

**Stanyl® TW341**  
**Polyamide 46**  
**DSM Engineering Plastics**



**Prospector**

**General**

Material Status	• Commercial: Active		
Availability	• Asia Pacific	• Europe	• North America
Additive	• Heat Stabilizer	• Lubricant	• Mold Release
Features	• Heat Stabilized	• Lubricated	
Agency Ratings	• UL Unspecified Rating		
RoHS Compliance	• RoHS Compliant		
Automotive Specifications	<ul style="list-style-type: none"> <li>• CHRYSLER MS-DB41 CPN3749 Color: Color As Noted On Drawing</li> <li>• FORD WSK-M4D671-A2 Color: Black</li> <li>• FORD WSK-M4D671-A2 Color: Natural</li> <li>• GM GMP.PA46.001 Color: Black</li> <li>• GM GMP.PA46.001 Color: Natural</li> <li>• PSA Peugeot-Citroën SPA X62 4144 Color: Natural</li> </ul>		
Forms	• Pellets		
Processing Method	• Injection Molding		
Multi-Point Data	<ul style="list-style-type: none"> <li>• Isochronous Stress vs. Strain (ISO 11403-1)</li> <li>• Isothermal Stress vs. Strain (ISO 11403-1)</li> </ul>	<ul style="list-style-type: none"> <li>• Secant Modulus vs. Strain (ISO 11403-1)</li> <li>• Shear Modulus vs. Temperature (ISO 11403-2)</li> </ul>	<ul style="list-style-type: none"> <li>• Viscosity vs. Shear Rate (ISO 11403-2)</li> </ul>

**Deere Information**

	Dry	Conditioned	Unit	Test Method
Material Status	In-Use	In-Use		
Unit Name	<ul style="list-style-type: none"> <li>• Bruchsal</li> <li>• Iberica</li> <li>• Mannheim</li> <li>• Torreon Engine</li> <li>• Waterloo Works</li> </ul>	<ul style="list-style-type: none"> <li>• Bruchsal</li> <li>• Iberica</li> <li>• Mannheim</li> <li>• Torreon Engine</li> <li>• Waterloo Works</li> </ul>		
Molder Name	AKO-Kunststoffe	AKO-Kunststoffe		
Part Number + Description	<ul style="list-style-type: none"> <li>• AL162509 -- FOOT THROTTLE ASSY.,ELECTR.,AUOT PO</li> <li>• AL162512 -- FOOT THROTTLE ASSY.,ELECTR.</li> <li>• AL172027 -- FOOT THROTTLE ASSY.</li> <li>• AL172028 -- FOOT THROTTLE ASSY.</li> <li>• L113217 -- PLASTIC CLIP</li> <li>• RE243304 -- FOOT THROTTLE ASSY, MECH.</li> </ul>	<ul style="list-style-type: none"> <li>• AL162509 -- FOOT THROTTLE ASSY.,ELECTR.,AUOT PO</li> <li>• AL162512 -- FOOT THROTTLE ASSY.,ELECTR.</li> <li>• AL172027 -- FOOT THROTTLE ASSY.</li> <li>• AL172028 -- FOOT THROTTLE ASSY.</li> <li>• L113217 -- PLASTIC CLIP</li> <li>• RE243304 -- FOOT THROTTLE ASSY, MECH.</li> </ul>		
Resin Color	Natural	Natural		
Abrasion Volume Loss (10 <sup>-3</sup> ) (Round sand)	--	15.1	mm <sup>3</sup>	ASTM G65

Physical	Dry	Conditioned	Unit	Test Method
Density				
--	1.18	--	g/cm <sup>3</sup>	ISO 1183
--	0.0426 (1180)	--	lb/in <sup>3</sup> (kg/m <sup>3</sup> )	ISO 1183 <sup>2</sup>
Molding Shrinkage				ISO 294-4
Across Flow	2.0	--	%	
Flow	2.0	--	%	
Water Absorption				
Equilibrium, 73°F (23°C), 50% RH	3.7	--	%	ISO 62
Equilibrium	3.7	--	%	ISO 62 <sup>2</sup>
Viscosity number	185	--	cm <sup>3</sup> /g	ISO 307, 1157, 1628 <sup>2</sup>
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus				
--	479000 (3300)	145000 (1000)	psi (MPa)	ISO 527-2
248°F (120°C)	116000 (800)	--	psi (MPa)	ISO 527-2
320°F (160°C)	94300 (650)	--	psi (MPa)	ISO 527-2
356°F (180°C)	87000 (600)	--	psi (MPa)	ISO 527-2
392°F (200°C)	72500 (500)	--	psi (MPa)	ISO 527-2
Tensile Stress				
Yield	14500 (100)	7980 (55.0)	psi (MPa)	ISO 527-2
Yield, 248°F (120°C)	7250 (50.0)	--	psi (MPa)	ISO 527-2
Yield, 320°F (160°C)	5800 (40.0)	--	psi (MPa)	ISO 527-2
Yield, 356°F (180°C)	5080 (35.0)	--	psi (MPa)	ISO 527-2
Yield, 392°F (200°C)	4350 (30.0)	--	psi (MPa)	ISO 527-2
Tensile Strain (Yield)	10	20	%	ISO 527-2 <sup>2</sup>
Nominal Tensile Strain at Break				
--	40	> 50	%	ISO 527-2
248°F (120°C)	> 50	--	%	ISO 527-2
320°F (160°C)	> 50	--	%	ISO 527-2
356°F (180°C)	> 50	--	%	ISO 527-2
392°F (200°C)	> 50	--	%	ISO 527-2
Tensile Creep Modulus (1000 hr)	--	72500 (500)	psi (MPa)	ISO 899-1 <sup>2</sup>

Mechanical	Dry	Conditioned	Unit	Test Method
Flexural Modulus				ISO 178
--	435000 (3000)	131000 (900)	psi (MPa)	
248°F (120°C)	116000 (800)	--	psi (MPa)	
320°F (160°C)	87000 (600)	--	psi (MPa)	
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				
-22°F (-30°C)	1.9 (4.0)	1.9 (4.0)	ft·lb/in <sup>2</sup> (kJ/m <sup>2</sup> )	ISO 179/1eA
73°F (23°C)	4.8 (10)	17 (35)	ft·lb/in <sup>2</sup> (kJ/m <sup>2</sup> )	ISO 179/1eA
-22°F (-30°C)	4.28 (9.00)	5.71 (12.0)	ft·lb/in <sup>2</sup> (kJ/m <sup>2</sup> )	ISO 179/1eA <sup>2</sup>
73°F (23°C)	5.71 (12.0)	21.4 (45.0)	ft·lb/in <sup>2</sup> (kJ/m <sup>2</sup> )	ISO 179/1eA <sup>2</sup>
Charpy Unnotched Impact Strength				ISO 179/1eU
-22°F (-30°C)	No Break	No Break		
73°F (23°C)	No Break	No Break		
Notched Izod Impact Strength				ISO 180/1A
-40°F (-40°C)	1.9 (4.0)	1.9 (4.0)	ft·lb/in <sup>2</sup> (kJ/m <sup>2</sup> )	
73°F (23°C)	4.8 (10)	17 (35)	ft·lb/in <sup>2</sup> (kJ/m <sup>2</sup> )	
Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load				
66 psi (0.45 MPa)	536 (280)	--	°F (°C)	ISO 75-2 <sup>2</sup>
264 psi (1.8 MPa), Unannealed	374 (190)	--	°F (°C)	ISO 75-2/A
264 psi (1.8 MPa)	374 (190)	--	°F (°C)	ISO 75-2 <sup>2</sup>
Glass Transition Temperature <sup>3</sup>	170 (75)	--	°F (°C)	ISO 11357-2 <sup>2</sup>
Vicat Softening Temperature				ISO 306 <sup>2</sup>
50°C/h, B (50N)	554 (290)	--	°F (°C)	
Melting Temperature				
-- <sup>4</sup>	563 (295)	--	°F (°C)	ISO 11357-3
-- <sup>3</sup>	563 (295)	--	°F (°C)	ISO 11357-3 <sup>2</sup>
CLTE				
Flow	0.000047 (0.000085)	--	in/in/°F (cm/cm/°C)	ISO 11359-2
Flow	0.000044 (0.000080)	--	in/in/°F (cm/cm/°C)	ISO 11359-2 <sup>2</sup>
Transverse	0.000061 (0.00011)	--	in/in/°F (cm/cm/°C)	ISO 11359-2
Transverse	0.000056 (0.00010)	--	in/in/°F (cm/cm/°C)	ISO 11359-2 <sup>2</sup>
Thermal Index <sup>5</sup>	306 (152)	--	°F (°C)	IEC 60216
Electrical	Dry	Conditioned	Unit	Test Method
Surface resistivity	--	1.0E+13	ohms	IEC 60093 <sup>2</sup>

Electrical	Dry	Conditioned	Unit	Test Method
Volume Resistivity				
--	1.0E+15	1.0E+9	ohm·cm	IEC 60093
--	3.9E+14 (1.0E+13)	3.9E+8 (1.0E+7)	ohm·in (ohm·m)	IEC 60093 <sup>2</sup>
Relative Permittivity				IEC 60250 <sup>2</sup>
100 Hz	3.90	22.0		
1 MHz	3.60	4.50		
Dissipation Factor				IEC 60250 <sup>2</sup>
100 Hz	0.00070	0.087		
1 MHz	0.0026	0.012		
Comparative Tracking Index				
--	400	--	V	IEC 60112
--	400	400		IEC 60112 <sup>2</sup>
Electric Strength	640 (25)	380 (15)	V/mil (kV/mm)	IEC 60243-1

Flammability	Dry	Conditioned	Unit	Test Method
Burning Behav. at 1.6mm nom. thickn.				ISO 1210 <sup>2</sup>
0.06 in (1.50 mm), UL	V-2	--		
Burning Behav. at thickness h				ISO 1210 <sup>2</sup>
0.0295 in (0.750 mm), UL	V-2	--		
Flammability Classification				IEC 60695-11-10, -20
0.0295 in (0.750 mm)	V-2	--		
0.0591 in (1.50 mm)	V-2	--		
Oxygen index	27	--	%	ISO 4589-2 <sup>2</sup>

Injection	Dry (English)	Dry (SI)
Suggested Max Moisture	0.050 %	0.050 %
Rear Temperature	536 to 608 °F	280 to 320 °C
Middle Temperature	572 to 608 °F	300 to 320 °C
Front Temperature	572 to 608 °F	300 to 320 °C
Nozzle Temperature	536 to 572 °F	280 to 300 °C
Processing (Melt) Temp	572 to 608 °F	300 to 320 °C
Mold Temperature	176 to 248 °F	80.0 to 120 °C
Injection Rate	Fast	Fast
Back Pressure	290 to 1450 psi	2.00 to 10.0 MPa
Vent Depth	0.00079 in	0.020 mm

## Notes

- <sup>1</sup> Typical properties: these are not to be construed as specifications.
- <sup>2</sup> Tested in accordance with ISO 10350. 23°C/50%r.h. unless otherwise noted.
- <sup>3</sup> 18 °F/min (10 °C/min)
- <sup>4</sup> 10°C/min
- <sup>5</sup> 5000 hr