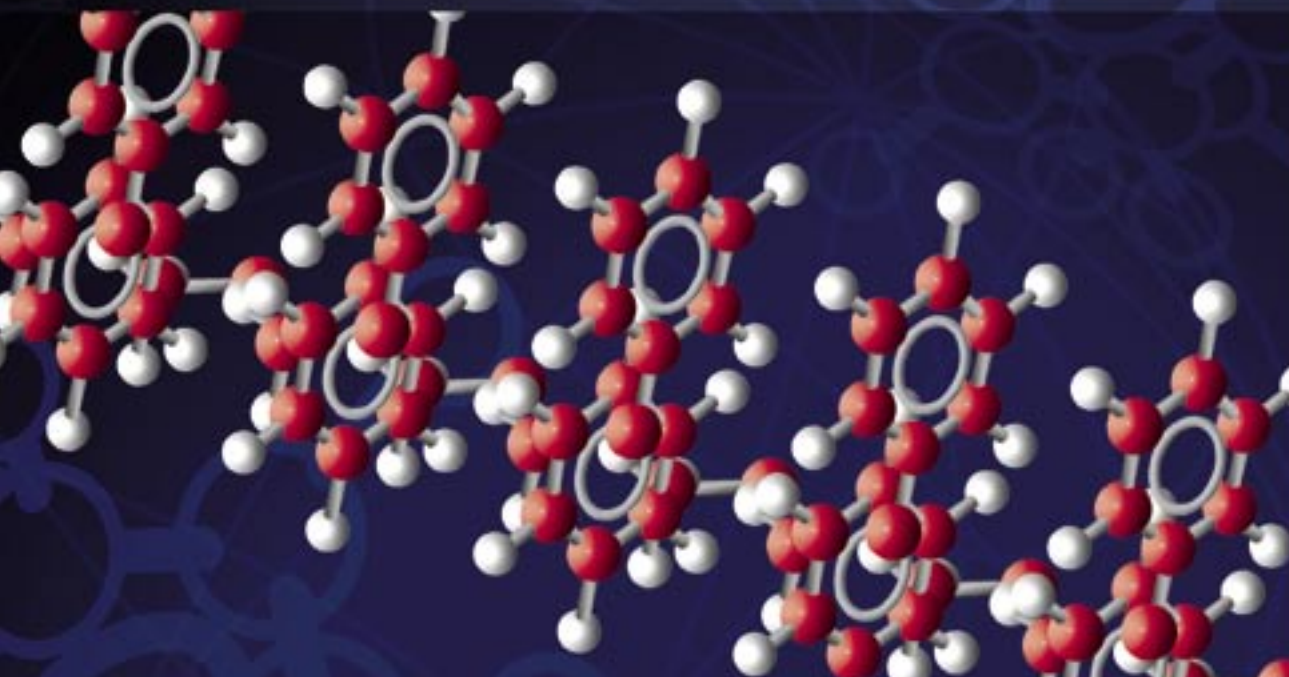


# Polystyrene



**European grades**  
and typical **applications**

**TOTAL PETROCHEMICALS**



## Polystyrene crystal

Description Properties*	References	Melt Flow Index	Vicat Temperature		IZOD Impact Strength	Tensile Modulus	Tensile Strength at break	Elongation at break	Flexural Modulus	Extrusion	Injection	Typical Applications
Units		g/10 min	°C (1kg)	°C (5kg)	kJ/m <sup>2</sup>	MPa	MPa	%	MPa			
Test Method	ISO	1133 H	306A50	306B50	180/1 A	527-2	527-2	527-2	178			
	ASTM	D 1238 G	D 1525 A			D 638 M	D 638 M	D 638 M	D 790			
	JIS	K 7210-8	K 7206 A	K 7206 B	K 7111 ED	K 7113	K 7113	K 7113	K 7203			
High heat resistance, high molecular weight	<b>1160</b>	2.4	105	101	-	3200	48	3	2900	●	●	Foam trays and boxes. Heat resistant packaging. Industrial sheets
High molecular weight	<b>1340</b>	4.0	98	93	-	3100	44	2,5	2900	●	●	HIPS dilution : disposable, sheets for thermoforming. CD & DVD boxes. Toys. Injection moulding
High heat, easy flow	<b>1450 N</b>	6.5	106	102	-	3200	48	3	2900	●		Insulation boards
Easy flow	<b>1540</b>	12.0	91	86	-	3100	42	2	2900	●	●	General purpose injection moulding grade. HIPS dilution in packaging. Glossy coextruded top layer
Very easy flow	<b>1810</b>	20.0	90	85	-	3100	42	2	2900	●	●	High fluidity injection moulding : thin walls. Glossy coextruded top layer
Very easy flow	<b>1960 N</b>	30.0	105	101	-	3100	35	2	2900	●		Insulation boards

## Polystyrene impact

Description Properties*	References	Melt Flow Index	Vicat Temperature		IZOD Impact Strength	Tensile Modulus	Tensile Strength at break	Elongation at break	Flexural Modulus	Extrusion	Injection	Typical Applications
Units		g/10 min	°C (1kg)	°C (5kg)	kJ/m <sup>2</sup>	MPa	MPa	%	MPa			
Test Method	ISO	1133 H	306A50	306B50	180/1 A	527-2	527-2	527-2	178			
	ASTM	D 1238 G	D 1525 A			D 638 M	D 638 M	D 638 M	D 790			
	JIS	K 7210-8	K 7206 A	K 7206 B	K 7111 ED	K 7113	K 7113	K 7113	K 7203			
Easy flow	<b>3630</b>	15.0	89	82	6.0	2300	25	30	2400	●	●	Medium impact, rigid injection moulding : Toys, disposables, office equipment...
High heat resistance	<b>3450</b>	7.0	103	95	8.0	2250	28	55	2250	●	●	High impact, heat resistance grade with improved aesthetics, contact transparency. Heat resistance in packaging (hot-filled). Heat resistant injection moulding.
Heat resistance	<b>4241</b>	4.0	97	89	10.0	2100	24	55	2000	●	●	General high impact injection moulding : TV cabinets, stationary.
High heat, easy flow	<b>4440</b>	10.0	96	88	10.0	2050	20	55	2000		●	Improved fluidity, high impact injection moulding. Complex moulding, TV fronts and backs.
Easy flow	<b>6541</b>	11.5	92	84	9.5	2100	20	45	2100	●	●	General purpose injection moulding : TV cabinets, toys. High fluidity impact grade for packaging (coextrusion).
Improved dilution capability	<b>7240</b>	4.5	97	87	11.0	1950	21	60	1850	●	●	Standard high impact grade for extrusion in dilution with crystal PS. Packaging.
Improved stress crack resistance	<b>8350</b>	4.5	96	84	13.0	1600	20	60	1600	●	●	Improved ESCR properties. Packaging : low temperature applications, fatty foods. Sheets for printing. Fridge parts.

\* All properties are measured according the standard quality control procedures.

## Total Petrochemicals at a glance

Total Petrochemicals encompasses petrochemicals activities of Total, the fourth largest oil company worldwide. Its business includes base petrochemicals from steam crackers and certain refinery processing plants – olefins (ethylene and propylene), C4 fractions and aromatics (benzene, toluene, xylenes and styrene) –, as well as the commodity polymers derived from them (polyethylene, polypropylene, polystyrene and elastomers). Total Petrochemicals employs 7,000 persons in Europe, the United States, the Middle East and Asia. Its products are used in many consumer and industrial markets, including packaging, construction and automotive.

Information contained in this publication is true and accurate at the time of publication and to the best of our knowledge. The nominal values stated herein are obtained using laboratory test specimens. Before using one of the products mentioned herein, customers and other users should take all care in determining the suitability of such product for the intended use, and particularly the conformity with current regulations. Total Petrochemicals do not recommend its polystyrene resins for use in any application in direct or indirect contact with human body fluids and tissues. The Companies within Total Petrochemicals do not accept any liability whatsoever arising from the use of this information or the use, application or processing of any product described herein. No information contained in this publication can be considered as a suggestion to infringe patents. The Companies disclaim any liability that may be claimed for infringement or alleged infringement of patents.

## General Information

### Nomenclature

If in the grade reference, the fourth digit is number "1", this indicates an external lubricant; if the number is "0", it indicates no external lubricant. A "N" indicates no lubricant at all.

### 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%

### Density

Density of all unpigmented grades is approximately 1.04 g/cm<sup>3</sup>.

### Bulk Density

Bulk density of all natural grades is approximately 0.6 g/cm<sup>3</sup>.

### Food contact

The composition of PS grades sold for food contact applications conforms with the current regulations in the various European countries, and the U.S.A., for packaging designed for use in contact with foodstuffs. It remains the responsibility of the user to verify that the finished product also complies with these regulations.

### Specialities/compounds

A range of compounded products is available: flame retardant grades, halogenated and halogen free, for consumer goods applications (in particular for TV front and back covers). Please contact our commercial department for more specific information.

### Internet

All of the properties of the grades, in addition to processing data, can be found on our web site : [www.totalpetrochemicals.com](http://www.totalpetrochemicals.com)

**TOTAL PETROCHEMICALS**



