stability
- **Excellent flow characteristics**  
optimised shaping even for components with complex geometry
- **Consistent dimensional stability and consistency**  
minimize wastage and complaint rate



### Product Overview

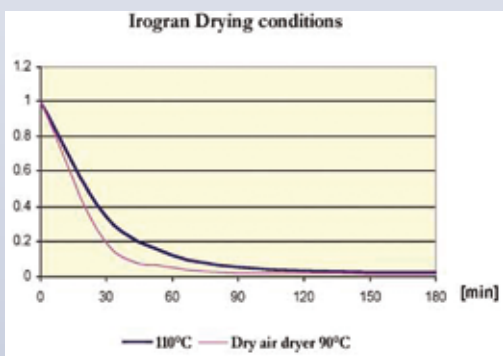
Productgroup	Product	Shore A	Shore D	Tensile	Ultimate	Tear	Melt Volume	UL	Benefits (Properties)
				Strength	Elongation	Strength	Ratio		
				(N/mm <sup>2</sup> )	keit %	(N/mm)	(cm <sup>3</sup> /10 min)	Class.	
<b>Ester</b>	<b>A 70 E 4675</b>	70	22	30	600	45	20-40		plasticiser free
	<b>A 85 H 4546</b>	85	35	40	550	70	20-30		excellent mechanical properties
	<b>A 98 E 4066</b>	98	52	50	450	135	8-30		high dimensional stability
	<b>D 60 E 4024</b>		60	45	350	180	30-60		high dimensional stability
<b>Ether</b>	<b>A 65 P 4324N</b>	71	22	30	700	35	60		processable at low temperatures
	<b>A 75 P 4655N</b>	75	21	30	700	45	55		black colored
	<b>A 85 P 4394</b>	85	36	40	640	60	50-80		transparent
	<b>A 98 P 4535</b>	98	52	45	400	135	40-70		excellent microbial resistance

### Drying

IROGRAN® grades for the cable industry are supplied in steam-tight bags or in octabins with PE-lining.

As IROGRAN® is hygroscopic, the granulate should always be pre-dried carefully as even the smallest content of humidity can lead to uneven surfaces and stuck material inside the nozzle.

A re-absorption of humidity can be prevented by storing in a dry air atmosphere. The use of humid granulate results in processing problems and poor quality assembly units.



### Supply

Standard sales units are 25 kg bags, 1000 or 1125 kg/pallet. Gaylords, Big Bags or Silo Trucks are alternatively available.

Huntsman Polyurethanes is committed to your business and can offer fast and flexible response to your needs. Believing in confidential dialogue, we offer direct links into the laboratories with full technical backup. Commercial support and dedicated customer service is available throughout Europe, Asia and the US.

#### European Headquarters

ACE@Huntsman.com

Telefon: 32 (0)2 758 9420

Fax: 32 (0)2 758 7420

[www.huntsman.com/pu/ACE](http://www.huntsman.com/pu/ACE)



#### The Huntsman-Story

Global resources for local needs Huntsman Polyurethanes is a business division of Huntsman Corporation. Huntsman is a global manufacturer and marketer of differentiated chemicals. Its operating companies manufacture products for a variety of global industries including chemicals, plastics, automotive, aviation, textiles, footwear, paints and coatings, construction, technology, agriculture, health care, detergent, personal care, furniture, appliances and packaging. Originally known for pioneering innovations in packaging, and later rapid and integrated growth in petrochemicals, Huntsman today has 12,000 employees and 78 operations in 24 countries. The company had 2008 revenues of over \$ 10 billion. Huntsman Polyurethanes warrants only that its products meet the specifications agreed with the buyer. Typical properties, where stated, are to be considered as representative of current production and should not be treated as specifications. While all the information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NO GUARANTY, WARRANTY OR REPRESENTATION IS MADE, INTENDED OR IMPLIED AS TO THE CORRECTNESS OR SUFFICIENCY OF ANY INFORMATION OR RECOMMENDATION OR AS TO THE MERCHANTABILITY, SUITABILITY OR FITNESS OF ANY PRODUCTS FOR ANY PARTICULAR USE OR PURPOSE. IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE. NOTHING IN THIS PUBLICATION IS TO BE CONSTRUED AS RECOMMENDING THE INFRINGEMENT OF ANY PATENT OR OTHER INTELLECTUAL PROPERTY RIGHT AND NO LIABILITY ARISING FROM ANY SUCH INFRINGEMENT IS ASSUMED. NOTHING IN THIS PUBLICATION IS TO BE VIEWED AS A LICENCE UNDER ANY INTELLECTUAL PROPERTY RIGHT.

Products may be toxic and require special precautions in handling. The user should obtain Safety Data Sheets from Huntsman Polyurethanes and Huntsman Performance Products containing detailed information on toxicity, together with proper shipping, handling and storage procedures, and should comply with all applicable safety and environmental standards. Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent on the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users. IROGRAN® is a registered trademark of Huntsman CORPORATION or an affiliate thereof, in one or more countries, but not all countries. Copyright © 2010 Huntsman CORPORATION or an affiliate thereof. All rights reserved.

#### Sales locations:

##### AMERICAS

Huntsman  
2190 Executive Road Blvd.  
USA - Auburn Hills, MI 48326  
Tel.: +1 248-322-7394  
Fax.: +1 248-322-7404  
e-mail: [TPU\\_AMERICAS@huntsman.com](mailto:TPU_AMERICAS@huntsman.com)

##### EAMEI

Huntsman (Germany) GmbH  
Hafenringstraße 1  
D - 49090 Osnabrück  
Tel.: +49 541 9141-0  
Fax: +49 541 9141-395  
e-mail: [TPU\\_EAME@huntsman.com](mailto:TPU_EAME@huntsman.com)

##### APAC

Huntsman  
Asia Technology Center  
452 Wen Jing Road, Minhang  
200245 Shanghai - P.R. China  
Tel. +86.21.24.03.72.39  
Fax. +86.21.24.03.72.00  
e-mail: [TPU\\_APAC@huntsman.com](mailto:TPU_APAC@huntsman.com)