

## Typical value for Solarene<sup>®</sup>

### Grade : Solarene<sup>®</sup> HIPS, H-616

Test items	Unit	Test Method	Test Condition	Typical Value
<b>Mechanical Properties</b>				
Tensile Strength [yield]	kgf/cm <sup>2</sup> [MPa]	ASTM D 638	-	260 [25]
Elongation	%	ASTM D 638	-	66
Flexural Strength	kgf/cm <sup>2</sup> [MPa]	ASTM D 790	-	440 [43]
Flexural Modulus	kgf/cm <sup>2</sup> [MPa]	ASTM D 790	-	22,400 [2,197]
IZOD Impact Strength	kgf-cm/cm [J/m]	ASTM D 256	3.2mm Notched	12.1 [119]
Rockwell Hardness	-	ASTM D 785	L-Scale	71
<b>Rheological Properties</b>				
Melt Flow Index	g/10 min	ASTM D 1238	200°C/5kg	6.6
<b>Thermal Properties</b>				
Vicat Softening Temp.	°C	ASTM D 1525	A/50	97.2
Mold Shrinkage	%	ASTM D 955	-	0.4~0.7
<b>Physical Properties</b>				
Specific Gravity	-	ASTM D 792	-	1.04
Water Absorption	%	ASTM D 570	-	0.03
<b>Burning Properties</b>				
Flammability	class	UL 94	-	HB

\* The above values are only the representatives of natural color specimen.

\* The listed values should be used for referential purposed only.



**Beung Kuk, So**  
 Manager of QA



# HYUNDAI ENGINEERING PLASTICS

## Product Information

### SOLARENE<sup>®</sup> HIPS, H-724

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#### **Description**

SOLARENE<sup>®</sup> H-724 is a very high impact polystyrene for the extrusion process. This grade has been designed to be blended with general purpose (such as Solarene's G-116 G-126 or G-144) at higher levels than could be achieved by some comparable high impact polystyrenes. The good melt strength of this grade makes it particularly suited for deep-draw thermoforming.

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#### **Applications**

SOLARENE<sup>®</sup> H-724 is useful to multi-layer sheet, deep-draw container, food trays trays, heat resistant thermoformed products and home electric parts etc.

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#### **Supplied and storage**

SOLARENE<sup>®</sup> H-724 should be kept in its original packages in cool and dry place. Avoid direct exposure to sunlight. SOLARENE<sup>®</sup> H-724 can be stored in silos.

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#### **Food contact**

The composition of SOLARENE<sup>®</sup> H-724 complies with 21CFR.SEC.177.1640 in FDA regulations, as well as the registered by as follows;

- . A confirmation certificate for PL(Products Liability)
  - approved by JHOSPA(Japan Hygienic Olefin & Styrene Plastics Association)
  - file number : E-08
  - registration number : [A]SZa-0584-L

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#### **Standard properties**

The statement in the document are based on our present technical knowledge, experience and data selected from the literature. All tests carried out at 23°C unless otherwise stated by own test methods. Mechanical properties are measured on injection molded tests specimens. Neither do they imply any binding assurance of stability for a particular purpose.

#### **>>Typical Value for Product**

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##### **Head Office**

5F, 102 Dong, I PARK, #9, Jeongja-Dong, Bundang-Gu, Seongnam,  
463-811, Korea

##### **Petrochemical Factory**

#665 Bukok-dong, Nam-gu Ulsan 680-110, Korea  
tel) 82.52.279.0570~3, fax) 82.52.279.0506

**HYUNDAI-EP**

QA630-31203

# HI650

## High Impact Polystyrene (HIPS)

### Description:

HI650 is a high impact grade of polystyrene resin for injection molding with good impact resistance and easy flow. It is recommended for electrical appliances (air conditioning parts, TV), household products, sanitary ware, and toys. It also meets the requirement of food contact regulation

Physical Properties:	Method	Unit	Value
<b>Melt Flow Index (5 kg/200°C)</b>	ASTM D1238	g/10min.	8.0
<b>Izod Notched Impact (1/4", 23°C)</b>	ASTM D256	Kg-cm/cm	11
<b>Tensile Strength at Yield (23°C)</b>	ASTM D638	kg/cm <sup>2</sup>	232
<b>Flexural Strength at Yield (23°C)</b>	ASTM D790	kg/cm <sup>2</sup>	450
<b>Flexural Modulus (23°C)</b>	ASTM D790	×10 <sup>4</sup> kg/cm <sup>2</sup>	2.32
<b>Rockwell Hardness (1/4", 23°C)</b>	ASTM D785	L-Scale	79
<b>Heat Distortion Temperature (1/4", 18.6 kg/cm<sup>2</sup>)</b>	ASTM D648	°C	90
<b>Vicat Softening Temperature (1/8", 1 kg)</b>	ASTM D1525	°C	96
<b>Flammability</b>	UL-94	-	HB (1.5)

### Processing Technique

Processing Temperature : 180-240 °C

\*\*However, the actual processing conditions depend on mold design, power of machine, screw configurations and other environments.\*\*

**Remark:** The values presented on the above are typical laboratory average, not to be construed as specifications and may vary within moderate ranges. The applicability or the accuracy of this information or the suitability of our products cannot be guaranteed because the conditions of use on the part or our uses are beyond our control.



# HYUNDAI ENGINEERING PLASTICS

## Typical Value for Product

### SOLARENE<sup>®</sup> HIPS, H-724

Test item	Unit	Test method		Typical value	
		ISO	ASTM	ISO	ASTM
<b><u>Mechanical properties</u></b>					
Tensile stress at yield	MPa	527	D638	25	
Tensile stress at break	MPa	527	D638	24	
Tensile strain at yield	%	527	D638	0.7	
Tensile strain at break	%	527	D638	65	
Young's modulus	MPa	527	D638	1,765	
Flexural strength	MPa	178	D790	43	
Flexural modulus	MPa	178	D790	2,157	
Charpy impact strength(23 °C/-30 °C)	kJ/m <sup>2</sup>	179	-	109/121	
Charpy notched impact strength(23 °C/-30 °C)	kJ/m <sup>2</sup>	179	D6110	12.7/8.5	
IZOD impact notched strength(23 °C)	kJ/m <sup>2</sup>	180	D256	13	
IZOD impact notched strength(-23 °C)	kJ/m <sup>2</sup>	180	D256	-	
Rockwell hardness(L scale)	-	2039	D785	65	
<b><u>Rheological Properties</u></b>					
Melt flow index(200 °C-5kg)	g/10min	1133	D1238	5	
Molding shrinkage(along chain)	%	Injection	Injection	.6	
Molding shrinkage(across chain)	%	injection	injection	.5	
<b><u>Thermal properties</u></b>					
VICAT softening temp., (B/50)	°C	306	D1525	97	
Heat distortion temp., (1.8MPa)	°C	75	D648	75	
<b><u>Optical properties</u></b>					
Haze(Injection Mold Specimen)	%		D1003	-	
Yellow index(Pellets)	-		D1925	-	
<b><u>Burning properties</u></b>					
Flammability, 1.6t	Class	UL94		HB	
3.2t	Class	UL94		HB	

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**HYUNDAI-EP**

QA630-31203

## Technical Datasheet

### DESCRIPTION

Styrolution PS 476L is a normal flow and very high impact Polystyrene. It gives good mechanical and heat resistance properties while providing with easy processability and short cycle time.

### FEATURES

- Normal flow HIPS
- Good mechanical and heat resistance properties
- Easy processability with short cycle time

### APPLICATIONS

- Wide range of injection molding applications , e.g. - office, kitchen and bathroom articles;
- Food packaging as beverage cups, packaging for dairy products, sheets and disposables
- Internal parts and housings of household appliances and consumer electronics
- Toys

Property, Test Condition	Standard	Unit	Values
<b>Rheological Properties</b>			
Melt Volume Rate, 200 °C/5 kg	ISO 1133	cm <sup>3</sup> /10 min	5,5
<b>Mechanical Properties</b>			
Izod Notched Impact Strength, 23 °C	ISO 180/A	kJ/m <sup>2</sup>	11
Charpy Notched Impact Strength, 23° C	ISO 179	kJ/m <sup>2</sup>	15
Charpy Unnotched, 23° C	ISO 179	kJ/m <sup>2</sup>	N
Charpy Unnotched, -30° C	ISO 179	kJ/m <sup>2</sup>	130
Tensile Stress at Yield, 23° C	ISO 527	MPa	27
Tensile Strain at Yield, 23° C	ISO 527	%	1.5
Tensile Strain at Break, 23° C	ISO 527	%	30
Tensile Modulus	ISO 527	MPa	1850
Elongation at Break (MD)		%	-
Flexural Strength	ISO 178	MPa	40
Flexural Modulus	ISO 178	MPa	1950
Hardness, Ball Indentation	ISO 2039-1	MPa	85
<b>Thermal Properties</b>			
Vicat Softening Temperature VST/B/50 (50°C/h, 50N)	ISO 306	°C	90