ViSpec™ FR 5500
Technical Data Sheet

POLYRENE 10AE
Version 5 - 15/07/2013

Description

The high impact polystyrene (HIPS) is a standard grade opaque. It provides a good balance between rigidity and mechanical properties. This product which is suited for application without excessively constraint, offers a lot of easy and varied transformation (thermoforming, folding, cutting, gluing, welding, printing…).
POLYRENE 10AE is a flame retardant HIPS without DBDPE (Decabromo Dyphenyl Ethane) produced with a raw material certified UL94 by our supplier (Yellow card available on request).

Applications

Construction, fabric, electric industry, etc…

Main information & Features

Thermoforming

Easy to thermoform, this product has a temperature broad range.

Transformation

Gluing: Hot melt or glue from solvent compound.
Cutting: Guillotine, circular saw, band saw, die cutting
Welding: Thermal welding, ultrasonic welding, braze welding.

Printing/Painting

It can be printed by silkscreen or flexography.
In any case, we recommend a preliminary test**.**

Deliverable range

Colouring

Colour's range: standard and customized.
Warning: some colours are difficult to copy due to the additive flame retardant. The accuracy of colour may vary slightly from one production to another.

Finishing

Smooth surface.
Embossed: pinseal (G1B) or sand (G1D).

Minimum of quantity

1 ton by thickness, 2 tons by colour in a campaign of 3 tons.

Dimension

Thickness	Width	
	Min	Max
2 mm à 7 mm	400 mm	1600 mm
2 mm à 8 mm	400 mm	1500 mm

Notice: the available formats vary according to the thickness, colours, finishing and the quantity of the order.

Alternatives

ACRYRENE 10AE: ABS flame retardant with yellow card (UL94).
ACRYRENE 11AE: ABS flame retardant without yellow card.
GERTEX 10AE: PC/ABS flame retardant, halogen free with yellow card.

Properties [1]	Unit	Standard	Method	Value
Density [2]	g/cm^3	ISO 1183	-	1,15
Impact Izod +23℃ notched	kJ/m^2	ISO 180	1A	8
Impact Izod -30℃ notched	kJ/m²	ISO 180	1A	-
Impact Charpy +23℃ notched	kJ/m²	ISO 179	1eA	-
Impact Charpy -30℃ notched	kJ/m²	ISO 179	1eA	-
Flexural Modulus	MPa	ISO 178	2mm/min	2250
Elongation at break	%	ISO 527	50 mm/min	40
Vicat Softening Point 50N	°C	ISO 306	B50/oil	87
Heat Distortion Temperature	°C	ISO 75	HDT/A 1.8MPa	-
Flammability rate	1,6 mm 2,5 mm	UL 94	Yellow card supplier	V0 5VB

1 : Data are given by supplier's datasheet.
2 : Density indicated should be only used as a guide. This value can change depending on the type and quantity of pigments or additives used.

Further informations

Thermoforming
Shrinkage after thermoforming varies from 0.5 to 0.6%. The thermoforming temperature is between 140 and 170°C. For thermoforming, the use of a steel or aluminium mould is strongly advised.

Storing/Drying
A drying before thermoforming is not useful if the material is storage in good conditions (normal moisture and temperature). Conversely, if sheets are exposed in a moisture ambiance or during a very long time, we recommend a drying at 70℃ during 2 hours (for 2 mm), plus an additional hour for every 1 mm thickness. It is essential that enough space be left between sheets (20 – 30 mm) to allow correct drying. The time lapse between drying and thermoforming should be minimised in order to save energy and reduce heating time.

Certification/Approvals
The following approvals are available only on request.
ROHS: European regulation 2002/95/EC.
Flamability: Yellow card available for UL94 class.

UV Resistance
Outside, or in case of UV radiation exposure, POLYRENE 10AE bleached and it becomes brittle after several months UV exposition. The colour black will improve UV resistance or an addition of an UV stabiliser can further improve its longevity.
The POLYRENE 10AE is sensitive at UV aging.

Cleaning and Maintenance
The standard soaps which are hot water dissolved can be used on polluted surfaces; however, a preliminary test must be performed on an inconspicuous area of part. The use of detergents is strongly not advised.

Chemical resistance

Chemical resistance is influenced by many factors, including concentration, temperature, exposure time and material stress.
HIPS offers a low chemical resistance, especially in presence of Acetone, higher Alcohol, benzene, gasoline, oils, toluene and its derivatives. A test must be performed over an inconspicuous area prior to extend usage.

Advantages	Inconvenients
-Thermoforming and cutting very easy. -It supports very well the marking and painting. -Good dimensional stability. -Material self-extinguishing cheaper than ABS FR or PC/ABS FR. -Material classified by UL with the yellow card provider.	-Low chemical resistance. -UV-resistance limited. -Slight variation in color can be possible on a batch to another.

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