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- Sheet Plastics
- Cut to size & shape
- CNC Router cutting
- Fabrication
- Vacuum Forming
- Boat Screens & windows
- Signs & Displays
- Engineering Plastics
- Ecoscreen Plastic Lattice
- C/S Acrovyn
- Bld/Lic RL155051

updated:1/8/05

## **STYRENE (HIPS) TECHNICAL DATA AND INFORMATION SHEET**

"HIPS" sheet is a thermoplastic, produced from Styrene monomers and various impact modifiers. It is available with a matt or high gloss surface. Excellent forming characteristics make it an ideal choice for vacuum forming, packaging and screen printing applications.

### **Product range:**

City Plastics carry a variety of standard sheet sizes and thicknesses, with an option of custom made sizes and colours available, which are subject to minimum order quantities.

Ex stock colours include black and whites in the standard finish of high gloss one side and matt the other. Special colours, surface finishes and UV additives are available, which are subject to a minimum order quantity.

### **Product features:**

Excellent thermoforming characteristics, good impact strength, FDA approved - food safe, good rigidity and low temperature toughness, excellent printability.

### **Typical applications:**

Graphic arts, signs, packaging, cutlery trays, take away food containers, margarine tubs, cups and lids, point of sale displays.

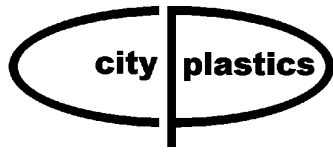
### **Fabrication:**

#### **Cutting & Guillotining:**

A circular saw blade with carbide teeth utilising the triple chip tooth design is preferred for thicker gauges. Laser cutting and routing are also successful. Other suitable methods for cutting Styrene sheet include guillotining and punching. Guillotining produces straight-edged cuts, while blanking dies and punches can produce a wide variety of shapes.

### **Drilling:**

For drilling, use conventional drill bits with the standard drill angles and a negative rake.



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**Forming:**

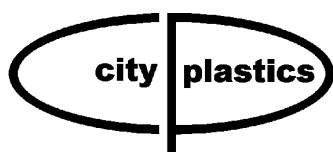
High impact polystyrene can be thermoformed using typical strip heating and vacuum forming equipment. No predrying of the material is required.

**Decorating:**

High impact polystyrene can be screen-printed using inks specifically formulated for HIPS. Vinyl graphics can also be applied using typical application methods.

**Cementing:**

High impact polystyrene can be successfully bonded using Weldon 3 and 16.



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## TYPICAL PROPERTIES OF HIPS

ASTM test	Property	Value
<b>PHYSICAL</b>		
D792	Specific gravity	1.05
D1238	Melt flow index	4(200°C)
D570	Water absorption, 24 hours, 3.0 mm thick (%)	0.1
°C	Maximum service temp	+70
°C	Minimum service temp	-50
<b>MECHANICAL</b>		
D638	Tensile strength at yield N/mm <sup>2</sup>	30
D638	Elongation at yield(%)	3
D638	Tensile strength at break N/mm <sup>2</sup>	35
D638	Elongation at break(%)	40
	Impact strength mj/mm <sup>2</sup>	no break
D256	Notched impact strength mj/mm <sup>2</sup>	8
	Ball indentation hardness N/mm <sup>2</sup>	80
D790	Flexural strength N/mm <sup>2</sup>	52
D638	Modulus of elasticity N/mm <sup>2</sup>	2100
<b>THERMAL</b>		
C177	Thermal conductivity at 20°C	0.17
D696	Coefficient of thermal expansion K-1.10-4	0.9
D648	Deflection temperature °C	89
D1525	Vicat softening temperature °C	89
<b>ELECTRICAL</b>		
D257	Volume resistivity (ohm-cm)	10.16
D257	Surface resistancy ohm	10.13
D150	Dielectric constant At 1kHz	2.5
D150	Dissipation loss factor At 1kHz	0.0001
<b>FABRICATION</b>		
	Welding temperature °C	220
	Forming temperature °C	150

These values are representative of those obtained under standard ASTM conditions and should not be used to design parts which function under different conditions.

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