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INEOS ABS

LUSTRAN® Guardian ™ ABS 682

ABS

Injection Molding Grade

Lustran ABS 682 is a high performance, HCFC-141b resistant grade of ABS for injection molded refrigerator and freezer components. As with any product, use of Lustran ABS 682 resin in a given application must be tested (including but not limited to field testing) in advance by the user to determine suitability.

Typical Properties*	ASTM Test Method (Other)	Lustran® ABS 682
General		
Melt Flow Rate at 220°C/10-kg Load	D 1238	5.2 g/10 min
Melt Flow Rate at 230°C/3.8-kg Load	D 1238	0.7 g/10 min
Melt Flow Rate at 230°C/10-kg Load	D 1238	8 g/10 min
Specific Gravity	D 792	1.05
Mold Shrinkage	D 955	0.004 - 0.006 mm/mm
Gloss		
60° Angle	(Gardner)	96%
20° Angle	(Gardner)	87%
Mechanical		
Tensile Stress at Yield	D 638	43 MPa
Tensile Stress at Fail	D 638	32 MPa
Tensile Elongation at Fail	D 638	34%
Tensile Modulus	D 638	2.47 GPa
Flexural Stress at Yield	D 790	72 MPa
Flexural Modulus	D 790	2.53 GPa
Multiaxial Impact (3.4 m/s, 40-mm ring, M831 Striker)	D 3763	
Energy to Peak Load, 23°C		20 J
Total Energy, 23°C		33 J
Energy to Peak Load, -18°C		26 J
Total Energy, -18°C		30 J
Izod Impact	D 256	
12.7-mm x 3.2-mm, 0.25-mm notch, 23°C		48 kJ/m^2
12.7-mm x 3.2-mm, 0.25-mm notch, -18°C		13.8 kJ/m^2
Thermal		
DTUL, Annealed 2 hours at 80°C	D 648	
1.82 MPa		95.1°C
Vicat Softening Temperature	D 1525	
1 kg load, 120°C/Hour		108.9°C
Coefficient of Linear Thermal Expansion	D 696	10.2 x 10^{-5} mm/mm/°C
Flammability**		
UL 94 Flame Class:		
1.1-mm Thickness (White)	(UL94)	HB Rating
1.5-mm Thickness (All Colors)	(UL94)	HB Rating

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Typical Properties*	ISO Test Method (Other)	Lustran® ABS 682
General		
Melt Flow Rate at 220°C/10-kg Load	ISO 1133	5.2 g/10 min
Melt Flow Rate at 230°C/3.8-kg Load	ISO 1133	0.7 g/10 min
Melt Flow Rate at 230°C/10-kg Load	ISO 1133	8 g/10 min
Specific Gravity	ISO 1183	1.05
Mold Shrinkage	(ASTM D 955)	0.004 - 0.006 in/in
Gloss		
60° Angle	(Gardner)	96%
20° Angle	(Gardner)	87%
Mechanical		
Tensile Stress at Yield, 23°C (50-mm/min)	ISO 527	48 MPa
Tensile Stress at Fail, 23°C (50-mm/min)	ISO 527	34 MPa
Tensile Elongation at Fail, 23°C (50-mm/min)	ISO 527	20%
Tensile Modulus, 23°C (1-mm/min)	ISO 527	2.42 GPa
Tensile Stress at Yield, -18°C (50-mm/min)	ISO 527	64 MPa
Tensile Stress at Fail, -18°C (50-mm/min)	ISO 527	52 MPa
Tensile Elongation at Fail, -18°C (50-mm/min)	ISO 527	15%
Tensile Modulus, -18°C (1-mm/min)	ISO 527	2.81 GPa
Flexural Stress at Yield, 23°C (2-mm/min)	ISO 178	72 MPa
Flexural Modulus, 23°C (2-mm/min)	ISO 178	2.48 GPa
Izod Impact	ISO 180	
10.0-mm x 4.0-mm, 0.25-mm notch, 23°C		29 kJ/m^2
10.0-mm x 4.0-mm, 0.25-mm notch, -18°C		12 kJ/m^2
Thermal		
DTUL, Annealed 2 hours at 80°C	ISO 75	
1.82 MPa		94.5°C
Vicat Softening Temperature	ISO 306	
5 kg load, 120°C/Hour		97.0°C
5 kg load, 50°C/Hour		94.1°C
Coefficient of Linear Thermal Expansion	(ASTM D 696)	10.2 x 10^{-5} mm/mm/°C
Flammability**		
UL 94 Flame Class:		
1.1-mm Thickness (White)	(UL94)	HB Rating
1.5-mm Thickness (All Colors)	(UL94)	HB Rating

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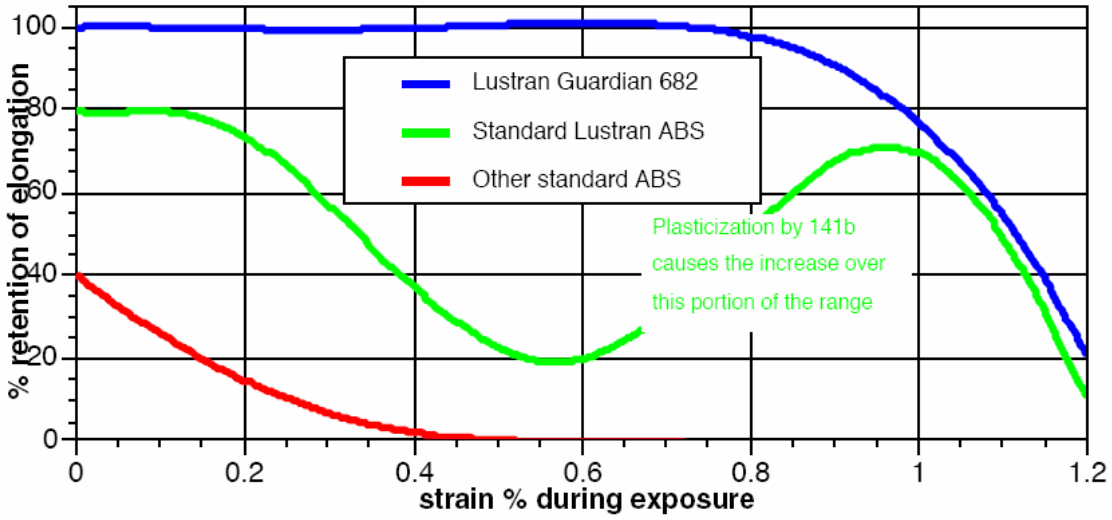
Chemical Resistance

- ***Critical Strain*** † of Guardian 682 on exposure to HCFC-141b: **>0.8%**
  Compare to *Critical Strain* of standard ABS on exposure to CFC-11: ~0.4—0.5%

  † Critical strain is the maximum level of strain that the material can withstand before it shows surface cracks and crazes, an indication of embrittlement by chemical attack.

- ***Retention of elongation*** of Guardian 682 on exposure to HCFC-141b

Lustran Guardian 682 shows superior retention of tensile elongation after exposure to HCFC-141b



** These items are provided as general information only. They are approximate values and are not considered part of the product specifications.*

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INEOS ABS (USA) Corporation