

CENTREX[®] 485

ASA Weatherable Polymer

Sheet-Extrusion Grade

Description

Centrex 485 is a medium-impact, low-gloss ASA (acrylonitrile styrene acrylate) resin with good resistance to weather aging. Centrex 485 resin has good melt strength for extrusion and thermoforming and can be easily coextruded over Lustran[®] ABS 752 acrylonitrile butadiene styrene resin.

Applications

Typical applications include those requiring weatherability and low gloss, such as automotive and truck interiors, exterior siding, and trim profiles. As with any product, use of Centrex 485 resin in a given application must be tested (including but not limited to field testing) in advance by the user to determine suitability.

Weatherability

Centrex resins exhibit good resistance to weather aging in unpainted outdoor applications. Color changes may occur in certain colors but are minimal in comparison with ABS (acrylonitrile butadiene styrene) resin under similar exposure conditions. For optimum performance, appropriate pigments should be used.

In coextrusion applications, Centrex resins offer UV (ultraviolet) protection only if the cap layer is at least 15 mils thick after thermoforming. In most cases, this requires at least a 20% Centrex resin cap.

Since weatherability is dependent on certain variables, such as resin color, end-use environment, and length of exposure, users need to determine whether color, appearance, and property shifts are acceptable for their intended applications. Please consult your LANXESS representative for further information.

Drying

Drying prior to processing is recommended in a desiccant dehumidifying hopper dryer. An inlet air dewpoint of -20°F (-29°C) or below is recommended to achieve a maximum moisture content of 0.03%. Typical drying conditions are 3–4 hours at 180°–200°F (82°–93°C).

Processing

Extruder. To obtain an optimum balance of sheet gloss and mechanical properties, the extruder should be set to deliver polymer at a melt temperature between 400° and 470°F (204° and 243°C).

Screw Design. Single- or two-stage screws can be used, although a two-stage screw is preferred. For two-stage screws, a first-stage compression ratio (feed depth to metering depth) of 2.5–2.7 and a pump ratio (second-stage metering to first-stage metering) of 1.5–2.0 are recommended. This is similar to an ABS screw.

Die. Die temperature settings for Centrex 485 resin normally range between 410° and 465°F (210° and 240°C). The die should be adjusted to provide uniform polymer melt at the lips.

Roll Stack. Suggested polishing roll settings for Centrex 485 resin using a standard S wrap are noted below. Specific settings are dependent on sheet gauge and linear speed.

Polishing Roll	Downstack	Upstack
Top	200°F (93°C)	200°F (93°C)
Middle	165°F (74°C)	190°F (88°C)
Bottom	200°F (93°C)	180°F (82°C)

Additional information on processing may be obtained by contacting a LANXESS Corporation technical service representative.

Regrind Information

Where end-use requirements permit, up to 40% Centrex resin regrind may be used with virgin material, during extrusion, provided that the material is kept free of contamination and is properly dried (see section on Drying). In cases where monolayer Centrex resin is being extruded, up to 40% Centrex resin regrind from 100% Centrex resin sheet or parts is generally acceptable. Where Centrex resin is being coextruded on top of a compatible material, such as Lustran® ABS resin, a level of 40% regrind from a mixture of Centrex resin and substrate is generally acceptable, but in this case the regrind must go only into the substrate. Centrex resin and ABS are totally compatible at all ratios. Other thermoplastics, such as polystyrene, polyethylene, and polypropylene, to mention a few, are not compatible, and mixing will result in appearance and property degradation.

Any regrind used must be generated from properly extruded and/or thermoformed parts and trim scrap. All regrind used must be clean, uncontaminated, and thoroughly blended with virgin resin prior to drying and processing. Under no circumstances should degraded, discolored, or contaminated material be used for regrind. Material of this type should be properly discarded.

Improperly mixed and/or dried regrind may diminish the desired properties of Centrex resin. It is critical that you test finished parts produced with any amount of regrind to ensure that your end-use performance requirements are fully met. Regulatory or testing organizations (e.g., UL) may have specific requirements limiting the allowable amount of regrind. Because third party regrind generally does not have a traceable heat history, or offer any assurance that proper temperatures, conditions, and/or materials were used in processing, extreme caution must be exercised in buying and using regrind from third parties.

The use of regrind material should be avoided entirely in those applications where resin properties equivalent to virgin material are required, including but not limited to color quality, impact strength, resin purity, and/or load-bearing performance.

Health and Safety Information

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling the LANXESS products mentioned in this publication. For materials mentioned which are not LANXESS products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be followed. Before working with any of these products, you must read and become familiar with the available information on their hazards, proper use, and handling. This cannot be overemphasized. Information is available in several forms, e.g., *material safety data sheets and product labels*. Consult your LANXESS Corporation representative or contact the Product Safety and Regulatory Affairs Department at LANXESS.

Typical Properties* for Natural Resin**	ASTM Test Method (Other)	Centrex® 485 Resin		Coextruded Sheet ^a Centrex® 485 Resin over Lustran® ABS 752 Resin	
		U.S. Conventional	SI Metric	U.S. Conventional	SI Metric
General					
Specific Gravity	D 792		1.05		
Density	D 792	0.038 lb/in ³	1.05 g/cm ³		
Specific Volume	D 792	26.4 in ³ /lb	0.95 cm ³ /g		
Melt Flow Rate at 230°C/10-kg Load	D1238		7 g/10 min		
Gloss, 60°:	D 523				
Sheet			20%	20%	
Formed			10%	10%	
Mechanical					
Tensile Stress at Yield:	D 638				
73°F (23°C)		3,000 lb/in ²	20.7 MPa	4,900 lb/in ²	33.8 MPa
0°F (-18°C)		4,500 lb/in ²	31.0 MPa	6,400 lb/in ²	44.1 MPa
Tensile Elongation at Break:	D 638				
73°F (23°C)			50%	30%	
0°F (-18°C)			40%	25%	
Tensile Modulus:	D 638				
73°F (23°C)		210,000 lb/in ²	1.4 GPa	290,000 lb/in ²	2.0 GPa
0°F (-18°C)		260,000 lb/in ²	1.8 GPa	330,000 lb/in ²	2.2 GPa
Flexural Stress at Yield:	D 790				
73°F (23°C)		5,600 lb/in ²	38.6 MPa	8,000 lb/in ²	55.2 MPa
0°F (-18°C)		8,900 lb/in ²	61.4 MPa	9,500 lb/in ²	65.5 MPa
Flexural Modulus:	D 638				
73°F (23°C)		200,000 lb/in ²	1.4 GPa	280,000 lb/in ²	1.9 GPa
0°F (-18°C)		220,000 lb/in ²	1.5 GPa	310,000 lb/in ²	2.1 GPa
Impact Strength, Notched Izod:	D 256				
0.125-in (3.2-mm) Thickness					
73°F (23°C)		2.0 ft-lb/in	107 J/m	5.8 ft-lb/in	310 J/m
0°F (-18°C)		1.2 ft-lb/in	64 J/m	1.3 ft-lb/in	69 J/m
-40°F (-40°C)		0.8 ft-lb/in	43 J/m	1.0 ft-lb/in	53 J/m
Instrumented Impact: ^b	D 3763				
Peak Energy					
73°F (23°C)		16 ft-lb	22 J	19 ft-lb	26 J
0°F (-18°C)		10 ft-lb	14 J	22 ft-lb	30 J
Total Energy					
73°F (23°C)		18 ft-lb	24 J	30 ft-lb	41 J
0°F (-18°C)		12 ft-lb	16 J	25 ft-lb	34 J
-22°F (-30°C)		4.5 ft-lb	6 J		
Rockwell Hardness, R Scale	D 785		79		79
Thermal					
Deflection Temperature Under Load:	D 648				
Unannealed					
264 psi (1.8 MPa)		174°F	79°C		
66 psi (0.46 MPa)		188°F	87°C		
Annealed					
264 psi (1.8 MPa)		194°F	90°C		
66 psi (0.46 MPa)		204°F	96°C		
Coefficient of Linear Thermal Expansion:	D 696				
-40° to 73°F (-40° to 23°C)		5.2 E-05 in/in/°F	9.4 E-05 mm/mm/°C		

* These items are provided as general information only. They are approximate values and are not part of the product specifications. Type and quantity of pigments or additives used to obtain certain colors and special effects can affect material properties.

^a Coextruded sheet is 25 mils of Centrex 485 resin over 100 mils of Lustran 752 ABS resin.

^b 0.5-in dart, 3-in clamp, 7.6 mph.

** Properties tested in transverse direction (worst case) on 125-mil extruded sheet specimens with less than 10% orientation unless otherwise noted.

Note: The information contained in this publication is current as of December 2005. Please contact LANXESS Corporation to determine whether this publication has been revised.

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LANXESS Corporation
111 RIDC Park West Drive
Pittsburgh, PA 15275-1112
800-LANXESS

www.us.lanxess.com