Product Comparison

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Technical Data

Product Description	
TECHNYL STAR® S 218 V35 BK 31N (Dry)	TECHNYL STAR S 218 V35 BK 31N is based on a patented high flow polyamide 6 resin (TechnylStar), heat stabilized, reinforced with 35% of glass fibre, for injection moulding. Due to its outstanding flow characteristics, this grade provides a significant productivity improvement and allows more freedom in mould and part design versus a standard polyamide solutions.
Generic Nylon 6 - Glass Fiber	This data represents typical values that have been calculated from all products classified as: Generic Nylon 6 - Glass Fiber This information is provided for comparative purposes only.

General	TECHNYL STAR® S 218 V35 BK 31N (Dry)	Generic Nylon 6 - Glass Fiber
Manufacturer / Supplier	• DOMO Engineering Plastics	• Generic
Generic Symbol	• Nylon 6	• Nylon 6
Material Status	• Commercial: Active	• Commercial: Active
UL Yellow Card [1]	• E44716-235536	--
Search for UL Yellow Card	• DOMO Engineering Plastics • TECHNYL STAR®	--
Availability	• Europe	• Africa & Middle East • Asia Pacific • Europe • Latin America • North America
Filler / Reinforcement	• Glass Fiber, 35% Filler by Weight	• Glass Fiber
Additive	• Heat Stabilizer	--
Features	• Heat Aging Resistant • Heat Stabilized • High Flow • Outstanding Surface Finish	--
Uses	• Consumer Applications • Furniture • General Purpose • Industrial Applications	--
Agency Ratings	• EC 1907/2006 (REACH) • UL 94	--
RoHS Compliance	• RoHS Compliant	--

General	TECHNYL STAR® S 218 V35 BK 31N (Dry)	Generic Nylon 6 - Glass Fiber
Appearance	• Black • Natural Color	--
Forms	• Pellets	--
Processing Method	• Injection Molding	--
Multi-Point Data	• Isothermal Stress vs. Strain (ISO 11403)	--
Resin ID (ISO 1043)	• PA6-GF35	--
Also Available In	--	• Asia Pacific • Europe • Latin America • North America

Physical	TECHNYL STAR® S 218 V35 BK 31N (Dry)	(Conditioned)	Generic Nylon 6 - Glass Fiber	Unit	Test Method
Density / Specific Gravity					
--	--	--	1.22 to 1.62		ASTM D792
--	1.41	--	1.20 to 1.59	g/cm³	ISO 1183
--	--	--	0.0499	lb/in³	ISO 1183 [3]
--	--	--	1.22 to 1.44	g/cm³	ASTM D1505
Apparent (Bulk) Density	--	--	0.70	g/cm³	ISO 60
Melt Mass-Flow Rate (MFR)					
250°C/2.16 kg	--	--	3.0 to 21	g/10 min	ASTM D1238
230°C/2.16 kg	--	--	1.0 to 6.9	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (275°C/5.0 kg)	--	--	24 to 50	cm³/10min	ISO 1133
Spiral Flow	--	--	4.33 to 19.2	in	
Molding Shrinkage					
Flow	--	--	3.0E-5 to 6.3E-3	in/in	ASTM D955
Across Flow	--	--	2.0E-3 to 0.012	in/in	ASTM D955
--	--	--	2.0E-3 to 1.0	%	ISO 294-4
Across Flow	0.80	--	--	%	ISO 294-4
Flow	0.20	--	--	%	ISO 294-4

Physical	TECHNYL STAR® S 218 V35 BK 31N (Dry)	(Conditioned)	Generic Nylon 6 - Glass Fiber	Unit	Test Method
Water Absorption					
24 hr	--	--	0.53 to 1.6	%	ASTM D570
24 hr, 73°F	0.90	--	0.26 to 7.2	%	ISO 62
Saturation	--	--	1.0 to 7.7	%	ASTM D570
Saturation, 73°F	--	--	4.4 to 8.0	%	ISO 62
Saturation	--	--	6.6	%	ISO 62 [3]
Equilibrium	--	--	0.64 to 2.5	%	ASTM D570
Equilibrium, 73°F, 50% RH	--	--	0.94 to 2.5	%	ISO 62
Equilibrium	--	--	1.7	%	ISO 62 [3]
Viscosity Number					
--	--	--	144 to 154	cm³/g	ISO 307
--	--	--	145	cm³/g	ISO 307, 1157, 1628 [3]
Moisture Content	--	--	1975 to 2000	ppm	

Mechanical	TECHNYL STAR® S 218 V35 BK 31N (Dry)	(Conditioned)	Generic Nylon 6 - Glass Fiber	Unit	Test Method
Tensile Modulus					
--	--	--	581000 to 2.20E+6	psi	ASTM D638
--	1.60E+6	1.07E+6	587000 to 2.36E+6	psi	ISO 527-1
--	--	--	1.26E+6	psi	ISO 527-2 [3]
Tensile Strength					
Yield	--	--	11400 to 32100	psi	ASTM D638
Yield	--	--	10100 to 31400	psi	ISO 527-2
Break	--	--	9980 to 32400	psi	ASTM D638
Break	28300	16700	9010 to 35000	psi	ISO 527-2
Break	--	--	22500	psi	ISO 527-2 [3]
--	--	--	7250 to 105000	psi	ASTM D638
--	--	--	11400 to 32500	psi	ISO 527-2

Mechanical	TECHNYL STAR® S 218 V35 BK 31N (Dry)	(Conditioned)	Generic Nylon 6 - Glass Fiber	Unit	Test Method
Tensile Elongation					
Yield	--	--	1.5 to 4.7	%	ASTM D638
Yield	--	--	1.0 to 4.7	%	ISO 527-2
Break	--	--	1.7 to 4.8	%	ASTM D638
Break	3.0	3.5	0.80 to 5.0	%	ISO 527-2
Break	--	--	3.0 to 3.1	%	ISO 527-2 [3]
Tensile Creep Modulus (1000 hr)	--	--	379000	psi	ISO 899-1
Flexural Modulus					
--	--	--	501000 to 1.68E+6	psi	ASTM D790
--	1.45E+6	899000	572000 to 2.20E+6	psi	ISO 178
Flexural Strength					
--	--	--	17800 to 43700	psi	ASTM D790
--	39900	28300	16900 to 49600	psi	ISO 178
Yield	--	--	13900 to 39000	psi	ASTM D790
Break	--	--	12900 to 39700	psi	ASTM D790
Compressive Strength					
--	--	--	14500 to 25000	psi	ASTM D695
--	--	--	10200 to 40600	psi	ISO 604
Shear Strength	--	--	8700 to 16700	psi	ASTM D732
Poisson's Ratio	--	--	0.34 to 0.35		ASTM E132
Coefficient of Friction	--	--	0.23 to 0.87		ASTM D1894
Taber Abrasion Resistance	--	--	10.0 to 30.5	mg	ASTM D1044
Wear Factor	--	--	16 to 75	10^-10 in³·min/ft·lb·hr	ASTM D3702

Impact	TECHNYL STAR® S 218 V35 BK 31N (Dry)	(Conditioned)	Generic Nylon 6 - Glass Fiber	Unit	Test Method
Charpy Notched Impact Strength					
--	--	--	1.4 to 9.7	ft·lb/in²	ISO 179
-22°F	3.8	--	--	ft·lb/in²	ISO 179/1eA
73°F	4.8	7.1	--	ft·lb/in²	ISO 179/1eA
-22°F	--	--	5.00	ft·lb/in²	ISO 179/1eA [3]
73°F	--	--	5.03	ft·lb/in²	ISO 179/1eA [3]
Charpy Unnotched Impact Strength					
--	--	--	14 to 50	ft·lb/in²	ISO 179
-22°F	19	--	--	ft·lb/in²	ISO 179/1eU
73°F	26	31	--	ft·lb/in²	ISO 179/1eU
-22°F	--	--	22.6	ft·lb/in²	ISO 179/1eU [3]
73°F	--	--	34.4	ft·lb/in²	ISO 179/1eU [3]
Notched Izod Impact					
--	--	--	0.62 to 3.4	ft·lb/in	ASTM D256
--	--	--	1.2 to 9.1	ft·lb/in²	ISO 180
73°F	4.8	7.1	--	ft·lb/in²	ISO 180/1A
Notched Izod Impact (Area)	--	--	1.70 to 7.22	ft·lb/in²	ASTM D256
Unnotched Izod Impact					
--	--	--	1.4 to 26	ft·lb/in	ASTM D4812
--	--	--	13 to 44	ft·lb/in²	ISO 180
73°F	36	38	--	ft·lb/in²	ISO 180/1U
Instrumented Dart Impact					
--	--	--	77.9 to 221	in·lb	ASTM D3763
--	--	--	0.959 to 6.68	ft·lb	ISO 6603-2
Multi-Axial Instrumented Impact Peak Force	--	--	128 to 297	lbf	ISO 6603-2

Hardness	TECHNYL STAR® S 218 V35 BK 31N (Dry)	(Conditioned)	Generic Nylon 6 - Glass Fiber	Unit	Test Method
Rockwell Hardness					
--	--	--	114 to 123		ASTM D785
--	--	--	74 to 123		ISO 2039-2
Shore Hardness	--	--	75 to 87		ISO 868
Ball Indentation Hardness	--	--	24400 to 41000	psi	ISO 2039-1

Thermal	TECHNYL STAR® S 218 V35 BK 31N (Dry)	(Conditioned)	Generic Nylon 6 - Glass Fiber	Unit	Test Method
Deflection Temperature Under Load					
66 psi, Unannealed	--	--	396 to 433	°F	ASTM D648
66 psi, Unannealed	--	--	406 to 432	°F	ISO 75-2/B
66 psi	--	--	419	°F	ISO 75-2 [3]
264 psi, Unannealed	--	--	370 to 420	°F	ASTM D648
264 psi, Unannealed	410	--	367 to 420	°F	ISO 75-2/A
264 psi	--	--	401	°F	ISO 75-2 [3]
1160 psi, Unannealed	--	--	129 to 381	°F	ISO 75-2/C
Continuous Use Temperature	--	--	192 to 362	°F	ASTM D794
Glass Transition Temperature	--	--	41.0 to 140	°F	ISO 11357-2
Vicat Softening Temperature					
--	--	--	391 to 420	°F	ASTM D1525
--	--	--	390 to 420	°F	ISO 306
Melting Temperature					
--	--	--	419 to 434	°F	
--	--	--	428 to 437	°F	DSC
--	--	--	425 to 433	°F	ISO 11357-3
-- [4]	432	--	--	°F	ISO 11357-3
--	--	--	418 to 428	°F	ASTM D3418
--	--	--	426 to 432	°F	ISO 3146

Thermal	TECHNYL STAR® S 218 V35 BK 31N (Dry)	(Conditioned)	Generic Nylon 6 - Glass Fiber	Unit	Test Method
CLTE					
Flow	--	--	2.7E-6 to 3.0E-5	in/in/°F	ASTM D696
Flow	--	--	5.6E-6 to 1.8E-5	in/in/°F	ASTM E831
Flow	--	--	2.2E-7 to 2.1E-5	in/in/°F	ISO 11359-2
Transverse	--	--	1.8E-5 to 7.7E-5	in/in/°F	ASTM D696
Transverse	--	--	2.0E-5 to 5.3E-5	in/in/°F	ASTM E831
Transverse	--	--	9.4E-7 to 1.4E-4	in/in/°F	ISO 11359-2
Specific Heat	--	--	0.309 to 0.406	Btu/lb/°F	ASTM C351
Thermal Conductivity					
--	--	--	1.9 to 100	Btu·in/hr/ft²/°F	ASTM C177
--	--	--	1.5 to 11	Btu·in/hr/ft²/°F	ISO 8302
RTI Elec	--	--	149 to 287	°F	UL 746B
RTI Imp	--	--	149 to 257	°F	UL 746B
RTI Str	--	--	149 to 287	°F	UL 746B

Electrical	TECHNYL STAR® S 218 V35 BK 31N (Dry)	(Conditioned)	Generic Nylon 6 - Glass Fiber	Unit	Test Method
Surface Resistivity					
--	--	--	5.0E+2 to 2.5E+15	ohms	ASTM D257
--	--	--	12 to 1.0E+15	ohms	IEC 60093
--	--	--	5.0E+2 to 1.3E+14	ohms	IEC 62631-3-2
Volume Resistivity					
--	--	--	5.5 to 2.5E+16	ohms·cm	ASTM D257
--	--	--	1.0E+3 to 6.5E+15	ohms·cm	IEC 60093
--	--	--	1.0E+2 to 2.5E+14	ohms·m	IEC 62631-3-1
Dielectric Strength					
--	--	--	380 to 700	V/mil	ASTM D149
--	--	--	500 to 1000	V/mil	IEC 60243-1

Electrical	TECHNYL STAR® S 218 V35 BK 31N (Dry)	(Conditioned)	Generic Nylon 6 - Glass Fiber	Unit	Test Method
Dielectric Constant					
--	--	--	3.19 to 4.02		ASTM D150
--	--	--	3.47 to 3.94		IEC 60250
--	--	--	3.93		IEC 60250
--	--	--	3.63		IEC 62631-2-1
Dissipation Factor					
--	--	--	0.020 to 0.021		ASTM D150
--	--	--	4.4E-3 to 0.026		IEC 60250
--	--	--	5.0E-3 to 0.015		IEC 62631-2-1
1 MHz	--	--	0.020		IEC 60250 [3]
Arc Resistance	--	--	70.0 to 180	sec	ASTM D495
Comparative Tracking Index (CTI)	--	--	495 to 600	V	UL 746A
Comparative Tracking Index					
--	--	--	390 to 600	V	IEC 60112
--	--	--	523		IEC 60112 [3]

Flammability	TECHNYL STAR® S 218 V35 BK 31N (Dry)	(Conditioned)	Generic Nylon 6 - Glass Fiber	Unit	Test Method
Burning Rate	--	--	3.9 to 4.0	in/min	ISO 3795
Flame Rating (0.12 in)	HB	--	--		UL 94
Glow Wire Flammability Index					IEC 60695-2-12
--	--	--	1190 to 1760	°F	
0.06 in	1200	--	--	°F	
Glow Wire Ignition Temperature	--	--	1200 to 1760	°F	IEC 60695-2-13
Oxygen Index	--	--	22 to 32	%	ASTM D2863 ISO 4589-2

Fill Analysis	TECHNYL STAR® S 218 V35 BK 31N (Dry)	(Conditioned)	Generic Nylon 6 - Glass Fiber	Unit	Test Method
Melt Density	--	--	1.03 to 1.38	g/cm³	
Melt Specific Heat	--	--	0.524	Btu/lb/°F	ASTM C351
Melt Thermal Conductivity	--	--	1.9	Btu·in/hr/ft²/°F	ASTM C177

Injection	TECHNYL STAR® S 218 V35 BK 31N (Dry)	Generic Nylon 6 - Glass Fiber	Unit
Drying Temperature	176	176 to 180	°F
Drying Time	--	2.9 to 5.3	hr
Drying Time, Maximum	--	8.0	hr
Dew Point	--	-22 to 0	°F
Suggested Max Moisture	0.20	0.094 to 0.22	%
Suggested Shot Size	--	50	%
Suggested Max Regrind	--	18	%
Hopper Temperature	--	158 to 176	°F
Rear Temperature	446 to 455	429 to 544	°F
Middle Temperature	455 to 464	444 to 541	°F
Front Temperature	464 to 473	460 to 547	°F
Nozzle Temperature	--	473 to 545	°F
Processing (Melt) Temp	--	471 to 539	°F
Melt Temperature (Optimum)	--	523	°F
Mold Temperature	140 to 194	154 to 214	°F
Injection Pressure	--	1000 to 14500	psi
Holding Pressure	--	8690 to 11000	psi
Back Pressure	--	21.8 to 257	psi
Screw Speed	--	40 to 202	rpm
Cushion	--	0.156 to 0.375	in
Vent Depth	--	7.5E-4 to 7.9E-4	in

Injection Notes

Generic
Nylon 6 - Glass Fiber

This data represents typical values that have been calculated from all products classified as: Generic Nylon 6 - Glass Fiber

This information is provided for comparative purposes only.

Notes

[1] A UL Yellow Card contains UL-verified flammability and electrical characteristics. UL Prospector continually works to link Yellow Cards to individual plastic materials in Prospector, however this list may not include all of the appropriate links. It is important that you verify the association between these Yellow Cards and the plastic material found in Prospector. For a complete listing of Yellow Cards, visit the UL Yellow Card Search.

[2] Typical properties: these are not to be construed as specifications.

[3] Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.

[4] 10°C/min