

Description

POLYSTYRENE CRYSTAL 1540 is an easy flowing crystal polystyrene designed for extrusion or injection applications. In extrusion, it allows to increase extruder output and thermoforming cycle times when mixed with a high impact polystyrene such as POLYSTYRENE IMPACT 7240. Having high gloss, it is particularly suitable for glossy-layer co-extrusion. In injection moulding, POLYSTYRENE CRYSTAL 1540 with this low viscosity at high shear rate has a good injectability and combines an excellent fluidity with a higher softening point.

Applications

Dairy sheet, cups (dilution with impact polystyrene)

Injection: Boxes, office equipment - e.g. filing trays, CD boxes, pen bodies, internal fridge parts, toys, cups.

Properties

Rheological	Method	Unit	Value
Melt flow index (200°C-5kg)	ISO 1133 H	g/10mn	12
Thermal			
Vicat softening point 10N (T° increase = 50°C/h)	ISO 306A50	°C	91
Vicat softening point 50N (T° increase = 50°C/h)	ISO 306B50	°C	86
HDT unannealed under 1.8 MPa	ISO 75-2A	°C	73
HDT annealed under 1.8 MPa	ISO 75-2A	°C	83
Coefficient of linear thermal expansion		mm/°C	7.10 E-5
Mechanical			
Unnotched Charpy impact strength	ISO 179/1eA	KJ/m ²	8
Tensile strength at break	ISO 527-2	MPa	42
Elongation at break	ISO 527-2	%	2
Tensile modulus	ISO 527-2	MPa	3100
Flexural modulus	ISO 178	MPa	2900
Rockwell hardness	ISO 2039-2		L 70
Electrical			
Dielectric strength		kV/mm	135
Surface resistivity	ISO IEC 93	Ohms	>10 E+14
Miscellaneous			
Density	ISO 1183	g/cm ³	1.05
Moulding shrinkage		%	0.4-0.7
Water absorption	ISO 62	%	<0.1

General Information

- Standard properties: All tests carried out at 23°C unless otherwise stated. Mechanical properties are measured on injection moulded tests specimens.
- Bulk density: bulk density is approximately 0.6 g/cm³.
- Please refer to the Safety Data Sheet for further information.
- Please refer to the safety data sheet (SDS) for handling and storage information. It is advisable to convert the product within six months after delivery provided storage conditions are used as given in the SDS of our product. SDS may be obtained from the website: www.totalrefiningchemicals.com

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. Unless specifically indicated, the products mentioned herein are not suitable for applications in the pharmaceutical or medical sector. The Companies within Total Refining & Chemicals 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.

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CERTIFICATE N° 38244

Feluy, July 16, 2018

POLYSTYRENE CRYSTAL 1540 grade as produced in Europe**1.STATEMENT OF COMPLIANCE FOR FOOD CONTACT APPLICATIONS IN THE EUROPEAN UNION**

We confirm that the above-mentioned Product fulfills the harmonized requirements on plastic materials used for articles or components of articles intended to come into contact with food as described in the Regulation (EU) 10/2011 amended up to Regulation (EU) 2018/831 and the requirements of the national laws as described in the following food contact regulations:

in Belgium :

- Arrêté Royal du 10/02/2011 (Moniteur Belge du 18/02/2011) modifiant l'Arrêté Royal du 3/07/2005 (concernant les matériaux et objets destinés à entrer en contact avec les denrées alimentaires)

in France :

- Décret Ministériel n° 73-138 du 12/02/73 et n° 2008-1469 du 30/12/2008 ainsi que les lettres circulaires de la Répression des Fraudes et contrôle de la qualité (Recueil de textes: brochure n°1227 "Matériaux au contact des aliments et denrées destinées à l'alimentation humaine" – dernière édition :15/07/2002);
- Instruction relative à l'emploi d'additifs dans les matières plastiques au contact des denrées alimentaires (Bulletin Officiel de la concurrence, de la consommation et de la répression des fraudes du 11/08/93);
- Arrêté du 01/04/2011 modifiant l'arrêté du 02/01/2003 relatif aux matériaux et objets en matière plastique mis ou destinés à être mis au contact avec les denrées, produits et boissons alimentaires.

in Germany :

- Gesundheitliche Beurteilung von Kunststoffen im Rahmen des Lebensmittel- und Bedarfsgegenständegesetzes (BgVV) : Empfehlung V : "Polystyrol , das ausschliesslich durch Polymerisation von Styrol gewonnen wird Stand vom 01.01.2010" .
- Bedarfsgegenständeverordnung in der Fassung der Bekanntmachung vom 23. Dezember 1997 (BGBl. 1998 I S. 5), zuletzt geändert durch die Verordnung vom 24. Juni 2013 (BGBl. I S. 1682).

in Italy :

- Decreto Ministeriale of 21.03.1973 (G.U.n° 104- 20/4/1973) Disciplina igienica degli imballaggi, recipienti, utensili, destinati a venire in contatto con le sostanze alimentari o con sostanze d'uso personale as amended by Decree of the Ministry of Health N° 270 of 12.12.2007 (G.U. N° 33- 08/02/2008).
- Decreto Ministeriale 26/04/1993, n°220 (G.U. n° 162 - 13/7/1993) Regolamento recante aggiornamento del decreto ministeriale 21/03/1973, concernente la disciplina igienica degli imballaggi, recipienti, utensili destinati a venire in contatto con le sostanze alimentari e con sostanze d'uso personale as updated up to 20/09/2013 (G.U. n° 285 del 5/12/2013).

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in the Netherlands :

- Verpakkingen- en gebruiksartikelenbesluit (Warenwet) - Deel A, Hoofdstuk 1 : Kunststoffen, VGB,staatscourant n°8531; 27/03/2014..

in Spain :

- Real Decreto 866/2008 de 23/05/2008 (B.O.E. de 30/05/2008)
- Real Decreto 103/2009 de 06/02/2009 (B.O.E. de 17/02/2009)
- Real Decreto 847/2011 de 17/06/2011 (B.O.E. de 11/07/2011)
- Real Decreto 517/2013 de 05/07/2013 (B.O.E. de 23/07/2013)
- Real Decreto 1025/2015 de 13/11/2015

in the United Kingdom :

- The Plastic Materials and Articles in Contact with Food Regulations - 2012
- England: Statutory Instruments 2012/2619
- Northern Ireland: Statutory Rules of Northern Ireland 2012/384
- Scotland: Scottish Statutory Instruments 2012/318
- Wales: Welsh Statutory Instruments 2012/2705 (W.291)

Conditions :**Overall Migration Limit:**

According to Regulation (EU) 10/2011 (Annex III and Annex V) , the overall migration limit, for which a maximum value of 10 mg/dm² or 60 mg/kg is set (Regulation (EU) 10/2011 , article 12), has to be controlled on the finished articles intended to come into contact with foodstuffs; consequently it is the responsibility of the end-user of the above-mentioned Product.

Moreover we inform you that the overall migration result is influenced by the conditions of use e.g. temperature, type of packaged foodstuff (fatty food, aqueous food, thickness). Consequently the packaging has to be controlled following the specific end-use conditions of use as described in Regulation (EU) 10/2011 (Annex III and Annex V).

However, we inform you that under standard condition (10 days, 40°C, simulants A, B and D2, thickness 1 mm), the typical results of the global migration measured on this Product are below the limits prescribed by the Regulation (EU) 10/2011.

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POLYSTYRENE CRYSTAL 1540 grade as produced in Europe- Specific Migration Limit(s) and/or other restrictions :

1. Restriction for Monomer ^{a)}: no
2. Restriction for Additive(s) ^{b)}: yes

Zinc : Status : SML = 5 ppm Zn

^{a)} Monomer as defined in the Regulation (EU) 10/2011.

^{b)} Additive as defined in the Regulation (EU) 10/2011.

It pertains also to finished product manufacturer to check, by appropriate specific migration tests on the final material or article, the suitability for contact with different food types and various end-use conditions. These are beyond the control of TOTAL RESEARCH & TECHNOLOGY FELUY and are a part of the responsibility of the user of this polymer product.

However, we inform you that under standard condition (10 days, 60°C, olive oil, thickness 250 µm), the typical results of the migration of these molecules calculated by "MIGRATEST" are below the limits prescribed by the Regulation (EU) 10/2011.

-Dual use additive:

We inform you that we do not use food additives authorized and subject of a use restriction in food under Regulation (EC) 1333/2008 or as flavourings under Regulation (EC) 1334/2008. However, since we do not perform specific tests to verify the potential presence of any of these food additives or flavourings, we cannot guarantee that there is no trace amount of some of these substances, as impurity or otherwise, in the above-mentioned Product.

NIAS

Total is well aware of the legal requirements of Regulation 1935/2004/EC and 10/2011/EU, namely materials and articles coming into contact with food shall be manufactured so that they do not transfer their constituents to food in quantities that could endanger human health or bring about unacceptable change to the composition of the food. This does not only include constituents which are intentionally added but also non-intentionally added substances (NIAS)

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POLYSTYRENE CRYSTAL 1540 grade as produced in Europe**2. REGULATION (EC) N°1935/2004 (FRAMEWORK REGULATION)**

We hereby confirm that the above-mentioned Product, when used under normal or foreseeable conditions of use, is expected to meet the relevant requirements laid down in Regulation 1935/2004/EC.

Moreover we inform you that the organoleptic properties are influenced by the conditions of use e.g temperature, type of packaged foodstuff, storage conditions. Consequently the packaging has to be controlled by the downstream user following the specific end-use conditions of use.

3. COMMISSION REGULATION (EC) N° 2023/2006 (GMP)

We inform you that the production of the above-mentioned Product is systematically reviewed with regards to good manufacturing practice (GMP) using our ISO 9001 System, and following the Plastics Europe guideline specifically dedicated to GMP. Therefore we can state that the above-mentioned Product meets the relevant requirements laid down in Commission Regulation (EC) 2023/2006.

General use conditions (food contact) :

It pertains to downstream users of materials intended to come into contact with food, to ensure that the final materials or articles do not bring about an unacceptable change in the composition of the food, or bring about a deterioration in the organoleptic characteristics which render it unfit.

4. STATEMENT OF COMPLIANCE FOR TOYS

We confirm that the above Product as supplied may be used to manufacture toys in compliance with relevant requirements of the Toy Safety Directive (Directive 2009/48/EC), as adopted by the European Council.

Specifically, the Product:

- is not manufactured with any **PHthalate** prohibited for use in toys, nor is any substance used outside of applicable restrictions under applicable Community legislation.
- meets applicable requirements set forth in Annex II, Part III, paragraphs 3 and 7 concerning the use of substances classified as carcinogenic, mutagenic or toxic for reproduction (**CMR**) of category 1A, 1B or 2 under Regulation (EC) No 1272/2008 above the restriction on the use of these substances in toys and childcare articles; moreover the Product is covered by and complying with the provisions for food contact materials set out in Regulation (EC) No 1935/2004;

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- meets the limit on **allergenic fragrances** content set forth in Annex II, Part III, paragraph 11. We can hereby confirm that we do not use "allergenic fragrances" in the manufacturing of the above Product;
- meets migration limits on **heavy metals** and other substances set forth in Annex II, Part III, paragraph 13 ; moreover, we hereby confirm that the above Product meets the relevant requirements of European standards EN 71-3 2013, entitled "Safety of Toys – Part 3 : Migration of certain elements". The above Product meets the relevant requirements of this standard because every time analyses were performed on this Product (or a specimen representative of this material), results were below the prescribed limits;
- meets the relevant requirements of European standards EN 71-9, September 2005 "Organic Chemical Compounds - Requirements";
- Is not manufactured with any **Nitrosamines and/or nitrosables** set forth in Annex II, Part III, Paragraph 8.

We note that verification of compliance of the **finished toy product** with all applicable requirements of the Toy Safety Directive 2009/48/EC remain the sole responsibility of the toy manufacturer.

5. STATEMENT OF TRANSMISSIBLE BOVINE SPONGIFORM ENCEPHALOPATHY (BSE) :

Our suppliers provided us with documents addressing potential BSE/TSE concerns for additives which might be used in the above-mentioned Product and may themselves be derived from tallow/lard, or contain components derived from tallow/lard (tallow derivatives). Based on our supplier documentation and/or our own evaluation, we can confirm the following:

- 1) While Regulation (EC) No 999/2001 laying down rules for the prevention, control and eradication of certain transmissible spongiform encephalopathies (TSE) does not apply to components of packaging materials, we can confirm that none of the components potentially present in the above-mentioned Product qualify as Specified Risk Materials (SRMs) under said Regulation.

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2) While Regulation (EC) No 1774/2002 laying down health rules concerning animal byproducts not intended for human consumption does not apply to tallow derivative components themselves, which do not qualify as animal by-products subject to the Regulation, we can confirm that any animal by-product used to manufacture the tallow from which tallow derivative components in the above-mentioned Product are derived are exclusively Category 3 materials processed in compliance with said Regulation.

6. STATEMENT OF GENETICALLY MODIFIED ORGANISMS (GMO).

We hereby confirm that we did receive an indication from our suppliers of additives ^{b)} used in the above-mentioned Product mentioning the absence of any Genetically Modified Organisms (GMO).

DISCLAIMER:

Our certificate is only valid for as far as above mentioned Product was bought from Total or its distributor and does not cover:

- Any modification of the above-mentioned Product by any addition of any other product or ingredient to it;
- Any prejudicial modification of the above-mentioned Product resulting from a processing of it;
- An inadequate use and/or storage of the above-mentioned Product and/or of the finished articles.

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The present certificate is valid for a period of eighteen months starting from the date first above written. Upon the expiration of this certificate, we can issue a new one at your request. In case of change during this period a new certificate will be issued automatically; kindly forward it to any recipient of the present certificate

TOTAL RESEARCH & TECHNOLOGY FELUY

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Issued by an electronic system