TOTAL PETROCHEMICALS

MATERIAL DATASHEET

Total Petrochemicals Polystyrene 814

UV Stabilised V0 @ 1.5 mm, 5VA @ 2.5 mm Non-Deca Polystyrene

Total Petrochemicals Polystyrene 814 is a heat resistant,UV Stabilised V0 Non Deca Polystyrene for injection molding. It is recommended for the manufacturing of articles which require good dimensional stability at elevated temperature.

Suitable Applications for Total Petrochemicals Polystyrene 814 includes TV Covers, printers, scanners and electrical appliances.

Properties	Test Method	S.I.		Metric		English	
		Value	Units	Value	Units	Value	Units
RHEOLOGICAL							
Melt Flow Index (200℃ - 5 kg)	ASTM D-1238	0.0065	kg/ 10 min	6.50	g/ 10 min	1.43E-02	lb/ 10 min
Spiral Flow (220 ℃)	ASTM D-3123	0.47	m	47	cm	18.50	in
THERMAL							
Vicat Softening Point 10N (T increase = 50 ℃/h)	ASTM D-1525	370	K	97	℃	207	℉
Heat Distortion Temperature	ASTM D-648	358	K	85	℃	185	℉
Coefficient of Linear Thermal Expansion (10^{-5})	ASTM D-696	3.25E-05	m/K	8.90	mm/℃	1.04E-02	in/℃
Ball Pressure Test (2.00 mm)	JET	358.15	K	85.00	℃	185.00	℉
MECHANICAL							
Notched Izod Impact Strength	ASTM D-256	7.00	kJ/m^2	6.50	kg-cm/cm	1.19	ft-lb/in
Tensile Strength at Yield	ASTM D-638	22	MPa	220	kg/cm^2	3254	psi
Tensile Strength at Break	ASTM D-638	24	MPa	240	kg/cm^2	3549	psi
Elongation at Break	ASTM D-638	50	%	50	%	50	%
Tensile Modulus	ASTM D-638	2000	MPa	20000	kg/cm^2	290155	psi
Flexural Modulus	ASTM D-790	2000	MPa	20000	kg/cm^2	290155	psi
Rockwell Hardness	ASTM D-785	R83	-	R83	-	R83	-
ELECTRICAL							
Dielectric Strength	ASTM D-149	160000	kV/m	160	kV/mm	4064	kV/in
Surface resistivity	ISO IEC 93	>10e+13	$Ohms^{-1}$	>10e+13	$Ohms^{-1}$	>10e+13	$Ohms^{-1}$
MISCELLANEOUS							
Density	ASTM D-792	1150	kg/m^3	1.15	g/cm^3	71.78	lb/ft^3
Mold Shrinkage	ASTM D-955	0.4 - 0.7	%	0.4 - 0.7	%	0.4 - 0.7	%
Water absorption	ASTM D-570	0.04	%	0.04	%	0.04	%

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RECOMMENDED INJECTION MOLDING PARAMETERS

Barrel Temperature	Value	Units	Mold Temperature	Value	Units
Zone 1	160 - 180	℃	Fixed Half	30 - 50	℃
Zone 2	180 - 200	℃	Moving Half	10 -- 30	℃
Zone 3	190 - 210	℃	Injection Pressure	200 - 400	Bars
Zone 4	200 - 220	℃	Hold on Pressure	20 - 80	Bars
Nozzle	210 - 230	℃	Screw Back Pressure	10 - 50	Bars
			Screw Speed	50 - 200	RPM
			Pre Drying Temperature for 2 hours	70	℃

General Information :

Standard Properties: All Tests are carried out at 23 ℃ unless otherwise stated. Mechanical properties are measured on injection moulded test specimens
Bulk Density: Bulk Density of all Natural grades is approximately 0.6 g/cm3
Total Petrochemicals Polystyrene 814 should be kept in a cool and dry place. Avoid direct exposure to sunlight.

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TOTAL PETROCHEMICALS

Safety and Material Handling

TOTAL PETROCHEMICALS offers a comprehensive range of TOTAL PETROCHEMICALS POLYSTYRENE (PS) specially formulated to suit different needs. This extensive line includes impact polymers, either natural or with additives, with equally wide-ranging properties to fulfill all customer expectations in terms of fire resistance, appearance, cost and processing. Its tremendous ease of processing and its low cost make it one of the most commonly used polymers in the food packaging, audio/video, household appliances and construction industries.

TOTAL PETROCHEMICALS Is committed to providing information to assist our customers in reducing the risks of handling and using our products. This bulletin sheet is intended to be a quick reference guide for TOTAL PETROCHEMICALS customers to store, handle and use our products safety and in an environmentally sound manner. We aim to minimize the impact on mankind and the environment during production, storage, transportation, sale, use and disposal of our products.

Safety Data Sheets are updated regularly, to reflect changes and updates on information in an SDS. Before handling or using any product, please request and assess the most current Safety Data Sheets. The information provided below is appropriate only to TOTAL PETROCHEMICALS 's products as delivered. In the course of fabrication, many additives and ingredients may be added before the finished product. These must be explored *thoroughly for their* respectively health and safety considerations.

Product Stewardship Program
The aim of the product stewardship code of the responsible care initiative, which makes health, safety and environmental protection an integral part of designing, manufacturing, marketing, distributing, using, recycling and disposing our products. Successful implementation of these initiatives is a shared responsibility that includes all who come into contact with a product. TOTAL PETROCHEMICALS will work with customers to help ensure that all who use and handle our products follow safe and environmentally sound practices.

General Safe Handling Information
TOTAL PETROCHEMICALS POLYSTYRENE are relatively inert and have a very low degree of toxicity under normal conditions of use. TOTAL PETROCHEMICALS POLYSTYRENE should be kept in cool and dry place. Avoid direct exposure to sunlight. Keep at temperatures below 70C. Nevertheless, safety and health precautions should be observed in the handling and fabrication of plastic materials.

Noise is a common problem in the molding and compounding process. If possible, no worker should be exposed to excessive noise (Leq8hours 85dBA). Proper hearing protectors should be provided for workers, coupled with regular audiometric examinations.

Air borne dusts often result from sawing, filing, and sanding of plastic parts in post-moulding operations. These may cause irritation to eyes and the upper respiratory tract. Processing may also release fumes, which may contain irritating decomposition products. Adequate exhaust ventilation is recommended. Good housekeeping and controlling of dusts are necessary for safe handling of product. Workers should use approved respirators. If vapours cause irritation to eyes, a full-face respirator is recommended. Avoid accumulation of static charges during transfers in metallic systems.

Workers should be protected from the possibility of contact with *molten PS* during fabrication. Molten material may causes burns. Wash affected areas abundantly and thoroughly with water. In case of adhesion, do not try to remove product. Treat the affected areas as burns.

Proper manual handling practices should be observed in the lifting and transportation of PS packages. Occurrences in back and arm injuries are common in erroneous lifting techniques.

Flammability and Combustibility
Thermal decomposition at 200oC gives off flammable and harmful products such as styrene, ketones, toluenes and alcohol. There would be formation of toxic products, such as carbon oxides through combustion.

In fighting fire, wear a self-contained breathing apparatus and protective suit. Water or water fog are the preferred extinguishing media. Foam, alcohol resistant foam, carbon dioxide, or dry chemicals may also be used.

Safe Disposal
Disposal methods must be in compliance with international, national and local laws and regulations. Destroy the product by incineration at an approved waste disposal site.

However, Polystyrene offers many possibilities for post consumer recycling such as: (1) Energy recycling using heat recovery systems for urban and industrial heating systems, (2) Material recycling. Polystyrene should be recycled whenever possible. Because of their high energy content, plastics can help the entire waste mix burn hotter and more completely in a waste-to-energy incinerator.

Care for the Environment
PS must not be discarded indiscriminately into the waterways nor land.

Heavy metals is not used in the manufacture of TOTAL PETROCHEMICALS POLYSTYRENE. As such, disposal of HIPS via convention methods would be safe for the environment. Incineration of HIPS would not emit heavy metals or deleterious dioxins into the environment. There would be no leaching of heavy metals into the earth when the incineration ash is land filled.

Customer Notice
TOTAL PETROCHEMICALS stresses the importance of health and environmental protection during the entire lifetime of all TOTAL PETROCHEMICALS products, and calls for TOTAL PETROCHEMICALS to cooperate closely with its customers and partners. To help ensure that TOTAL PETROCHEMICALS 's products are not used improperly, TOTAL PETROCHEMICALS 's personnel will assist customers in dealing with product safety, health and environmental considerations.

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