Generic ABS

Acrylonitrile Butadiene Styrene

Generic

IDES | Prospector

Product Description

This data represents typical values that have been calculated from all products classified as: Generic ABS

This information is provided for comparative purposes only.

General

Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific • Central America	• Europe • Latin America • North America	• South America

Physical	Nominal Value	Unit	Test Method
Specific Gravity			
--	1.03 to 1.11	g/cm³	ASTM D792
--	1.03 to 1.06	g/cm³	ISO 1183
--	1050	kg/m³	ISO 1183 [2]
--	1.04 to 1.05	g/cm³	ASTM D1505
Apparent Density			
--	0.60 to 0.61	g/cm³	ASTM D1895
--	0.60 to 0.65	g/cm³	ISO 60
Melt Mass-Flow Rate (MFR)			
220°C/10.0 kg	0.60 to 35	g/10 min	ASTM D1238
220°C/10.0 kg	0.49 to 37	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR)			
--	0.948 to 19.6	cm³/10min	ASTM D1238
220°C/10.0 kg	1.50 to 36.9	cm³/10min	ISO 1133
--	25.5	cm³/10min	ISO 1133 [2]
Molding Shrinkage			
Flow: 23°C	0.45 to 0.74	%	ASTM D955
Across Flow: 23°C	0.50 to 0.90	%	ASTM D955
23°C	0.49 to 0.71	%	ISO 294-4
Water Absorption			
23°C, 24 hr	0.20 to 0.37	%	ASTM D570
23°C, 24 hr	0.30 to 0.31	%	ISO 62
Saturation, 23°C	0.30 to 1.0	%	ASTM D570
Saturation, 23°C	0.25 to 1.7	%	ISO 62
Saturation	0.38	%	ISO 62 [2]
Equilibrium, 23°C, 50% RH	0.18 to 0.42	%	ISO 62
Equilibrium	0.20	%	ISO 62 [2]

Revision History
Document Created: Friday, April 01, 2011
Added to Prospector: July, 2008
Last Updated: 3/24/2011

Generic ABS
Acrylonitrile Butadiene Styrene
Generic

Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
23°C	1580 to 2630	MPa	ASTM D638
23°C	1790 to 2890	MPa	ISO 527-2
--	1990	MPa	ISO 527-2 [2]
Tensile Strength			
Yield, 23°C	35.1 to 51.0	MPa	ASTM D638
Yield, 23°C	34.6 to 52.3	MPa	ISO 527-2
Yield	43.4	MPa	ISO 527-2 [2]
Break, 23°C	28.4 to 46.1	MPa	ASTM D638
Break, 23°C	27.0 to 40.5	MPa	ISO 527-2
23°C	32.1 to 53.5	MPa	ASTM D638
Tensile Elongation			
Yield, 23°C	1.4 to 11	%	ASTM D638
Yield, 23°C	1.8 to 3.5	%	ISO 527-2
Yield	5.5	%	ISO 527-2 [2]
Break, 23°C	1.0 to 57	%	ASTM D638
Break, 23°C	3.4 to 26	%	ISO 527-2
Nominal Tensile Strain at Break			
23°C	8.0 to 10	%	ISO 527-2
--	11 to 50	%	ISO 527-2 [2]
Flexural Modulus			
23°C	1530 to 2870	MPa	ASTM D790
23°C	1760 to 2800	MPa	ISO 178
Flexural Strength			
23°C	45.6 to 91.1	MPa	ASTM D790
23°C	53.3 to 84.5	MPa	ISO 178
Yield, 23°C	54.2 to 79.9	MPa	ASTM D790
Break, 23°C	59.2 to 75.8	MPa	ASTM D790
Coefficient of Friction	0.11 to 0.46		ASTM D1894
Taber Abrasion Resistance (23°C)	88.0 to 117	mg	ASTM D1044

Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			
23°C	5.8 to 29	kJ/m²	ISO 179
-30°C	9.86	kJ/m²	ISO 179/1eA [2]
23°C	25.2	kJ/m²	ISO 179/1eA [2]
Charpy Unnotched Impact Strength			
23°C	9.7 to 180	kJ/m²	ISO 179
-30°C	54.3	kJ/m²	ISO 179/1eU [2]
23°C	99.3	kJ/m²	ISO 179/1eU [2]
Notched Izod Impact			
23°C	76 to 400	J/m	ASTM D256
23°C	1.6 to 29	kJ/m²	ISO 180
Unnotched Izod Impact			
23°C	91 to 1700	J/m	ASTM D256
23°C	19 to 100	kJ/m²	ISO 180
Instrumented Dart Impact			
23°C	5.45 to 51.4	J	ASTM D3763
23°C	3.90 to 35.0	J	ISO 6603-2
Gardner Impact (23°C)	12.4 to 41.7	J	ASTM D3029

Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness			
23°C	94 to 116		ASTM D785
23°C	102 to 115		ISO 2039-2
Durometer Hardness (23°C)	40 to 94		ASTM D2240

Revision History
Document Created: Friday, April 01, 2011
Added to Prospector: July, 2008
Last Updated: 3/24/2011

Generic ABS
Acrylonitrile Butadiene Styrene
Generic

Hardness	Nominal Value	Unit	Test Method
Ball Indentation Hardness	78.8 to 116	MPa	ISO 2039-1
Thermal	**Nominal Value**	**Unit**	**Test Method**
Deflection Temperature Under Load			
0.45 MPa, Unannealed	81.5 to 107	°C	ASTM D648
0.45 MPa, Unannealed	71.8 to 105	°C	ISO 75-2/B
0.45 MPa, Annealed	94.3 to 103	°C	ASTM D648
0.45 MPa	96.0	°C	ISO 75-2 [2]
1.8 MPa, Unannealed	72.5 to 101	°C	ASTM D648
1.8 MPa, Unannealed	73.3 to 98.1	°C	ISO 75-2/A
1.8 MPa, Annealed	84.0 to 104	°C	ASTM D648
1.8 MPa, Annealed	84.3 to 104	°C	ISO 75-2/A
1.8 MPa	82.0	°C	ISO 75-2 [2]
Max. Continuous Use Temperature	60.0 to 80.0	°C	ASTM D794
Glass Transition Temperature [3]	110	°C	ISO 11357-2 [2]
Vicat Softening Temperature			
--	87.1 to 115	°C	ASTM D1525
--	88.5 to 111	°C	ISO 306
50°C/h, B (50N)	95.9	°C	ISO 306 [2]
Ball Indentation Temperature	75.0 to 80.3	°C	IEC 60598-1
Ball Pressure Test	Pass		IEC 60695-10-2
Melting Temperature	223 to 225	°C	
CLTE			
Flow: 20 to 26°C	0.000085 to 0.000091	cm/cm/°C	ASTM D696
Flow: 20 to 26°C	0.000079 to 0.000095	cm/cm/°C	ISO 11359-2
Flow	0.000085	cm/cm/°C	ISO 11359-2 [2]
Transverse	0.000083	cm/cm/°C	ISO 11359-2 [2]
Specific Heat (23°C)	1660 to 1670	J/kg/°C	ASTM C351
Thermal Conductivity			
23°C	0.15 to 0.22	W/m/K	ASTM C177
23°C	0.17 to 0.20	W/m/K	ISO 8302
Electrical	**Nominal Value**	**Unit**	**Test Method**
Surface Resistivity			
--	0.51 to 2.5E+14	ohms	ASTM D257
--	1.0E+4 to 5.0E+15	ohms	IEC 60093
--	7.5E+13 to 1.0E+15	ohms	IEC 60093 [2]
Volume Resistivity			
23°C	0.15 to 1.3E+16	ohm·cm	ASTM D257
23°C	1.0E+12 to 2.5E+16	ohm·cm	IEC 60093
--	9.8E+12 to 1.0E+13	ohm·m	IEC 60093 [2]
Dielectric Strength			
23°C	23 to 33	kV/mm	ASTM D149
23°C	13 to 85	kV/mm	IEC 60243-1
--	30	kV/mm	IEC 60243-1 [2]
Dielectric Constant			
23°C	2.80 to 3.36		ASTM D150
23°C	2.90 to 3.20		IEC 60250
23°C	2.75		IEC 60250
1 MHz	2.90		IEC 60250 [2]
Dissipation Factor			
23°C	0.015		ASTM D150
23°C	0.0040 to 0.015		IEC 60250
1 MHz	0.012		IEC 60250 [2]
Arc Resistance	5.00 to 7.43	sec	ASTM D495

Revision History
Document Created: Friday, April 01, 2011
Added to Prospector: July, 2008
Last Updated: 3/24/2011

Generic ABS
Acrylonitrile Butadiene Styrene
Generic

Electrical	Nominal Value	Unit	Test Method
Comparative Tracking Index			
--	585 to 600	V	IEC 60112
--	574		IEC 60112 [2]

Flammability	Nominal Value	Unit	Test Method
Burning Rate	25 to 65	mm/min	ISO 3795
Glow Wire Flammability Index	650 to 960	°C	IEC 60695-2-12
Glow Wire Ignition Temperature	550 to 960	°C	IEC 60695-2-13
Oxygen Index	21 to 28	%	ASTM D2863

UL	Nominal Value	Unit	Test Method
RTI Str	59.6	°C	UL 746
RTI Imp	59.0 to 60.1	°C	UL 746
RTI Elec	59.6	°C	UL 746
High Voltage Arc Tracking Rate (HVTR)	0.00 to 3.73	mm/min	UL 746
Hot-wire Ignition (HWI)	14 to 34	sec	UL 746
High Amp Arc Ignition (HAI)	195 to 200		UL 746

Optical	Nominal Value	Unit	Test Method
Gardner Gloss	19 to 125		ASTM D523
Gloss	30 to 98		ASTM D2457
Gloss	89 to 90		ISO 2813
Transmittance	85.8 to 91.6	%	ASTM D1003
Haze	1.3 to 4.3	%	ASTM D1003
Yellowness Index	0.50 to 6.4	YI	ASTM D1925

Injection	Nominal Value	Unit
Drying Temperature	74.0 to 88.3	°C
Drying Time	0.0 to 1000	hr
Drying Time, Maximum	6.0	hr
Suggested Max Moisture	0.010 to 0.11	%
Suggested Shot Size	60 to 63	%
Suggested Max Regrind	13	%
Hopper Temperature	70.0 to 245	°C
Rear Temperature	168 to 246	°C
Middle Temperature	189 to 241	°C
Front Temperature	194 to 245	°C
Nozzle Temperature	207 to 254	°C
Processing (Melt) Temp	211 to 261	°C
Melt Temperature (Aim)	233	°C
Mold Temperature	49.2 to 75.4	°C
Injection Pressure	71.6 to 119	MPa
Holding Pressure	4.36 to 53.9	MPa
Back Pressure	0.00500 to 1.97	MPa
Screw Speed	45 to 77	rpm
Clamp Tonnage	4.5	kN/cm²
Cushion	3.18 to 9.53	mm
Vent Depth	0.044 to 0.045	mm

Injection Notes

This data represents typical values that have been calculated from all products classified as: Generic ABS

This information is provided for comparative purposes only.

Extrusion	Nominal Value	Unit
Drying Temperature	75.0 to 90.8	°C
Drying Time	2.0 to 3.7	hr
Suggested Max Moisture	0.010 to 0.15	%
Cylinder Zone 1 Temp.	170 to 200	°C

Revision History
Document Created: Friday, April 01, 2011
Added to Prospector: July, 2008
Last Updated: 3/24/2011

Generic ABS
Acrylonitrile Butadiene Styrene
Generic

Extrusion	Nominal Value	Unit
Cylinder Zone 2 Temp.	187 to 230	°C
Cylinder Zone 3 Temp.	192 to 236	°C
Cylinder Zone 4 Temp.	196 to 230	°C
Cylinder Zone 5 Temp.	200 to 230	°C
Adapter Temperature	215 to 225	°C
Melt Temperature	196 to 246	°C
Die Temperature	199 to 226	°C
Take-Off Roll	83.1 to 90.6	°C

Extrusion Notes

This data represents typical values that have been calculated from all products classified as: Generic ABS

This information is provided for comparative purposes only.

Notes

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

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

[3] 10 °C/min

Revision History
Document Created: Friday, April 01, 2011
Added to Prospector: July, 2008
Last Updated: 3/24/2011