

HUNTSMAN

Enriching lives through innovation

IROGRAN®

Thermoplastic Polyurethanes

For the wire
and cable industry



Physical Properties	IROGRAN® Polyether Grades		A 80 P 4699 L	A 85 P 4394	A 85 P 4441	A 92 P 4637	A 92 P 4851
	Appearance		Matte	Transp.	Matte	Transp.	Matte
	Special Characteristics		std	std	std	std	std
	Norm	Unit					
Hardness	ISO 868 ASTM D-2240	Shore A	81	85	87	92	93
Hardness	ISO 868 ASTM D-2240	Shore D	31	36	38	39	42
Tensile Strength @ Break	DIN 53504 ASTM D-412	MPa psi	30 3050	45 5075	40 4400	45 4870	45 5200
Tensile Stress @ 100% Elongation	DIN 53504 ASTM D-412	MPa psi	5.7 860	7.0 1015	7.3 1100	9.1 1300	10.0 1450
Tensile Stress @ 300% Elongation	DIN 53504 ASTM D-412	MPa psi	8.4 1200	12.0 1740	11.0 1600	15.9 2050	16.1 2100
Elongation @ Break	DIN 53504 ASTM D-412	% %	750 810	640 610	650 700	600 670	600 640
Tear Strength	ISO 34-1 ASTM D-624	N/mm pli	45 510	60 574	60 560	74 660	75 640
Abrasion	ISO 4649 ISO 4649	mm ³ in ³	50 0.0033	25 0.0015	35 0.0021	30 0.0018	35 0.0021
Compression Set, 70h 23°C	ISO 815 ASTM D-395	%	24	20	24	25	27
Compression Set, 24h 70°C	ISO 815 ASTM D-395	%	46	40	42	41	45
Density	ISO 1183-1 ASTM D-792	g/cm ³	1.09	1.12	1.11	1.13	1.13
Thermal Melt Range	TMA Huntsman TMA Huntsman	°C °F	125 - 150 260 - 300	150 - 170 302 - 338	155 - 175 311 - 347	160 - 170 320 - 338	160 - 171 320 - 340
Limiting Oxygen Index (LOI)	ASTM D-2863	%	21.4	21.8	21.0	24.8	26.1
Vicat Softening Point, 10N, 120c/hr	ASTM D-1525	°C °F	66 151	83 181	84 183	96 205	95 203

*HFFR = Halogen Free Flame Retardant

A 92 K 5031	A 92 P 4207	A 98 P 4535	A 78 P 4766	A 78 P 4766 NM	A 85 P 4350	A 85 P 4380	A 85 P 4854
Opaque	Opaque	Opaque	Opaque	Transp.	Opaque	Matte	Matte
High Temp.	High Crystal.	High Crystal.	HFFR* UL94 V0	HFFR* UL94 V0	HFFR* UL94 V2	HFFR* UL94 V2	HFFR* UL94 V0
92	92	96	82	79	86	87	83
46	40	51	30	30	35	36	33
54 5655	49 5300	55 5740	30 4000	35 3700	40 4600	35 3200	25 3340
11.4 1658	9.5 1400	15.4 2260	5.2 840	5.0 740	6.5 990	6.0 1015	3.5 810
18.0 2610	16.6 2280	25.0 3360	8.0 1400	10.0 1350	10.2 1500	10.0 1450	7.5 1250
550 580	570 640	510 550	700 610	620 680	680 660	600 610	670 650
72 742	75 680	120 840	40 410	45 460	50 490	50 460	35 390
20 0.0012	25 0.0015	30 0.0018	40 0.0024	49 0.0029	35 0.0021	35 0.0021	40 0.0024
26	28	32	20	25	22	25	30
33	44	50	36	80	40	45	46
1.13	1.14	1.16	1.16	1.15	1.15	1.14	1.14
180-195 356-383	165 - 188 330 - 370	185 - 200 365 - 390	165 - 190 330 - 375	139 - 155 282 - 311	171 - 190 340 - 375	159 - 180 318 - 356	125 - 160 260 - 320
20.8	25.3	23.8	25.0	29.6	25.9	25.9	25.5
160 320	109 228	146 295	n/a	69 156	n/a	80 176	n/a



IROGRAN® creating connections



Huntsman Polyurethanes is committed to working closely with its customers and can offer a fast and flexible response to your needs. We offer direct links to our laboratories with full technical backup. Commercial support and dedicated customer service is available throughout Europe, the Middle East, Asia-Pacific and the Americas.

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About Huntsman

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