



HYUNDAI ENGINEERING PLASTICS

Product Information

SOLARENE[®] GPPS, G-116

Description

SOLARENE[®] G-116 is a high heat resistance, high rigidity and high molecular weight general purpose polystyrene mainly for the extrusion sheet/film and Injection molding. It is particularly useful in the production of thick sheet by direct gassing, where it gives Expanded sheets with high mechanical properties; for blend with high impact polystyrene in heat contact applications.

Applications

SOLARENE[®] G-116 is useful to foamed trays, shower screens, high heat resistant thermoformed products, transparent cups and home electric parts etc.

Supplied and storage

SOLARENE[®] G-116 should be kept in its original packages in cool and dry place. Avoid direct exposure to sunlight. SOLARENE[®] G-116 can be stored in silos.

Food contact

The composition of SOLARENE[®] G-116 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-0579-L

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

Head Office

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HYUNDAI-EP

QA630-20805



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Typical Value for Product

SOLARENE[®] GPPS, G-116

Test item	Unit	Test method		Typical value	
		ISO	ASTM	ISO	ASTM
<u>Mechanical properties</u>					
Tensile stress at yield	MPa	527	D638	56	56
Tensile stress at break	MPa	527	D638	54	54
Tensile strain at yield	%	527	D638	-	-
Tensile strain at break	%	527	D638	3	3
Young's modulus	MPa	527	D638	2,638	2,638
Flexural strength	MPa	178	D790	110	110
Flexural modulus	MPa	178	D790	3,494	3,494
Charpy impact strength(23℃/-30℃)	kJ/m ²	179	-	-	-
Charpy notched impact strength(23℃/-30℃)	kJ/m ²	179	D6110	-	-
IZOD impact notched strength(23℃)	kJ/m ²	180	D256	-	1.7
IZOD impact notched strength(-23℃)	kJ/m ²	180	D256	-	-
Rockwell hardness(L scale)	-	2039	D785	-	102
<u>Rheological Properties</u>					
Melt flow index(200℃-5kg)	g/10min	1133	D1238	2.3	2.3
Molding shrinkage(along chain)	%	Injection	Injection	0.5	0.5
Molding shrinkage(across chain)	%	injection	injection	0.4	0.4
<u>Thermal properties</u>					
VICAT softening temp., (B/50)	℃	306	D1525	105	105
Heat distortion temp., (1.8MPa)	℃	75	D648	85	85
<u>Optical properties</u>					
Haze(Injection Mold Specimen)	%		D1003	-	0.4
Yellow index(Pellets)	-		D1925	-	-4.5
<u>Burning properties</u>					
Flammability, 1.6t	Class	UL94		HB	
3.2t	Class	UL94		HB	

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Typical value for Solarene[Ⓟ]

Grade : Solarene[Ⓟ] GPPS, G-126

Test items	Unit	Test Method	Test Condition	Typical Value
Mechanical Properties				
Tensile Stress at yield	kgf/cm ² [MPa]	ASTM D 638	-	520 [51]
Elongation	%	ASTM D 638	-	3
Flexural Strength	kgf/cm ² [MPa]	ASTM D 790	-	890 [87]
Flexural Modulus	kgf/cm ² [MPa]	ASTM D 790	-	32,000 [3,138]
Izod Impact Strength	kgf·cm/cm [J/m]	ASTM D 256	3.2mm Notched	1.9 [18.6]
Rockwell Hardness	-	ASTM D 785	L-Scale	101
Rheological Properties				
Melt Flow Index	g/10 min	ASTM D 1238	200 °C/5kg	6
Thermal Properties				
Vicat Softening Temp.	°C	ASTM D 1525	A/50	100
Mold Shrinkage	%	ASTM D 955	-	0.4~0.7
Physical Properties				
Specific Gravity	-	ASTM D 792	-	1.04
Water Absorption	%	ASTM D 570	-	0.03
Burning Properties				
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.

SABIC[®] PS 160

GENERAL PURPOSE POLYSTYRENE FOR FOAM EXTRUSION

DESCRIPTION

General purpose Polystyrene PS 160 is manufactured by continuous mass polymerization of styrene monomer. It is a crystal-like, hard and brittle material having High molecular weight imparting high tensile strength to end- products. It has high vicat and heat deflection temperatures.

TYPICAL PROPERTY VALUES

Revision 20201104

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
POLYMER PROPERTIES			
Melt Flow Rate @ 200°C & 5 kg ⁽¹⁾	3.3	g/10 min	ASTM D1238
Load Density@ 23°C	1050	kg/m ³	ASTM D792
Bulk Density (Method B)	600	kg/m ³	ASTM D1895
MECHANICAL PROPERTIES			
Tensile Strength ⁽²⁾	51	MPa	ASTM D638
Tensile Elongation	2	%	ASTM D638
Flexural Modulus	3627	MPa	ASTM D790
Flexural Strength	95	MPa	ASTM D790
Izod impact notched at 23 °C	20	J/m	ASTM D256A
Rockwell Hardness			
L-Scale	92	-	ASTM D785
M-Scale	58	-	ASTM D785
Tensile modulus	2990	MPa	ASTM D638
THERMAL PROPERTIES			
Vicat Softening Point, (Rate A/50°C)	104	°C	ASTM D 1525
Heat Deflection Temperature (Method B, 455 KPa, Annealed)	100	°C	ASTM D648
Flammability Rating, UL 94			
@ 1.3 mm and 3 mm (natural color) ⁽¹⁾	HB	Rate	-

(1) Typical values; not to be construed as specification limits.

(2) Based on Injection molded specimens.

APPLICATIONS

It is recommended for foam extrusion for egg cartons, clam-shell and for building insulation boards. It is also recommended for cookie and cake trays that requires good organoleptics properties and can also be used for oriented polystyrene packaging products, artificial timber and light diffusers.

PROCESSING CONDITIONS

Typical temperature (°C) profile for PS 160:

Throat Ambient, Feed 195°C, Transition 225°C, Metering 235°C, Die 230°C

FOOD REGULATION

PS 160 is suitable for Food contact application. Detailed information is provided in relevant Material Safety Datasheet and for additional specific information please contact SABIC local representative for certificate.



STORAGE AND HANDLING

Polystyrene resin should be stored to prevent a direct exposure to sunlight and/or heat. The storage area should also be dry and preferably don't exceed 50°C. SABIC would not give warranty to bad storage conditions which may lead to quality deterioration such as color change, bad smell and inadequate product performance. It is advisable to process PS resin within 6 months after delivery.

DISCLAIMER

Any sale by SABIC, its subsidiaries and affiliates (each a "seller"), is made exclusively under seller's standard conditions of sale (available upon request) unless agreed otherwise in writing and signed on behalf of the seller. While the information contained herein is given in good faith, SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND NONINFRINGEMENT OF INTELLECTUAL PROPERTY, NOR ASSUMES ANY LIABILITY, DIRECT OR INDIRECT, WITH RESPECT TO THE PERFORMANCE, SUITABILITY OR FITNESS FOR INTENDED USE OR PURPOSE OF THESE PRODUCTS IN ANY APPLICATION. Each customer must determine the suitability of seller materials for the customer's particular use through appropriate testing and analysis. No statement by seller concerning a possible use of any product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right.