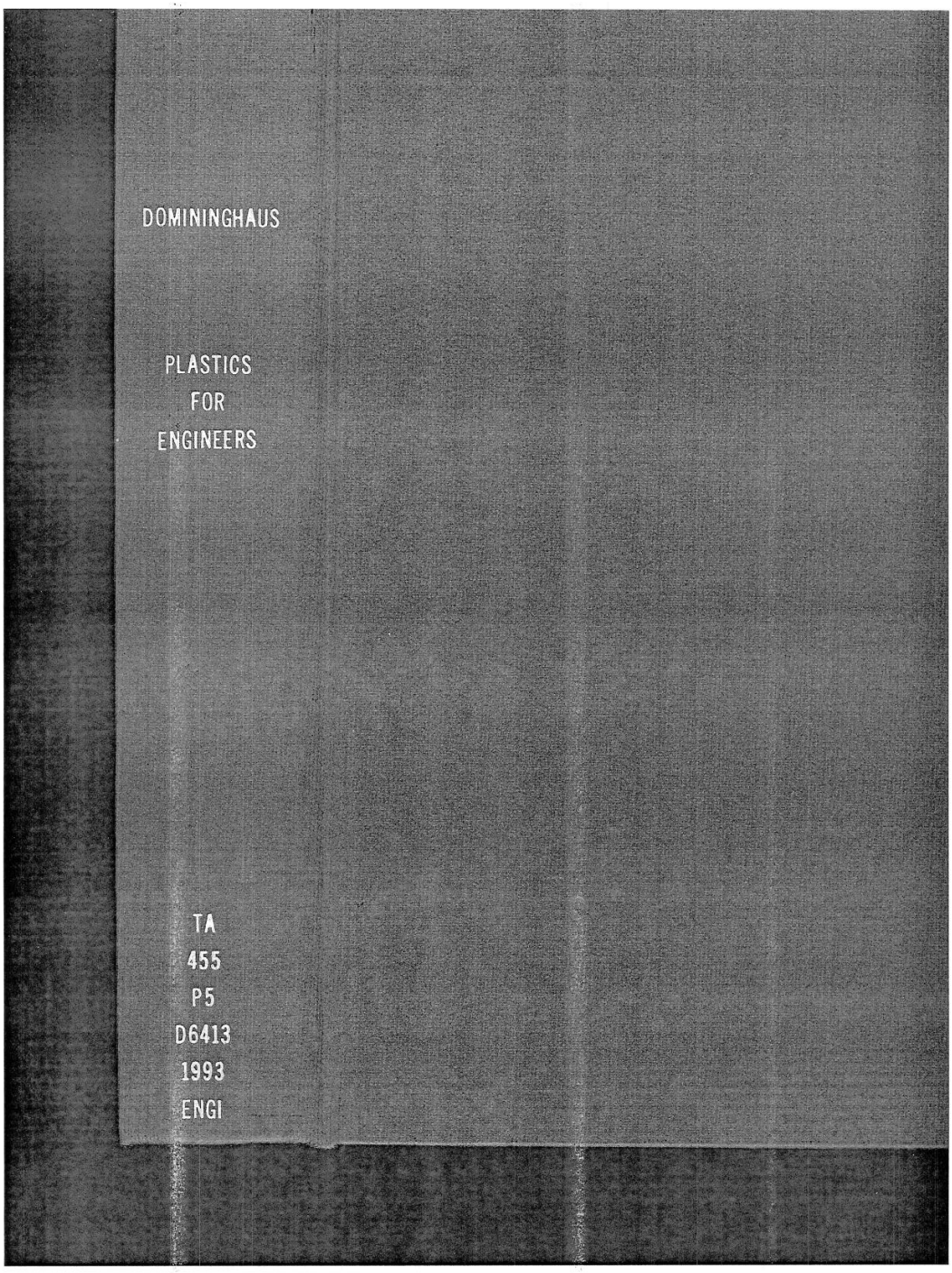

Hans Domininghaus

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Table 69 Guide values for the physical properties of polyarylether

Properties	Units		mod. Polyphenylenether							
			Noryl				Luranyl			
			J 31		GFN 3		KR 2401		KR 2403 G 6	
	SI	US	SI	US	SI	US	SI	US	SI	US
Density	g/cm³	lb/in³	1.06	0.038	1.27	0.0457	1.07	0.0387	1.26	0.0454
Water absorption (23 °C/78 °F, 24 h)	%	%	0.07	0.07	0.06	0.07	<0.1	<0.1	<0.1	<0.1
Mechanical										
Yield stress	N/mm²	psi	55	7820	–	–	52	74000	100	14200
Elongation at yield	%	%	6–7	6–7	–	–	4	4	1.5	1.5
Tensile strength	N/mm²	psi	50	7110	120	17100	45	6400	100	14200
Elongation at break	%	%	50	50	2–3	2–3	28	28	2	2
Tensile modulus of elasticity	N/mm²	psi	2500	356000	9000	1280000	2500	356000	9000	1280000
Impact strength (Izod)	J/m	J/m	–	–	–	–	–	–	–	–
Impact strength (Charpy)	kJ/m²	–	–	–	–	–	no break		12	
Notched impact strength	J/m	J/m	200	200	80	80	–	–	–	–
Notched impact strength	kJ/m²	–	>15	–	8–10	–	11	–	5	–
Ball indentation hardness (30 s)	N/mm²	psi	100	14000	137	–	100		180	
Rockwell hardness	scale	scale	M 78	M 78	M 93	M 93	–	–	–	–
Thermal										
Service temperature in air without mechanical loading										
short-term	°C	°F	120	248	130	266	120	248	130	266
long-term	°C	°F	100	212	110	230	100	212	110	230
Glass transition temperature	°C	°F	140	284	140	284	–	–	–	–
Heat deflection temperature										
Vicat, Method B	°C	°F	135	275	150	302	115	239	145	293
ISO, Method A	°C	°F	130	266	144	291	90	194	137	279
Method B	°C	°F	–	–	–	–	105	221	145	291
Coefficient of linear expansion	K^{-1}	in/in/°F	$60 \cdot 10^{-6}$	$33 \cdot 10^{-6}$	$30 \cdot 10^{-6}$	$17 \cdot 10^{-6}$	$60 \cdot 10^{-6}$	$33 \cdot 10^{-6}$	$30 \cdot 10^{-6}$	$17 \cdot 10^{-6}$
Specific heat capacity	kJ/kgK	BTU/lb/°F	–	–	–	–	–	–	–	–
Thermal conductivity	W/mK	BTU in/f² h °F	0.22	1.5	0.28	1.9	0.18	1.2	0.22	1.5
Electrical										
Volume resistivity	Ω cm	Ω cm	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	10^{15}	10^{15}	10^{15}	10^{15}
Surface resistance	Ω	Ω	10^{14}	10^{14}	10^{14}	10^{14}	10^{14}	10^{14}	10^{14}	10^{14}
Dielectric constant 50 Hz			2.7	2.7	2.9	2.9	–	–	–	–
1 MHz			2.6	2.6	2.9	2.9	2.6	2.6	2.9	2.9
Dissipation factor 50 Hz			0.0004	0.0004	0.0009	0.0009	–	–	–	–
1 MHz			0.0009	0.0009	0.0015	0.0015	0.001	0.001	0.001	0.001
Dielectric strength	kV/mm	kV/39.5 mils	22	22	22	22	80	80	80	80
Tracking resistance	class C		–	–	–	–	325	–	250	–
Fire performance to UL 94	class	flame class	HB	HB	HB	HB	HB	HB	HB	HB