General Information

Standard properties

All tests are carried out at 23°C unless otherwise stated. Mechanical properties are measured on injection moulded test specimens.

Mould shrinkage

Shrinkage of Total Petrochemicals Polystyrene is 0.4 - 0.7%.

Bulk Density

Bulk density of all natural grades is approximately 0.6 g/cm^3.

Internet

All of the properties of the grades, in addition to processing data, can be found on our web site :
www.totalpetrochemicals.com

Halogen free Compounds

Typical Applications				References	Ecolabel Compliant	Properties *				
Consumer Electronics	Electrical Appliances	Office Automation	Electronics packaging			Flame Retardant Properties	Melt Flow Index	Density	Vicat Temperature	IZOD Impact Strength
				Units		Class	g/10 min	g/cm³	°C (5kg)	kJ/m²
				Test Method ISO			1133 H	1183	306B50	180/1 A
				Test Method ASTM		UL 94	D-1238	D-792	D-1525	D-256
•		•		(2) **FT 875**	✔	V1 @ 2.5 mm	4	1.08	90	6
•		•		**FT 876**		V0 @ 2.5 mm	3	1.1	85	6
•		•		**853**		V2 @ 1.6 mm	5	1.06	81	7
•		•		**855 HV**		V1 @ 3.0 mm	5	1.07	87	6
•				**856**		V0 @ 3.0 mm	4	1.1	81	7

Brominated “non-deca” Compounds

Typical Applications				References	Ecolabel Compliant	Properties *				
Consumer Electronics	Electrical Appliances	Office Automation	Electronics packaging			Flame Retardant Properties	Melt Flow Index	Density	Vicat Temperature	IZOD Impact Strength
				Units		Class	g/10 min	g/cm³	°C (5kg)	kJ/m²
				Test Method ISO			1133 H	1183	306B50	180/1 A
				Test Method ASTM		UL 94	D-1238	D-792	D-1525	D-256
•	•	•		**801**		V0 @ 1.6 mm	5	1.09	87	8
	•			**807**		V2 @ 1.6 mm	10	1.04	88	7
•	•			**818 E**		V0 @ 2.0 mm	10	1.13	85	8
•	•			(1)(2) **818 R** ♻	✔	V0 @ 1.6 mm	10	1.13	85	8
				(2) **819**	✔	V0 @ 1.6 mm	10	1.13	85	8
•	•	•		**820**		V2 @ 1.6 mm	14	1.09	87	7.5
	•			**827**			6	1.04	90	7

Alloys

Typical Applications				References	Properties *				
Consumer Electronics	Electrical Appliances	Office Automation	Electronics packaging		Melt Flow Index	Density	Vicat Temperature		IZOD Impact Strength (23/ -30°C)
				Units	g/10 min	g/cm³	°C (1kg)	°C (5kg)	kJ/m²
				Test Method ISO	1133 H	1183	306A50	306B50	180/1 A
				Test Method ASTM	D-1238	D-792	D-1525	D-1525	D-256
			•	**9217**	4	1.02	101	76	40/20

Tensile Y ield Strength	Elongation at break	Flexural Modulus	General Information
MPa	%	MPa	
527-2	527-2	178	
D-638	D-638	D-790	
30	40	2400	Typical application LCD TV cabinets
44	30	2300	Typical application LCD TV cabinets
32	40	2500	V2 with very low combustion time. Typical applications : TV cabinets, printers cartridges
32	40	2400	No dripping. Specially designed for TV cabinets
35	40	2300	Typical application TV cabinets

Tensile Yield Strength	Elongation at break	Flexural Modulus	General Information
MPa	%	MPa	
527-2	527-2	178	
D-638	D-638	D-790	
24	40	2300	Suitable for UL 94 5VB @ 2.5mm
27	39	2400	Suitable for Hot Glow Wire Test at 960°C. Typical application : fuse boxes
25	40	2300	Fluid grade for flat TV covers, electric and electronic appliances
25	40	2300	Fluid grade for flat TV covers, electric and electronic appliances
25	40	2300	Fluid grade for flat TV covers, electric and electronic appliances
24	45	2400	Typical applications : covers for electrical equipment, internal enclosures for office automation, toners cartridges
27	39	2400	Suitable for Hot Glow WireTest at 750°C. Typical application: fuse boxes

Tensile Strength at break	Elongation at break	Flexural Modulus	General Information
MPa	%	MPa	
527-2	527-2	178	
D-638	D-638	D-790	
22	80	1450	Base polymer for conductive polystyrene compounds.

(1) Contains a significant level of recycled PS collected according to the WEEE EU directive. Reduces environmental impact via reduced CO_2 emissions, reduced energy and water consumption.
(2) Compliant with the European ECOLABEL (2009/300/EC) which promotes products with a reduced environmental impact.

This list is not exhaustive, but summarises the main characteristics of the Total Petrochemicals Polystyrene Specialty Compounds.
In order to obtain information about the others grades and/or about a personal solution meeting your needs, do not hesitate to contact our technical team.

Total Petrochemicals and Flame Retardant Polystyrene

The Total Petrochemicals range of Flame Retardant Polystyrene grades consists of a complete portfolio of materials designed to meet the current safety and environmental requirements of the consumer electronics sector. Based on a long experience of supplying Polystyrene materials to the television industry, Total Petrochemicals has developed a complete range of Polystyrene grades for this important application area.

All products are formulated to allow finished parts to comply with Directive 2002/95/EC (on the restriction of the use of certain hazardous substances in electrical and electronic equipment) and amendments. This contributes significantly to the safety of electronic equipment and thus, indirectly, can be used to improve safety at home; with respect to all current environmental considerations in line with sustainable development policies.

Total Petrochemicals and Recycling of Polystyrene

Total Petrochemicals Polystyrene Specialty Compound 818R contains a significant portion of recycled Polystyrene coming from post consumer electronic waste. PS 818 R (patented formula) complies with the European Union directive RoHS and is in line with the EU WEEE directive. It also meets with the criteria of the EU Ecolabel directive (2009/300/EC).

"With this breakthrough in the use of recycled polystyrene, we promote the plastics recovery into high end applications, contributing to a reduced environmental impact through lower CO_2 emissions, energy and water consumption. Thereby we are helping to make the most efficient use of resources."

Total Petrochemicals and Polystyrene Alloys

Total Petrochemicals Specialty Compound also includes grades modified with polyethylene. These alloys bring the main characteristics of polyethylene; improved environmental stress crack resistance (ESCR), mechanical properties, abrasion and tear resistance but retain the process ability of polystyrene.

> Total is a leading international oil and gas company.
Our expertise spans the industry value chain, from oil and gas exploration and production to the gas midstream, refining, and petroleum product marketing, trading and shipping.

> To meet changing global energy demand, Total wants to promote the emergence of alternative energy solutions, with an emphasis on solar energy, nuclear power and biomass.

> Total is also a world-class chemical producer and is a European or global leader in all our markets.

> Its growth model is based on a social license to operate and sustained investment.

Sales € 131,327 million
Operations in more than 130 countries
Workforce 96,387

Total Petrochemicals

A world-class player

Total Petrochemicals, one of the world's leading petrochemicals producers, focuses on base chemicals and their related polymers - polyethylene, polypropylene and polystyrene.
With a workforce of 6,250 people, Brussels-based Total Petrochemicals operates in Europe, the United States, the Middle East and Asia. Our products - mainly marketed as granules and then converted into various forms of plastic - serve a wide range of domestic and industrial markets including packaging, construction and automotive applications.

3 business units
- > Base Chemicals (olefins, C4 fractions, aromatics)
- > Polyolefins (polyethylene, polypropylene)
- > Styrenics (styrene, polystyrene)

19 production plants Europe, United States, Asia, Middle East

5 R&D centres Feluy (TP), La Porte (TP), Mont/Lacq (Total incl. TP), Doha (Total incl. TP), Darsan (jv.)
1 Technical centre Lyon

**Marketing and Sales,
Research and Development**

TOTAL PETROCHEMICALS
a division of sa PetroFina nv
rue de l'Industrie, 52, Nijverheidsstraat
B-1040 Brussels - Belgium
Phone : +32 (0) 2 288 91 11
Fax : +32 (0) 2 288 35 36

Technical Assistance

TOTAL PETROCHEMICALS RESEARCH FELUY sa
Zone Industrielle C
B-7181 Feluy - Belgium
Phone : +32 (0) 2 288 44 95
Fax : +32 (0) 2 288 46 60

: **polystyrene@total.com**

: **www.totalpetrochemicals.com**

Photo Collection Total Petrochemicals/Michel Clinckemaille/Entercom

entercom.be 08/2010 H7740