ABS Physical Properties

Product Data

High Impact ABS for sheet extrusion and blow molding applications. FDA food contact compliant.

Physical	Nominal	Values (English)	Test Method
Density – Specify Gravity (0.125 in)	1.03	sp gr 23/23o	ASTM D792
Mold Shrink, Linear Flow (0.125 in)	0.0060 to 0. 0080	in/in	ASTM D955
Mechanical			
Tensile Modulus[3]	30200	psi	ASTM D638
Tensile Strength @ Yield[4]	5800	psi	ASTM D638
Tensile Strength @ Break[4]	4400	psi	ASTM D638
Tensile Elongation @ Yield[4]	3.1	%	ASTM D638
Tensile Elongation @ Break[4]	32	%	ASTM D638
Flexural Modulus (2.00 in Span)[5]	314000	psi	ASTM D790
Flexural Strength @ Yield (2.00 in Span)[5]	9700	psi	ASTM D790
Impact			
Notched Izod Impact			ASTM D256
(-22° F)	5.80 ft-lb/in		
(73° F)	8.10 ft-lb/in		
Instrumented Dart Impact (73° F)	Total Energy: 450	in-lb	ASTM D3763
Thermal			
DTUL @ 264psi – Unannealed (0.125 in)	177	°F	ASTM D648
DTUL @ 66psi – Unannealed (0.125 in)	200	°F	ASTM D648
Vicat Softening Point (Rate B)	224	°F	ASTM D1525
CLTE, Flow (-40 to 100° F)	5.6E-005	in/in/°F	ASTM D696
CLTE, Transverse (-40 to 100° F)	5.8E-005	in/in/°F	ASTM D696
Mold Filling Analysis Parameters			
Melt Viscosity (464° F, 100 sec^-1)	1400	Pa-s	ASTM D3835

Material Status:
- Commercial Active

Availability:
- North America

Test Standards Available:
- ISO
- ASTM

Features:
- Impact Resistance, High
- Food Contact Acceptable

Processing Information

Uses:
- Sheet

Agency Ratings:
- FDA Unspeci

Forms:
- Pellets

Processing Method:
- Extrusion, Sheet
- Blow molding

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Extrusion Molding Parameters

Drying Temperature	180 to 200º F
Drying Time	6.0 to 12 Hr
Suggested Max Moisture	0.0020 to 0.020
Cylinder Zone 1 Temp.	340 to 390º F
Cylinder Zone 2 Temp.	360 to 430º F
Cylinder Zone 3 Temp.	370 to 440º F
Cylinder Zone 4 Temp.	390 to 460º F
Adapter Temperature	400 to 480º F
Melt Temperature	420 to 500º F
Die Temperature	400 to 480º F
Take-Off Roll	200 to 220º F

Extrusion Notes

Sheet Parameters:
NOTE: Recommended initial lower temperatures settings to avoid material degradation/hang-p in die.

Roll Stack Temp – Top: 190-200º F
Roll Stack Temp – Middle: 200-220º F
Roll Stack Temp – Bottom: 210-220º F

Purge material from extruder before shut down to avoid degredation/set-up.

Blow Molding Parameters:
NOTE: Maintain melt temperature within processing range.
Drying Temperature: 180-190º F
Drying Time: 4-5 hr
Drying Time Maximum: 24 hr
Moisture Content (range): 0.02-0.04%
Moisture Content Maximum: 0.04%
Melt Temperature (Parison): 420-450º F

Barrel – Zone 1: 400-440º F
Barrel – Zone 2: 400-440º F
Barrel – Zone 3: 400-440º F
Barrel – Zone 4: 400-440º F
Adapter – Zone 5: 410-450º F
Head – Zone 6 – Top: 420-450º F
Head – Zone 7 – Top: 420-450º F
Head – Zone 8 – Top: 420-455º F
Mold Temperature: 100-180º F

Head and die temperature to be same as the melt temperature. For extended downtimes lower barrel, head and die temperatures to 200º F

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Notes

1. When used unmodified for the manufacture of food contract articles, the product will comply with Food Additive Regulations FDA Unspecified Rating under the U.S. Food, Drug and Cosmetic Act. Such uses are subject to good manufacturing practices and any other limitations which are part of the statute or regulations. These should be consulted for complete details.
2. Typical properties; not to be construed as specications
3. 0.2 in/min
4. Type I, 0.2 in/min
5. 0.05 in/min