



## Styron A-TECH 1175 PSAI



STYRON®A-TECH® 1175 advanced technology polystyrene is a high impact, environmental stress crack resistant (ESCR) resin, designed for extrusion and thermoforming applications, especially for the refrigeration industry. Based on Dow patented technology, this resin allows for potential downgauging and scrap reduction in the thermoforming process through its combination of properties like ESCR, rigidity and thermoforming.

### MAIN CHARACTERISTICS

Allows for downgauging; ESCR to food stuff and; hydrocarbons; Ease of processing in extrusion and thermoforming; Excellent thermoforming behaviour; Increased rigidity

### APPLICATIONS

Large Appliance / Refrigeration liners; General extrusion / thermoforming applications requiring ESCR

Properties <sup>1</sup>	Unit	Test Method	Value
<b>Physical Properties</b>		<b>ISO</b>	
Density	kg/m <sup>3</sup>	1183	1050
Bulk density (granulation 7)	kg/m <sup>3</sup>	60	600
Melt flow rate, 200 °C / 5 kg	g/10min	1133	2.8
<b>Mechanical properties Injection Moulded</b>			
<b>Impact strength</b>			
Izod (23°C)	kJ/m <sup>2</sup>	180/1A	10.8
Izod ( -20°C)	kJ/m <sup>2</sup>	180/1A	8.2
Charpy (23°C)	kJ/m <sup>2</sup>	179/1A	10.6
<b>Tensile properties (5 mm/min)</b>			
Strength at yield.	MPa	527	16
Strength at rupture.	MPa	527	24
Elongation at rupture:	%	527	60
Tensile modulus (1 mm/min)	MPa	527	1650
<b>Flexural properties (2 mm/min)</b>			
Flexural strength: (3-point)	MPa	178	38
Flexural modulus: (3-point)	MPa	178	1650
<b>Thermal properties</b>			
<b>Vicat softening temperature:</b>			
1kg / 120 °C	°C	306 A	100
5kg / 50 °C	°C	306 B	89
<b>Heat deflection temperature:</b>			
1.82 MPa / 120°C/h; un annealed	°C	75 A	68
0.45 MPa / 120°C/h; un annealed	°C	75 B	80
<b>Flammability ratings <sup>2</sup></b>		<b>Colour</b>	<b>Test Method</b>
Horizontal burning		Natural	UL 94 HB at 1.5 mm
			HB

<sup>1</sup>Typical properties, not to be construed as specification limits.

<sup>2</sup>This numerical flame-spread rating is not intended to reflect hazards presented by this or any material under actual fire conditions.

#### Regulatory information

STYRON A-TECH 1175 should comply with the food contact regulations of the EU and its Member States as well as the US FDA. It is the responsibility of the manufacturers of food contact articles and industrial food packers to make sure the articles in their actual use are in compliance with the imposed migration requirements. The appropriate regulations should be consulted for more detailed information. Compliance letters can be obtained through the Dow sales representative.

Notice: The information and data contained herein do not constitute sales specifications. No liability, warranty or guarantee of final product performance is created by this document. No freedom from any patent is granted or to be inferred.

#### Notice Regarding Medical Application Restrictions:

The Dow Chemical Company does not recommend any of its polystyrene resins, including samples, for use:

- (A) in any application which is intended for any internal contact with human body fluids or body tissues
- (B) as a critical component in any medical device that supports or sustains human life; and
- (C) specifically by pregnant women or
- (D) in any applications designed specifically to promote or interfere with human reproduction.



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### SAFETY AND HANDLING CONSIDERATIONS

Material safety data sheets for STYRON polystyrene resins are available from Dow Plastics, a business group of The Dow Chemical Company and its subsidiaries. Safety data sheets are provided to help customers satisfy their own handling, safety and disposal needs, and those that may be required by locally applicable health and safety regulations such as OSHA (USA), MAK (Germany) or WHMIS (Canada). Safety data sheets are upgraded regularly, therefore, please request and review the most current Safety data sheets before handling or using any product.

The following comments are general and apply only to STYRON polystyrene resins as supplied. Various additives and processing aids used in fabrication and other materials used in finishing steps have their own safe use profile and must be investigated separately.

### HAZARDS AND HANDLING PRECAUTIONS

STYRON polystyrene resins have a very low degree of toxicity and under normal conditions of use should pose no unusual problems from ingestion, eye or skin contact. However, caution is advised when handling, storing, using or disposing of these resins and good housekeeping and controlling of dusts are necessary for safe handling of product. Workers should be protected from the possibility of contact with molten resin during fabrication. Handling and fabrication of plastic resins can result in the generation of vapours and dusts. Dusts resulting from sawing, filing and sanding of plastic parts in post-moulding operations may cause irritation to eyes and upper respiratory tract. In dusty atmospheres, use an approved dust respirator.

Granules or beads may present a slipping hazard. Good general ventilation of the polymer processing area is recommended. Processing may release fumes which may include polymer fragments and other decomposition products. Fumes can be irritating. At temperatures exceeding melt temperature, polymer fragments can occur. Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for some operations. Use safety glasses. If there is a potential for exposure to particles which could cause mechanical injury to the eye, wear chemical goggles. If vapour exposure causes eye discomfort, use a full-face respirator. No other precautions other than clean body-covering clothing should be needed for handling STYRON polystyrene resins. Use gloves with insulation for thermal protection, when needed.

### COMBUSTIBILITY

STYRON polystyrene resins will burn, and once ignited, may burn rapidly under the right conditions of heat and oxygen supply. Do not permit dust to accumulate. Dust layers can be ignited by spontaneous combustion or other ignition sources. When suspended in air, dust can pose an explosion hazard. Dense black smoke is produced when product burns. Toxic fumes are released in fire situations. Fire fighters should wear positive-pressure, self-contained breathing apparatus and full protective equipment. Water or water fog are the preferred extinguishing media. Foam, alcohol resistant foam, carbon dioxide, or dry chemicals may also be used. Soak thoroughly with water to cool and prevent re-ignition.

### DISPOSAL

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. For unused or uncontaminated material, the preferred options include sending to a licensed recycler, reclaimer, incinerator or other thermal destruction device. For used or contaminated material, the disposal options remain the same, although additional evaluation is required (see, for example, in the USA 40 CFR, Part 261, "Identification and Listing of Hazardous Waste"). All disposal methods must be in compliance with Federal, State/Provincial and local laws and regulations. As a service to its customers, Dow can provide lists of companies which recycle, reprocess, or manage chemicals or plastics, and companies that manage used drums. Contact the nearest Dow sales office for further details.

### ENVIRONMENT

Generally speaking, in the environment lost pellets are not a problem except under unusual circumstances – when they enter the marine environment. They are inert and benign in terms of their physical environmental impact, but if ingested by waterfowl or aquatic life, they may mechanically cause adverse effects. Spills should be minimised and they should be cleaned up when they happen. Plastics should not be discarded into the ocean or any other body of water.

### PRODUCT STEWARDSHIP

The Dow Chemical Company has a fundamental concern for all who make, distribute and use its products, and for the environment in which we live. This concern is the basis of our Product Stewardship philosophy by which we assess the health and environmental information on our products and then take appropriate steps to protect employee and public health and the environment. Our Product Stewardship programme rests with every individual involved with Dow products from the initial concept and research to the manufacture, sale, distribution, and disposal of each product.

### CUSTOMER NOTICE

Dow encourages its customers and potential users of Dow products to review their applications for such products from the standpoint of human health and environmental quality.

To help ensure that Dow products are not used in ways for which they are not intended or tested, Dow personnel will assist customers in dealing with ecological and product safety considerations. Your Dow sales representative can arrange the proper contacts. Dow literature, including Material Safety Data sheets, should be consulted prior to the use of Dow products. These are available from the nearest Dow sales office. For further information contact the Dow Information Centre Amsterdam, The Netherlands: please call + 31 20 691 62 68 or fax + 31 20 691 64 18.

Notice: The information and data contained herein do not constitute sales specifications. The product properties may be changed without notice. No liability, warranty or guarantee of product performance is created by this document. It is the Buyer's responsibility to determine whether Dow products are appropriate for Buyer's use and to ensure that Buyer's workplace and disposal practices are in compliance with applicable laws and regulations. No freedom from any patents or other industrial or intellectual property rights is granted or to be inferred. (February 2002)