

STANYL® POLYAMIDE 46 - TYPICAL PROPERTIES

PROPERTIES ¹⁾	UNITS SI	TW300/TW341	TW441	TE300/TE341	TW363	TW371	TW200F6/TW241F6	TE200F6	TW200F8/TW241F8	TW241F10	TW241F12	TW271F6	46HF4130	TE351	TE250F3	TE250F6	TW250F6	TS250F6D	TE250F8	TS250F8	TE250F9	46HF5040	46HF5050	46HF5041LW	TEST METHODS														
THERMAL PROPERTIES																																							
Heat distortion temperature (HDT):⁶⁾ *																																							
@ 1.8 MPa	°C	190	190	190	90	190	290	290	290	290	290	290	290	160	290	290	290	290	290	290	290	290	290	270		ISO 75/A													
@ 0.45 MPa	°C	280	280	280	200	290	290	290	290	290	290	290	290		290	290	290	290	290	290	290	290	290	290	290	ISO 75/B													
Melting point ²⁾	°C	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	DSM													
Glass transition temperature	°C	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	DSM													
Specific heat	KJ/kg.K	2.2	2.2	2.2	2.2	1.9	1.9	1.9	1.7	1.5						1.3	1.3	1.3	1	1	1	1	1	1		DSM													
Thermal conductivity	W/K.m	0.22	0.22	0.22	0.22		0.24	0.24	0.27	0.29						0.19	0.19	0.19	0.24	0.24	0.24	0.24	0.24	0.24		DSM													
Temperature Index:⁸⁾																																							
@ 2500 HOURS	°C	163	163	134	150	163	190	171	190	190	190	190	190			175	190	175	175	175	175	175	175	175	175		IEC 60216-1												
@ 5000 HOURS	°C	152	152	128	135	152	177	159	177	177	177	177	177			163	177	163	163	163	163	163	163	163	163														
@ 10000 HOURS	°C	141	141	122	120	141	164	147	164	164	164	164	164			152	164	152	152	152	152	152	152	152	152														
@ 20000 HOURS	°C	130	130	116	105	130	153	137	153	153	153	153	153			141	153	141	141	141	141	141	141	141	141														
Coef. of linear thermal expansion:																																							
FROM +23 TO +80°C *	1/K.10 ³	8	10	8	10	8	10	16	18	8	10	2	8	2	8	2	8	2	8	2	8	2	8	2	8	2	8	DSM											
FROM +80 TO +180°C *	1/K.10 ³	10	12	10	12	10	12	18	20	2	9	2	9	2	9	2	9	3	8.5	3	8.5	3	8.5	3	8.5	3	8.5												
ELECTRICAL PROPERTIES																																							
Electric strength	KV/mm	>25	>15	>25	>15	>25	>20	>25	>15	>30	>20	>35	>25	>30	>20	>30	>20	>30	>20	>30	>20	>30	>20	>30	>20	>30	>20	IEC 60243-1											
Volume resistivity (ρ_v)	Ω.cm	1.00E+15	1.00E+09	1.00E+15	1.00E+09	1.00E+15	1.00E+12	1.00E+15	1.00E+09	1.00E+14	1.00E+09	1.00E+14	1.00E+09	1.00E+14	1.00E+10	1.00E+14	1.00E+09	1.00E+14	1.00E+08	1.00E+15	1.00E+10	1.00E+15	1.00E+10	1.00E+15	1.00E+10	1.00E+15	1.00E+10	IEC 60093											
Surface resistivity (ρ_s)	Ω	1.00E+16	1.00E+13	1.00E+16	1.00E+13	1.00E+16	1.00E+14	1.00E+16	1.00E+13	1.00E+16	1.00E+13	1.00E+16	1.00E+14	1.00E+16	1.00E+13	1.00E+16	1.00E+13	1.00E+16	1.00E+13	1.00E+16	1.00E+14	1.00E+16	1.00E+14	1.00E+16	1.00E+14	1.00E+16	1.00E+14	IEC 60093											
Dielectrical constant (ε_r):																											IEC 60250												
@ 100 Hz *	-	3.9	22	3.9	22	4	13	3.6	14			4.3	16																										
@ 1 MHz *	-	3.6	4.5	3.6	4.5	3.6	4.3	3.2	4			4	4.7																										
Dissipation factor (tan δ):																											IEC 60250												
@ 100 Hz *	x 10 ⁻¹	7	870	7	870	7	140	12	650			7	600																										
@ 1 MHz *	x 10 ⁻¹	26	120	26	120	26	100	19	100			20	100																										
Comparative tracking index	V	400	400	400	400	600	600	475	475	400	400	300	300	500	500	300	300	300	300	300	300	300	300	300	300	300	300	IEC 60112											
FLAMMABILITY PROPERTIES																																							
UL classifications:																																							
FLAMMABILITY (@ thickness)	-(mm)	V-2 (0.75)		V-2 (0.75)		V-2 (0.75)				HB (1.5)		HB (0.9)		HB (0.9)		HB (0.9)		HB (0.9)		HB (0.75)		HB (1.5)		HB (0.75)		HB (0.75)	V-0 (1.5)	V-0 (0.9)	V-0 (0.35)	V-0 (0.75)	V-0 (0.67)	V-0 (0.35)	V-0 (0.75)	V-0 (0.75)	V-0 (0.35)	V-0 (0.4)	V-0 (0.4)	UL 94	
Limiting oxygen index (LOI)	%	27		27		27		27				22		22		22		22		22		22		22		22		37	37	37	37	37	37	37	37	37	37	ISO 4589	
Glow wire (GW) test (@ thickness):																																							
GW FLAMMABILITY INDEX	°C (mm)	650 (3)										960 (3)		925 (3)													960 (3)	960 (3)	960 (3)	960 (3)	960 (3)	960 (3)	960 (3)	960 (3)	960 (3)	960 (3)	960 (3)	960 (3)	IEC 60695-2-12
GW FLAMMABILITY INDEX	°C (mm)	750 (0.75)										650 (0.75)		675 (0.75)													675 (0.75)	675 (0.75)	675 (0.75)	675 (0.75)	675 (0.75)	675 (0.75)	675 (0.75)	675 (0.75)	675 (0.75)	675 (0.75)	675 (0.75)	IEC 60695-2-12	
GW IGNITION TEMPERATURE	°C (mm)	700 (3)										725 (3)		725 (3)													725 (3)	725 (3)	725 (3)	725 (3)	725 (3)	725 (3)	725 (3)	725 (3)	725 (3)	725 (3)	725 (3)	725 (3)	IEC 60695-2-13
GW IGNITION TEMPERATURE	°C (mm)	725 (0.75)										700 (0.75)		700 (0.75)													700 (0.75)	700 (0.75)	700 (0.75)	700 (0.75)	700 (0.75)	700 (0.75)	700 (0.75)	700 (0.75)	700 (0.75)	700 (0.75)	700 (0.75)	IEC 60695-2-13	

* **Properties determined in accordance with CAMPUS standards and specifications**

- All values apply for natural colors only.
- Accelerated conditioning at 70°C and 62% relative humidity, representing equilibrium moisture content at +23°C and 50% RH.
- Measured on plaques (80x80mm) filled through a film gate of 1 mm thickness.

- Test speed for:
 - tensile modulus - 1 mm/min.
 - tensile strength / elongation - unreinforced grades: 50 mm/min - glass fiber reinforced grades: 5 mm/min
- Creep modulus determined by means of continuous tensile load of 20 MPa for reinforced and 5 MPa for unreinforced.
- For unreinforced materials valid after pre-drying @ 180°C for several hours.

- DSC (maximum peak) with 10°C/min scanning speed.
- Tensile strength half-life time determined on bars with a wall thickness of 4 mm. Tensile strength tested according to ISO 527.
- Dry as molded.
- In direction of flow
- Perpendicular to direction of flow
- No break