

## LASTILAC AR-VOE

Compound based on Acrylonitrile-Butadiene-Styrene copolymer (ABS). Flame retardant, UL94 V-0 class, with brominated flame retardants, free of PBB/PBDE.

The products mentioned herein are not suitable for applications in contact with foodstuffs or for potable water transportation, or for toy manufacturing.

The products mentioned herein are not suitable for applications in the pharmaceutical, medical or dental sector.

PHYSICAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
<b>Density</b>	ISO 1183	1.21 g/cm <sup>3</sup>
<b>Linear shrinkage at moulding</b>		
Longitudinal (0.078in/8,700psi)	ISO 294-4	0.40 ÷ 0.60 %
Transversal (0.078in/8,700psi)	ISO 294-4	0.45 ÷ 0.65 %
<b>Dimensional stability</b>	---	79
<b>Moisture absorption</b>		
saturation, in air	ISO 62-4	0.39 %
MECHANICAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
<b>CHARPY impact strength</b>		
Unnotched, at 23°F	ISO 179-1eU	17.5 ft.lb/in <sup>2</sup>
Notched, at +23°F	ISO 179-1eA	3.0 ft.lb/in <sup>2</sup>
MECHANICAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
<b>Tensile elongation</b>		
At yield (0.196 in/min), 23°F	ISO 527	2.2 %
At yield (0.196 in/min), 60°F	ISO 527	2.4 %
At yield (0.196 in/min), 90°F	ISO 527	2.5 %
At break (0.196 in/min), 23°F	ISO 527	8.0 %
At break (0.196 in/min), 60°F	ISO 527	50.0 %
At break (0.196 in/min), 90°F	ISO 527	95.0 %
<b>Tensile strength</b>		
At yield (0.196 in/min), 23°F	ISO 527	6000 psi
At yield (0.196 in/min), 60°F	ISO 527	4350 psi
At yield (0.196 in/min), 90°F	ISO 527	2900 psi
At break (0.196 in/min), 23°F	ISO 527	5250 psi
At break (0.196 in/min), 60°F	ISO 527	2900 psi
At break (0.196 in/min), 90°F	ISO 527	725 psi
<b>Elastic modulus</b>		
Tensile (0.04 in/min), 23°F	ISO 527	345 kpsi
Tensile (0.04 in/min), 60°F	ISO 527	270 kpsi
Tensile (0.04 in/min), 90°F	ISO 527	210 kpsi

# LASTILAC AR-VOE

## THERMAL PROPERTIES

### Coefficient of linear thermal expansion (CLTE)

30°F to 100°F (longitudinal)

## STANDARD

ISO 11359

## VALUE MEASURE UNITS

75 × 10<sup>-6</sup> K<sup>-1</sup>

30°F to 100°F (transversal)

ISO 11359

75 × 10<sup>-6</sup> K<sup>-1</sup>

### VICAT - Softening point

11 lb (heating rate 250°F/h)

ISO 306

203 °F

### HDT - Heat Deflection Temperature

66 psi

ISO 75

194 °F

264 psi

ISO 75

176 °F

## FLAMMABILITY

### Oxygen Index

## STANDARD

ASTM D 2863

## VALUE MEASURE UNITS

28 %

### Flammability rating

0.125 in. thickness

UL 94

V-0

0.060 in. thickness

UL 94

V-0

0.030 in. thickness

UL 94

V-2

### GWFI - Glow Wire Flammability Index

0.078 in. thickness

IEC 60695-2-12

960 °C

0.040 in. thickness

IEC 60695-2-12

960 °C

### GWIT - Glow Wire Ignition Test

0.078 in. thickness

IEC 60695-2-13

725 °C

0.040 in. thickness

IEC 60695-2-13

850 °C

## ELECTRICAL PROPERTIES

### CTI - Comparative Tracking Index

solution A (without surfactant)

## STANDARD

IEC 60112

## VALUE MEASURE UNITS

350 V

### Electrical resistivity

surface, dry

ASTM D 257 / ASTM D4496

1E12 ohm

### Dielectric strength (short period)

0.078 in. thickness, 73°F, dry

ASTM D 149

457 kV/mm

#### STORAGE

Best storage conditions of sealed, undamaged packages are warm environmental temperature in dry storage facilities able to protect from weather and accidental damage.

#### HANDLING AND SAFETY

Detailed information about a safe treatment of the material are indicated in the "Material Safety Data Sheet" (MSDS) furnished with the first material supply. The MSDS may be also sent again in case of loss.

#### PREDRYING CONDITIONS (Hot-air dryer)

Predrying needed. Predrying conditions are: at least 3 hours at 160 ÷ 175°F. Increase time in case of damp material. Maximum suggested moisture content: 0.05%. Use of desiccant dryers or vacuum ovens allows a reduction in drying time.

#### BARREL TEMPERATURE PROFILE

Suggested barrel temperature profile (zone 1 - zone 2 - zone 3 - nozzle): 375-390-410-385°F.

#### RESIDENCE TIME

Maximum allowable residence time: 4 ÷ 6 minutes. Do not exceed this limit. Maximum number of complete shots (in the barrel) suggested: 1 ÷ 3

#### MELT TEMPERATURE

Suggested range of melt temperature: 375 ÷ 430°F. On small machines, running short cycles, it is possible to use higher melt temperatures to improve plastification, fluidity and surface appearance, paying attention to any indication of material degradation.

#### MOLD TEMPERATURE

Suggested range of mold temperature: 105 ÷ 140°F. This can be significantly different from the tool settings, due to the cooling system efficiency and the accuracy of the temperature control on the tool. If molding temperature is lower than suggested, part annealing may be necessary.

#### INJECTION SPEED

Advisable injection speed: low to medium. Best results are achieved by using an injection profile.

#### TANGENTIAL SCREW VELOCITY (V)

Maximum suggested tangential velocity (V): 0.65 ÷ 1.30 fps. The maximum rotational speed may be calculated by means of the following equation:  $\text{rpm} = S/d \cdot 229$ , where d is the screw diameter (in).

#### INJECTION PRESSURE

Maximum advisable injection pressure at nozzle: 60 ÷ 100 MPa. Please, check on manual of injection molding machine the ratio between specific pressure (at nozzle) and hydraulic pressure (of oil).

#### PACKING PRESSURE

Typical suggested packing pressure (at nozzle): 50 ÷ 70% of injection pressure.

#### CUSHION

Minimum suggested cushion: 0.10 ÷ 0.25 in.

#### BACK PRESSURE

Suggested backpressure: 70 ÷ 145 psi (hydraulic pressure).

#### REGRIND USAGE

Maximum suggested regrind percentage: 15%. In-loop regrind is suggested. Regrind must be dried.

#### **HOT RUNNER MOLDS**

Hot runner molds are not recommended, and their usage should be evaluated with LATI Technical Service.

#### **EQUIPMENT WEAR AND CORROSION**

Usually, critical processing conditions (high injection rate, high back pressure and high screw rotating speed, etc.) and/or disadvantageous geometric conditions (low wall thickness, low diameters, sharp fillet radius, etc.) generate wear on equipment. Wear increases in case of filled materials (particularly fibers filled ones). Appropriate surface treatments of equipment are suggested in these cases, as well as a proper venting to avoid material overheating. Steel types containing a high chrome percentage (Cr > 13%) or a specific surface treatment (e.g. Chrome or Nickel electroplating) are suggested. It is advisable to use a corrosion-resistant steel to make the mold.

**Check the proper "Molding guide" for further details.**

#### **APPROVALS**

**Please, check our site or contact LATI for details.**

#### **CONTACTS**

**LATI Industria Termoplastici S.p.A.**