

## Laser+<sup>®</sup> (AD650)

## Product Data Sheet

### Application/Uses

- Bottles
- Carbonated soft drink containers
- Food packaging
- Packaging
- Water bottles

### Product Description

Laser+<sup>®</sup> AD650 is primarily targeted for the soft drink and water markets, it is also suitable for use in other beverage containers as well as food and on food-related applications. This polymer was formulated to provide improved efficiencies in preform and bottle production, a wide processing window, and low acetaldehyde levels. This product is produced in Zarate, Argentina and will be supplied to customers in the Mercosur region.

### Sales Specifications

SPECIFICATION N°: AD650-1  
EFFECTIVE DATE: March 1, 2008

This specification describes a grade of clear copolyester in the form of pellets which must meet all of the requirements listed below when tested as directed by the referenced methods.

Property	Value	Test Method
Intrinsic Viscosity	0.82 +/- 0.02	VGAS-A-AN-G-V-1 (or equivalent)
Color: CIE L* CIE a* CIE b*	74 minimum -3.3 to -0.3 -3.1 to 0.9	VGAS-A-AN-G-RS-0001
Fines	0.05 wt % maximum	VGAS-A-AN-G-GA-1 (or equivalent)
Acetaldehyde	2 ppm maximum, residual	VGAS-A-AN-G-GC-2

Product shipments are not tested for acetaldehyde. Samples that are representative of product are tested in a monitor program to ensure that the process capability for acetaldehyde in the polymer is less than the specification limit.

For reasons of safety and accuracy, the person performing methods described herein must be thoroughly trained and under the supervision of a professional person who is knowledgeable in the relevant science. Equipment and materials described should be used in accordance with safety precautions recommended by their manufacturers.

### Typical Properties

Property <sup>a</sup>	Test <sup>b</sup> Method	Typical Value, Units <sup>c</sup>
Crystalline Density	D 1505	1.4 g/cm <sup>3</sup>
Bulk Density		
Poured	D 1895	810 kg/m <sup>3</sup> (51 lb/ft <sup>3</sup> )
Vibrated	D 1895	871 kg/m <sup>3</sup> (54 lb/ft <sup>3</sup> )
Melt Density @ 285°C (545°F)	D 1238 (Note A- Table 2)	1.1 g/cm <sup>3</sup>
Crystalline Peak Melting Point (T <sub>m</sub> ) <sup>d</sup>	D 3418	241°C (466°F)
Heat of Fusion <sup>e</sup>	E 793	58 kJ/kg (14 cal/g)
Specific Heat <sup>e</sup>		
@ 23°C (73°F)	E 1269	1.2 kJ/kg·K (0.29 Btu/lb·°F)
@ 80°C (176°F)	E 1269	1.5 kJ/kg·K (0.36 Btu/lb·°F)
@ 100°C (212°F)	E 1269	1.7 kJ/kg·K (0.39 Btu/lb·°F)
@ 200°C (392°F)	E 1269	1.9 kJ/kg·K (0.45 Btu/lb·°F)
@ 280°C (536°F)	E 1269	2.1 kJ/kg·K (0.50 Btu/lb·°F)
Pellet Size		2.5 mm (0.1 in.)
Pellet Shape		Cubical

<sup>a</sup> Unless noted otherwise, all tests are run at 23°C (73°F) and 50% relative humidity.

<sup>b</sup> Unless noted otherwise, the test method is ASTM.

<sup>c</sup> Units are in SI or US customary units.

<sup>d</sup> Determined by DSC on the second heating cycle.

<sup>e</sup> Determined by DSC on the first heating cycle.

Specific heat in cal/g°C is numerically equivalent to the value in Btu/lb°F.

### Comments

Properties reported here are tentative data based on testing of one lot of this material, and therefore may or may not be representative of average lots. DAK Americas makes no representation that the material in any particular shipment will conform exactly to the values given.

**Caution:** Do not use in medical applications involving permanent or temporary implantation in the human body. For other applications, see "DAK Medical Caution Statement" or the Material Safety Data Sheet for this product.

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