Acrylonitrile Butadiene Styrene (ABS) Typical Properties Generic ABS

Acrylonitrile Butadiene Styrene (ABS) - Manufacturers - Materials - Classification

- Generic ABS
- Generic ABS - Carbon Fiber
- Generic ABS - Carbon Fiber, Nickel-Coated
- Generic ABS - Glass Bead
- Generic ABS - Glass Fiber
- Generic ABS - Stainless Steel Fiber
- Generic ABS+Acrylic
- Generic ABS+Nylon
- Generic ABS+Nylon - Glass Fiber
- Generic ABS+PBT
- Generic ABS+PBT - Glass Fiber
- Generic ABS+SAN

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	› Europe Latin America

Physical	Nominal Value	Unit	Test Method
Specific Gravity			
--	1,03 to 1,11		ASTM D792
73°F	1,04 to 1,11	g/cm³	ISO 1183
--	0,0379	lb/in³	ISO 1183[2]
--	1,01 to 1,10	g/cm³	ASTM D1505
Apparent Density	0,25 to 0,36	g/cm³	ASTM D1895
Melt Mass-Flow Rate (MFR)			
220°C/10.0 kg	1,0 to 36	g/10 min	ASTM D1238
220°C/10.0 kg	0,49 to 36	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR)			
220°C/10.0 kg	0,0793 to 2,52	in³/10min	ISO 1133
--	1,36	in³/10min	ISO 1133[2]
Molding Shrinkage			
Flow : 73°F	4,5E-3 to 7,4E-3	in/in	ASTM D955
Across Flow : 73°F	3,7E-3 to 9,1E-3	in/in	ASTM D955
73°F	0,48 to 0,71	%	ISO 294-4
Water Absorption			
73°F, 24 hr	0,20 to 0,31	%	ASTM D570
73°F, 24 hr	0,26 to 0,31	%	ISO 62

Saturation, 73°F	0,30 to 1,0%	ASTM D570
Saturation, 73°F	0,10 to 1,6%	ISO 62
Saturation	0,19%	ISO 62[2]
Equilibrium, 73°F	0,30 to 0,31%	ASTM D570
Equilibrium, 73°F, 50% RH	0,10 to 0,37%	ISO 62
Mechanical	**Nominal ValueUnit**	**Test Method**
Tensile Modulus		
73°F	246000 to 410000psi	ASTM D638
73°F	251000 to 400000psi	ISO 527-2
--	311000psi	ISO 527-2[2]
Tensile Strength		
Yield, 73°F	4940 to 7420psi	ASTM D638
Yield, 73°F	5200 to 9210psi	ISO 527-2
Yield	6030psi	ISO 527-2[2]
Break, 73°F	3830 to 7260psi	ASTM D638
Break, 73°F	4190 to 6080psi	ISO 527-2
73°F	4660 to 7750psi	ASTM D638
73°F	5800 to 7030psi	ISO 527-2
Tensile Elongation		
Yield, 73°F	2,0 to 12%	ASTM D638
Yield, 73°F	1,8 to 3,6%	ISO 527-2
Yield	5,0%	ISO 527-2[2]
Break, 73°F	1,0 to 57%	ASTM D638
Break, 73°F	4,6 to 27%	ISO 527-2
Nominal Tensile Strain at Break		
73°F	8,8 to 36%	ISO 527-2
--	16 to 50%	ISO 527-2[2]
Flexural Modulus		
73°F	223000 to 417000psi	ASTM D790
73°F	270000 to 415000psi	ISO 178
Flexural Strength		
73°F	7540 to 11800psi	ASTM D790
73°F	7830 to 12500psi	ISO 178
Yield, 73°F	7950 to 11200psi	ASTM D790
Break, 73°F	7820 to 10600psi	ASTM D790
Coefficient of Friction	0,080 to 0,46	ASTM D1894

Impact	Nominal ValueUnit	Test Method
Charpy Notched Impact Strength		
73°F	2,7 to 14ft·lb/in²	ISO 179
-22°F	4,03ft·lb/in²	ISO 179/1eA[2]
73°F	17,1ft·lb/in²	ISO 179/1eA[2]
Charpy Unnotched Impact Strength (73°F)	2,9 to 87ft·lb/in²	ISO 179
Notched Izod Impact		
73°F	1,7 to 7,7ft·lb/in	ASTM D256
73°F	4,3 to 17ft·lb/in²	ISO 180
Unnotched Izod Impact		
73°F	1,1 to 31ft·lb/in	ASTM D256
73°F	3,2 to 48ft·lb/in²	ISO 180
Instrumented Dart Impact		
73°F	25,0 to 351in·lb	ASTM D3763
73°F	2,84 to 24,3ft·lb	ISO 6603-2
Gardner Impact (73°F)	24,0 to 359in·lb	ASTM D3029
Hardness	**Nominal ValueUnit**	**Test Method**
Rockwell Hardness		
73°F	97 to 115	ASTM D785
73°F	95 to 117	ISO 2039-2
Ball Indentation Hardness	10700 to 16100psi	ISO 2039-1
Thermal	**Nominal ValueUnit**	**Test Method**
Deflection Temperature Under Load		
66 psi, Unannealed	179 to 213°F	ASTM D648
66 psi, Unannealed	161 to 222°F	ISO 75-2/B
66 psi, Annealed	210 to 217°F	ASTM D648
66 psi, Annealed	185 to 228°F	ISO 75-2/B
264 psi, Unannealed	166 to 213°F	ASTM D648
264 psi, Unannealed	161 to 212°F	ISO 75-2/A
264 psi, Annealed	185 to 212°F	ASTM D648
264 psi, Annealed	193 to 214°F	ISO 75-2/A
Continuous Use Temperature	140 to 167°F	ASTM D794
Glass Transition Temperature[3]	220°F	ISO 11357-2[2]
Vicat Softening Temperature		

--	182 to 240°F	ASTM D1525
--	190 to 231°F	ISO 306
50°C/h, B (50N)	202°F	ISO 306[2]
Ball Indentation Temperature	167 to 176°F	IEC 60598-1
CLTE		
Flow	4,4E-5 to 5,0E-5in/in/°F	ASTM D696
Flow	4,2E-5 to 5,8E-5in/in/°F	ASTM E831
Flow	4,4E-5 to 5,1E-5in/in/°F	ISO 11359-2
Flow	4,6E-5in/in/°F	ISO 11359-2[2]
Transverse	4,4E-5 to 6,5E-5in/in/°F	ASTM E831
Transverse	3,2E-5 to 5,6E-5in/in/°F	ISO 11359-2
Transverse	4,4E-5in/in/°F	ISO 11359-2[2]
Specific Heat (73°F)	0,397 to 0,400Btu/lb/°F	ASTM C351
Thermal Conductivity		
73°F	1,0 to 1,5Btu·in/hr/ft²/°F	ASTM C177
73°F	1,2 to 1,3Btu·in/hr/ft²/°F	ISO 8302
RTI Elec	138 to 142°F	UL 746
RTI Imp	138 to 141°F	UL 746
RTI Str	138 to 142°F	UL 746
Electrical	**Nominal ValueUnit**	**Test Method**
Surface Resistivity		
--	4,0 to 1,0E+15ohms	ASTM D257
--	1,0E+10 to 1,0E+16ohms	IEC 60093
Volume Resistivity		
73°F	0,15 to 1,3E+16ohms·cm	ASTM D257
73°F	1,0E+12 to 2,5E+16ohms·cm	IEC 60093
--	3,8E+14 to 3,9E+14ohms·in	IEC 60093[2]
Dielectric Strength		
73°F	390 to 890V/mil	ASTM D149
73°F	610 to 950V/mil	IEC 60243-1
Dielectric Constant		
73°F	2,80 to 3,21	ASTM D150
73°F	3,10 to 3,20	IEC 60250
73°F	2,95	IEC 60250
Dissipation Factor		
73°F	4,0E-3 to 0,015	ASTM D150
73°F	4,8E-3 to 0,015	IEC 60250

Arc Resistance	5,00 to 8,88sec	ASTM D495
Comparative Tracking Index	581 to 600V	IEC 60112
High Amp Arc Ignition (HAI)	195 to 200	UL 746
High Voltage Arc Tracking Rate (HVTR)	0,00 to 0,147in/min	UL 746
Hot-wire Ignition (HWI)	13 to 34sec	UL 746
Flammability	**Nominal ValueUnit**	**Test Method**
Burning Rate	1,4 to 2,7in/min	ISO 3795
Glow Wire Flammability Index	1190 to 1760°F	IEC 60695-2-12
Glow Wire Ignition Temperature	1020 to 1760°F	IEC 60695-2-13
Oxygen Index	21 to 27%	ASTM D2863
Optical	**Nominal ValueUnit**	**Test Method**
Gardner Gloss	59 to 99	ASTM D523
Gloss	30 to 100	ASTM D2457
Transmittance	86,0 to 93,0%	ASTM D1003
Haze	1,5 to 4,0%	ASTM D1003
Fill Analysis	**Nominal ValueUnit**	**Test Method**
Melt Viscosity	155 to 1550Pa·s	ASTM D3835

Injection	**Nominal ValueUnit**
Drying Temperature	164 to 193°F
Drying Time	2,2 to 3,7hr
Drying Time, Maximum	7,5hr
Dew Point	-1,77 to 0,840°F
Suggested Max Moisture	0,010 to 0,16%
Suggested Shot Size	55 to 63%
Suggested Max Regrind	13%
Hopper Temperature	158 to 473°F
Rear Temperature	337 to 473°F
Middle Temperature	372 to 475°F
Front Temperature	381 to 485°F
Nozzle Temperature	406 to 489°F
Processing (Melt) Temp	407 to 501°F
Melt Temperature (Aim)	452°F
Mold Temperature	120 to 160°F
Injection Pressure	592 to 15500psi
Holding Pressure	498 to 7670psi
Back Pressure	0,725 to 6540psi

Screw Speed	44 to 76rpm
Clamp Tonnage	3,0 to 3,3tons/in²
Cushion	0,125 to 0,375in
Vent Depth	1,8E-3in

Injection Notes

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Extrusion	Nominal ValueUnit
Drying Temperature	167 to 195°F
Drying Time	2,8 to 3,7hr
Suggested Max Moisture	8,5E-3 to 0,076%
Cylinder Zone 1 Temp.	338 to 448°F
Cylinder Zone 2 Temp.	391 to 411°F
Cylinder Zone 3 Temp.	391 to 438°F
Cylinder Zone 4 Temp.	390 to 437°F
Cylinder Zone 5 Temp.	390 to 457°F
Adapter Temperature	414 to 449°F
Melt Temperature	385 to 475°F
Die Temperature	418 to 439°F
Take-Off Roll	158 to 203°F

Extrusion Notes

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http://plastics.ulprospector.com/generics/1/c/t/acrylonitrile-butadiene-styrene-abs-properties-processing