Acrylonitrile Butadiene Styrene ABS200G10LU.BK

ABS200G10LU.BK is 10% glass fiber reinforced compound based on utility feedstock polymers and lubricated for ease of mold release. The glass reinforcement substantially improves strength and rigidity, especially at higher temperatures.

This is an easier flow formulation, suitable for injection molding general-purpose applications, as well as thinner section parts, or longer flow part tools. It can be considered as a cost effective alternative for applications where the fundament characteristics of a reinforced ABS are required, but where mechanical performance demands are as critical.

Although ABS resins in general exhibit an unusually broad latitude in processing conditions**, ABS200G10LU.BK** should be molded at the higher end of the typical melt temperature range, at between 500-520ºF, and with mold surface temperatures of between 120-160ºF, to promote best flow and surface appearance.

TYPICAL PROPERTIES

	ASTM	ENGLISH		S.I.	
PROPERTY	**TEST METHOD**	**UNITS**	**VALUE**	**UNITS**	**VALUE**
Specific Gravity	D792	-	1.20	-	1.20
Water Absorption (24 hours immersion)	D570	%	0.2	%	0.2
Heat Deflection Temperature at 264 lbs/in^2 (1.82 MPa)	D648	ºF	219	ºC	1041
Mold Shrinkage Guideline*	1/8" section	%	0.2 to 0.4	%	0.2 to 0.4
Tensile Strength at Break	D638	lbs/in^2	10,000	MPa	69
Elongation at Break	D638	%	2-3	%	2-3
Flexural Strength	D790	lbs/in^2	13,000	MPa	90
Flexural Modulus	D790	lbs/in^2	700,000	MPa	4828
Izod Impact Strength (Notched, 1/8" specimen)	D256	ft. lbs/in of notch	1.0	J/m	53
Rockwell Hardness	D785	M scale	M98	-	-

***Please review shrinkages projections for specific applications with an MDE Technical Representative.**

All data generated using test specimens injection molded from natural color material. Inclusion of color pigments or other additives may change some or all of these test results. Test specimens are stored in a moisture proof container immediately after molding and contain less than 0.2% moisture; tests are conducted at 23ºC and 50% relative humidity unless otherwise stated.

These mechanical property test data have been developed using injection molded specimens tested under standardized conditions; furthermore, many of the mechanical properties of thermoplastic materials can be influenced by changes in processing conditions, environmental factors such as temperature and humidity, and rate of application of stress. Therefore, these test results, which characterize typical production material, should not be used either to establish specification limits or alone as the basis for engineering design.

ABS200G10LU.BK
Processing Guidelines

Drying

Although ABS resins and compounds from MDE are shipped in moisture resistant packaging, in order to realize best surface appearance it is important that they are further dried before processing. The use of dehumidifying dryers is strongly recommended. The dew point of the drying air stream should be no more than 0ºF, and preferably lower; the drying air temperature must be high enough to achieve a pellet temperature of about 180ºF. If using a hopper drier, depending on air hose length and insulation of hoses and hopper, the drying air temperature may need to reach 200-210ºF to achieve the required material temperature. Insulation of hoses and especially the hopper is strongly recommended. After the material temperature reaches 180ºF, a residence time of 2 hours at this temperature is generally adequate to ensure that the material is ready to be processed. Note that dried material should be used within an hour, particularly in humid weather conditions; longer exposure times will usually result in a need to redry. If moisture analysis equipment is available, the acceptable maximum moisture content for ABS resins and compounds is 0.1%.

Temperature Guidelines

The following temperature guidelines are suggested for general **use if a machine can be selected where shot size is 40-70% of nominal machine capacity.**

Tool Surface Temperature (ºF)	Melt Temperatures (ºF)			Typical Cylinder Temperatures (ºF)		
	Max.	Preferred	Min.	Front	Center	Rear
120-160	525	480-510	450	490	480	470

- Melt temperatures at the higher end of the range have been used successfully to help flow in very thin sections, provided cylinder residence times are short.
- A mold surface temperature in the suggested range improves surface appearance, helps consistency of mold fill and therefore consistency of dimensions, minimizes the effect of weld lines and also helps realize best molded part performance.
- A medium to fast injection speed maximizes weld line strength and minimizes molded in stress. Good venting of cavities is essential to allow faster fill without burning.

Screw Forward Time

Adequate screw forward time under follow-up pressure is especially important to ensure proper packing before gate freeze, during which time it is essential to maintain a "cushion" of about 1/8". Optimum screw forward time can be judged by a part weight vs. forward time plot. However, avoid overpacking, which by generating molded-in stresses can adversely affect part performance.

Screw Recovery

It is recommended that back pressures should be limited to 100-150 p.s.i. gauge to help ensure uniformity of the melt, yet minimize mechanical damage to the glass fibers and consequent loss of part performance. Screw rotation should also be as slow as possible consistent with cycle time goals, usually 40-80 r.p.m.

Mold Shrinkage

Standard ASTM test specimens are used to develop shrinkage guidelines. Test specimens are end-gated, 1/8 inch thickness, and molded at conditions recommended for this formulation. **Actual shrinkage in molded parts will depend on several variables including processing conditions, part configuration and gate location, both of which influence material flow direction, and wall section thickness.**