



HUNTSMAN

Enriching lives through innovation

Inspiring Extrusion Excellence

Technical extrusion
product overview

Be inspired

The manufacture of modern products, engineering components and technical parts can be complex. Success depends on many factors. Most notable is the availability of multi-faceted, raw materials that can perform consistently, speed manufacture, and bring design blueprints to life in line with end user requirements.

Huntsman is one of the world's leading developers of thermoplastic polyurethanes (TPU) – an innovative engineering material. For years our TPU solutions have inspired inventors and engineers to push new design frontiers. Fusing the practical qualities of plastic with rubber, our TPUs are used in modern manufacture to meet the design and production challenges of a fast-changing world and enrich the performance of anything from cables, profiles, filaments, tubes to hoses, and conveyor belts.





IROGRAN®

is the brand name for our range of polyester and polyether-based TPUs. Products from this extensive portfolio are fully customizable and can be used in an array of technical extrusion applications including:

- Hoses
- Tubes
- Profiles
- Belting

Offering numerous advantages over traditional engineering plastics, TPUs provide the following benefits as standard:

- Good abrasion, chemical and hydrolysis resistance
- Low temperature flexibility
- High elongation and tensile strength
- Good compression set



TPU Innovation

Huntsman Polyurethanes is committed to continuous innovation across all areas of its thermoplastics business. For customers looking to develop specific applications, achieve particular features or deliver precise performance benefits, we offer direct access to a team of technical experts and a network of specialist laboratories located around the world.

IROGRAN® polyester TPUs:

Bringing exceptional value in the form of enhanced properties these materials are unaffected by oils and chemicals, provide excellent abrasion resistance and offer a great balance of physical characteristics.

IROGRAN® polyether TPUs:

Slightly lower in specific gravity than polyester grades, these TPUs offer low temperature flexibility and good abrasion and tear resilience. They are also durable against microbial attack and provide excellent hydrolysis resistance – making them ideal for applications where water is a consideration.

IROGRAN® FCM:

Huntsman supplies manufacturers in the food contact industry with GMP standard TPU grades. All materials are manufactured in accordance with guidelines from the Plastic Europe Association and come with the necessary documentation, expert technical support and Huntsman's firm commitment to ongoing research and product innovation in the sector.





BELTS & PROFILES:

Manufacturers producing belts and profiles for timing, transmission and conveyor belt systems require cost effective raw materials with robust mechanical properties including abrasion, fatigue, and hydrolysis resistance. Our established IROGRAN[®] TPU polyester and polyether-based grades deliver numerous benefits. They can offer a broad processing window. They are made to be easy to color. They can deliver the optimum balance of adhesion properties, sticking to the fabrics for which they are intended. Special grades are also available that can comply with safety and performance standards and good manufacturing practice (GMP) principles in food contact industries.

Key features include:

- Wear and tear resistance
- High production rates
- Low temperature flexibility
- Good elasticity
- A wide processing window

HOSES & TUBES:

Well-known for offering great versatility, IROGRAN[®] is the brand name for an exceptional range of polyester and polyether-based TPUs that are flexible and strong, and have been developed to offer new possibilities in the production of a wide range of tube and hose systems. IROGRAN[®] TPUs are characterized by their quality and for processing properties that can help deliver the performance required in the most demanding and innovative applications. With excellent flexibility and wear resistance, IROGRAN[®] grades can be used to create solutions that are individually tailored to meet a wide variety of customer requirements.

Key features include:

- High flexibility and elasticity
- Good welding properties
- Good abrasion resistance
- Low creep behavior
- Good burst pressure performance
- High kink resistance.

Product overview

Physical properties	Norm	Unit	A 70 P 6027	A 80 P 5039	A 80 P 4699	A 85 P 5115	A 85 P 5118	A 85 P 4394	A 85 P 4441	A 85 P 4207
			IROGRAN® ether-based							
GENERAL										
Hardness	ASTM D 2240	Shore A	70	81	80	89	87	85	87	92
Hardness	ASTM D 2240	Shore D	-	33	31	41	40	40	39	46
Density	ASTM D 792	g/cm ³	1.07	1.10	1.10	1.12	1.12	1.12	1.11	1.13
MECHANICAL										
Tensile strength	ASTM D 412	psi	4630	5660	4600	6960	8500	6850	6960	6300
Elongation @ break	ASTM D 412	%	730	620	660	550	510	560	580	510
Tensile stress @ 100% elongation	ASTM D 412	psi	475	680	610	930	950	930	980,0	1350
Tensile stress @ 300% elongation	ASTM D 412	psi	770	1140	930	1800	2300	1730	1560	2670
Tear strength	ASTM D 624	pli	320	380	420	510	470	470	480	570
Abrasion	ISO 4649	mm ³	-	34	40	30	30	31	48	40
THERMAL										
TMA low melt range	Huntsman	°C	156	141	125	160	160	157	155	175
TMA high melt range	Huntsman	°C	170	156	155	172	170	170	169	192
OTHER FEATURES										
Transparency			x	x		x	x	x		
High crystallinity										x
Matt finish					x				x	
Available as food contact grade			x	x		x	x	x	x	
Available as UV protected			x	x		x		x		
Processable by blown-film extrusion				x	x	x		x	x	

A 92 P 4637	A 92 P 4851	A 95 P 5044	A 98 P 4535	A 75 E 5040	A 78 E 4506	A 78 E 4723	A 85 E 4719	PS370-204	A 85 E 4607	A 85 D 4968	PS49-204	PS440-200	A 92 E 4694	A 92 E 4860	PS443-201	A 98 E 4735
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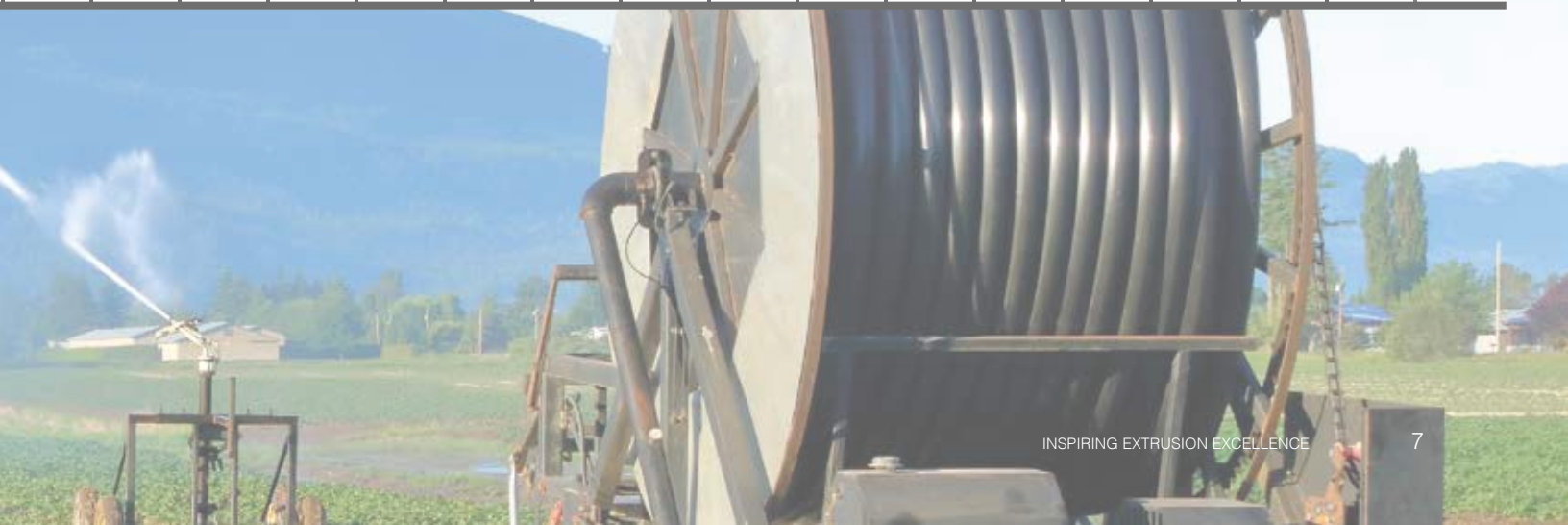
IROGRAN® ester-based

91	92	95	96	75	80	80	87	77	84	86	79	88	92	91	93	97
45	46	48	56	25	30	30	43	30	38	42	31	42	50	42	58	55
1.14	1.12	1.14	1.15	1.15	1.17	1.19	1.20	1.20	1.19	1.20	1.16	1.22	1.21	1.19	1.22	1.22

7100	6440	8290	7410	2200	5200	5600	6960	9320	7430	8130	5320	8110	7770	7500	7850	6070
500	500	480	440	650	450	660	570	520	610	580	590	520	500	530	430	420
1300	1290	1630	2370	570	700	650	890	600	710	800	560	940	1260	1020	1800	1870
2860	2520	4050	4780	950	1230	1550	1710	1340	1690	1900	1050	2550	2430	2430	5120	3900
550	580	620	760	300	480	510	470	370	530	550	340	530	620	650	750	670
33	54	31	38	90	25	30	30	36	27	29	53	34	33	46	36	36

167	165	175	191	150	175	155	146	130	161	160	136	159	179	187	169	182
181	179	187	204	190	185	165	160	166	190	175	151	173	192	203	181	205

x		x				x	x	x		x	x	x	x		x	
			x		x				x					x		x
	x															
x							x					x				
x		x											x			
x					x							x				



Global elastomers experts

Committed to customers: We build partnerships with our customers and work across an international network of R&D and manufacturing locations to help solve complex challenges and deliver the highest levels of technical support and customer care.

Committed to quality: Wherever we are, whatever we are doing, we prioritize environmental, health and safety protection, and we are always rigorous about quality control and assurance.

Committed to innovation: We keep pace with the most innovative trends in plastics processing by using the latest equipment and making regular investments in our formulation, manufacturing and R&D capabilities.

Committed to sustainability: We create solutions that contribute to a more sustainable society by helping to conserve energy, preserve natural resources and reduce our overall carbon footprint.



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About Huntsman:

Huntsman Corporation is a publicly traded corporation headquartered in The Woodlands, Texas, in the United States of America. Huntsman is a global downstream, differentiated, and specialty chemicals company. For more than 50 years, we have been using science and ingenuity to innovate and create products that enable more sustainable and comfortable lives for millions of people around the world. In 2023, Huntsman had more than 6,000 associates working in nearly 60 manufacturing, research and development (R&D), and operations facilities in 25 countries. Through our three divisions, we produce approximately 6,250 products to serve a broad and diverse range of consumer and industrial end markets including aerospace, transportation, building and construction, consumer goods, energy and fuels, and food preservation.

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Products may be toxic and require special precautions in handling. The user should obtain Safety Data Sheets from Huntsman Polyurethanes 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.

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