

Axfoil[®] Polystyrene Sheet Grades

Product Specification Data Book

July 2010

Introduction

Designed to help Polymer Technologists, this Data book contains Product Specification Sheets, in pdf format, for all Axion Polymers' polystyrene sheet standard grades. Axion can easily modify the properties of the examples shown in this book, to satisfy individual customer requirements.

For further information or to discuss your requirements, please contact our Sales team.

In addition to Axfoil PS sheet, our range of recycled polymers includes Axpoly polystyrene granulate, Axpoly polypropylene bespoke grade granulate and Axplas mixed plastic chip grades. If you are interested in Data books for these materials, please contact our Sales team or download them from our website.

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Please note that the brand names for Axion Polymers' products Axpoly®, Axfoil®, and Axplas® are all registered trademarks and protected under UK copyright laws.



Plastics for a sustainable future

Axion Polymers & Axpoly®



WHAT WE DO

Axion Polymers' award winning factory is one of the most advanced plastics recycling factories in Europe. The plant separates and compounds WEEE and other post-consumer sources of input raw material.

A multi million pound investment includes state-of-the-art plant and equipment operated by highly qualified, experienced staff delivering some of the highest grade recycled polymer in the world.

In Axion Polymers 40,000 sq ft premises in Salford, Greater Manchester, the Axion production team is operating market leading technical processes to deliver consistently high quality products within tight technical specifications.

Mixed and contaminated thick-walled plastics of all polymer types can be processed successfully into high quality recyclate suitable for re-use in injection moulding and extrusion processes.

The unique process at the Salford site has been developed over the last two years and now consists of over twenty individual process stages which enables Axion's finished products to compete

technically and commercially with virgin grade polymers as produced by large multi national corporations.

WHAT DO WE STAND FOR?

We are experts in the recovery and re-use of post-consumer plastics. Our team 'mine' resources from existing waste streams to produce sustainable materials with massively reduced carbon impact.

Axion Polymers' team is enthusiastic and highly skilled with the knowledge and know-how to deliver innovative, novel and practical product design and development.

We are able to offer knowledge, experience and expertise in planning, modeling and the development of project control systems, with the ability to respond to strict customer deadlines and reporting requirements.

TEN REASONS TO CHOOSE AXPOLY®

1. Successfully replaces virgin grade resin
2. Award winning product
3. ISO9000 quality certified
4. Sustainable raw material
5. 80% less CO₂
6. Appeals to 'greener' customers
7. 100% post-consumer
8. Can be recycled again
9. Saves the Planet
10. Nice people to work with



www.axionpolymers.com

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AXION'S PRODUCT RANGE

Axion Polymers supplies polystyrenes and polyolefins under the brand name Axpoly®.

Available with additives and in a range of colours, Axpoly can be melt-filtered to up to 100 micron and so is suited to a wide range of applications, in particular, sheet extrusion (Axpoly can be extruded to 0.5mm) and injection moulding.

Axpoly is a genuine 'green' product. A massive reduction in CO₂ is achieved in the production of Axpoly. In the manufacture of virgin polymer, 3400 kg of CO₂ is produced, per tonne (as estimated by Plastics Europe). Collecting, separating and compounding plastics to produce Axpoly yields approx 600 kg of CO₂ per tonne.



Colour plaques

Require high quality, melt filtered polymer? Need additives? Impact modifiers, flame retardants, fillers? Range of colours?

Choose **Axpoly®**

Every batch of finished product undergoes a defined series of quality control checks including yield strength, impact resistance, melt flow index (MFI) and IR & XRF chemical analyses. These tests have proven time and again that quality is the secret to Axpoly's success in this market place.

Many of Axion Polymers' customers have successfully substituted Axpoly for virgin grades in many complex injection moulding applications such as replacing washing machine parts.

Customer feedback about Axpoly has been very positive:

"We have been using the Axpoly polystyrene recycled polymer resin for the past 3 months and we have seen very consistent, high quality on our big-volume coat-hanger jobs. Those chaps at Axion really know their stuff!"

– Product Development Manager

Axpoly is available in several grades, in black and 'off-white', all produced to tight production specifications. Our team of in-house technicians can tailor-make a polymer blend from our material. We are able to respond to customer requirements for special blends that meet performance requirements, supplying higher impact grades and colour matching.

Call our technical team to discuss your requirements.

EXAMPLES OF PRODUCTS MADE FROM AXPOLY®



Contact us

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Product Information Sheet

Axfoil PS01 White

Doc Ref: AXFOIL-PS01

ISSUE REF: 3

AXFOIL®

PS01 White - Impact Modified Polystyrene sheet

Description:

High quality extruded polymer sheet suitable for use in a wide range of thermoforming, vacuum moulding and sheet conversion applications such as: packaging, point of sale displays, banners and signs, models and prototypes. This white, impact resistant plastic sheet is successfully used in the horticultural industry to form trays and pots. Axfoil® is manufactured from Axpoly® PS01 to the same exacting quality standards, providing consistent and reliable physical properties and dimensions. Supplied on reels, it can be printed or painted and can be easily assembled with solvents, adhesives or fastenings.

Source:

Unique separation and sorting technologies allows Axpoly® PS01 resin to be produced from post-consumer fridge liner plastics derived from primary WEEE treatment plants. All production batches are traceable back to the origin of the raw material as part of the certified manufacturing process. Axpoly PS01® resin is extruded into Axfoil sheet at Axion Polymers' own manufacturing plant.

Quality Control:

Axfoil® is made under our strict ISO9001 QC system to ensure that customers are confident about the reliable and consistent performance of the polymer sheet during thermoforming operations. On-line thickness measurement is used, along with a range of in-house test to confirm reliable and consistent properties.

Environment:

Produced from 100% post-consumer raw materials, this sheet product fits closely with our Axpoly® recycled resin grades. Axfoil® PS01 sheet offers the following user benefits:

- Successfully replaces virgin resin
- Huge savings in CO₂ impact - at least 80% less
- Fully recyclable
- Appeals to 'greener' customers
- Cost-down on raw material
- Saves the Planet!

Axfoil® is available in various thicknesses ranging from 0.5 to 1.7 mm and is supplied on reels format. Max reel size is 800 kilos; minimum 200 kilos.

Notes: All grades are assessed to ISO Standards, are RoHS compliant and REACH ready.



| Parameter | ISO | Spec | | Typical Properties |
|--------------------|-----------|--------|------|-------------------------|
| | | Min | Max | |
| MFI (5 kg @ 200°C) | 1133 | 5 | 9 | 7 g / 10 mins |
| Density | 1183-1 | 1.02 | 1.06 | 1.03 g /cm ³ |
| Tensile Strength | 527 - 1/2 | 18 | 27 | 23 MPa |
| Impact Strength | 180 | 6 | 10 | 8 kJ / m ² |
| Moisture Content | % | <0.25% | | 0.17% |
| Elongation @ break | 527 - 1/2 | 20% | 30% | 25% |

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Product Information Sheet

Axfoil PS02 Black

Doc Ref: AXFOIL-PS02- B

ISSUE REF: 6

AXFOIL®

PS02 Black - Impact Modified Polystyrene sheet

Description:

High quality extruded polymer sheet suitable for use in a wide range of thermoforming, vacuum moulding and sheet conversion applications such as: packaging, point of sale displays, banners and signs, models and prototypes. This black, impact resistant plastic sheet is successfully used in the horticultural industry to form trays and pots. Axfoil® is manufactured from Axpoly® PS02 to the same exacting quality standards, providing consistent and reliable physical properties and dimensions. Supplied on reels, it can be printed or painted and can be easily assembled with solvents, adhesives or fastenings.

Source:

Unique separation and sorting technologies allows Axpoly® PS02 resin to be produced from post-consumer TV casings sourced from primary WEEE treatment plants. All production batches are traceable back to the origin of the raw material as part of the certified manufacturing process. Axpoly PS02® resin is extruded into Axfoil sheet at Axion Polymers' own manufacturing plant.

Quality Control:

Axfoil® is made under our strict ISO9001 QC system to ensure that customers are confident about the reliable and consistent performance of the polymer sheet during thermoforming operations. Customer feedback confirms that end products are 'better than virgin' in many aspects, such as dimensional stability, surface finish and price per mould impression.

Environment:

Produced from 100% post-consumer raw materials, this sheet product fits closely with our Axpoly® recycled resin grades. Brominated flame retardants are removed as part of the refining process to deliver a high-purity RoHS compliant raw material. Axfoil® PS02 sheet offers the following user benefits:

- Successfully replaces virgin resin
- Huge savings in CO₂ impact - at least 80% less
- Fully recyclable
- Appeals to 'greener' customers
- Cost-down on raw material
- Saves the Planet!

Axfoil® is available in various thicknesses ranging from 0.5 to 1.9 mm and is supplied on reels format. Max reel size is 800 kilos; minimum 200 kilos.



| Parameter | ISO | Spec | | Typical Properties |
|--------------------|-----------|--------|------|--------------------------|
| | | Min | Max | |
| MFI (5 kg @ 200°C) | 1133 | 5 | 9 | 7 g / 10 mins |
| Density | 1183-1 | 1.02 | 1.06 | 1.03 g / cm ³ |
| Tensile Strength | 527 - 1/2 | 18 | 27 | 23 MPa |
| Impact Strength | 180 | 6 | 10 | 8 kj / m ² |
| Moisture Content | % | <0.25% | | 0.17% |
| Elongation @ break | 527 - 1/2 | 25% | 40% | 30% |
| Br level | % | <3000 | | 1000 |

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Notes: All grades are assessed to ISO Standards, are RoHS compliant and REACH ready.



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Product Information Sheet

Axfoil PS13 Black

Doc Ref: AXFOIL-PS13- B

ISSUE REF: 6

AXFOIL®

PS13 Black - Impact Modified Polystyrene sheet

Description:

High quality extruded polymer sheet suitable for use in a wide range of thermoforming, vacuum moulding and sheet conversion applications such as: packaging, point of sale displays, banners and signs, models and prototypes. This black, impact resistant plastic sheet is successfully used in the horticultural industry to form trays and pots. Axfoil® is manufactured from Axpoly® PS13 to the same exacting quality standards, providing consistent and reliable physical properties and dimensions. Supplied on reels, it can be printed or painted and can be easily assembled with solvents, adhesives or fastenings.

Source:

Unique separation and sorting technologies allows Axpoly® PS13 resin to be produced from post-consumer retail garment hangers as part of a nationwide re-use and recycling scheme. All production batches are traceable back to the origin of the raw material as part of the certified manufacturing process. Axpoly PS13® resin is extruded into Axfoil sheet at Axion Polymers' own manufacturing plant.

Quality Control:

Axfoil® is made under our strict ISO9001 QC system to ensure that customers are confident about the reliable and consistent performance of the polymer sheet during thermoforming operations. Customer feedback confirms that end products are 'better than virgin' in many aspects, such as dimensional stability, surface finish and price per mould impression.

Environment:

Produced from 100% post-consumer raw materials, this sheet product fits closely with our Axpoly® recycled resin grades. Brominated flame retardants are removed as part of the refining process to deliver a high-purity RoHS compliant raw material. Axfoil® PS13 sheet offers the following user benefits:

- Successfully replaces virgin resin
- Huge savings in CO₂ impact - at least 80% less
- Fully recyclable
- Appeals to 'greener' customers
- Cost-down on raw material
- Saves the Planet!

Axfoil® is available in various thicknesses ranging from 0.5 to 1.9 mm and is supplied on reels format. Max reel size is 800 kilos; minimum 200 kilos.



| Parameter | ISO | Spec | | Typical Properties |
|--------------------|-----------|--------|------|-------------------------|
| | | Min | Max | |
| MFI (5 kg @ 200°C) | 1133 | 5 | 9 | 7 g / 10 mins |
| Density | 1183-1 | 1.02 | 1.06 | 1.03 g /cm ³ |
| Tensile Strength | 527 - 1/2 | 18 | 27 | 23 MPa |
| Impact Strength | 180 | 6 | 10 | 8 kj / m ² |
| Moisture Content | % | <0.25% | | 0.17% |
| Elongation @ break | 527 - 1/2 | 20% | 30% | 25% |
| Br level | % | < 3000 | | 1000 |

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Product Information Sheet

Axfoil PS01 Coloured

Doc Ref: AXFOIL-PS01 Coloured

ISSUE REF: 3

AXFOIL®

PS01 Coloured - Impact Modified Polystyrene sheet

Description:

High quality extruded polymer sheet suitable for use in a wide range of thermoforming, vacuum moulding and sheet conversion applications such as: packaging, point of sale displays, banners and signs, models and prototypes. Axfoil PS01 can be made into a range of different colours (as shown). Customers' specific colours can be matched. Axfoil® is manufactured from Axpoly® PS01 to the same exacting quality standards, providing consistent and reliable physical properties and dimensions. Supplied on reels, it can be printed or painted and can be easily assembled with solvents, adhesives or fastenings.

Source:

Unique separation and sorting technologies allows Axpoly® PS01 resin to be produced from post-consumer fridge liner plastics derived from primary WEEE treatment plants. All production batches are traceable back to the origin of the raw material as part of the certified manufacturing process. Axpoly PS01® resin is extruded into Axfoil sheet at Axion Polymers' own manufacturing plant.

Quality Control:

Axfoil® is made under our strict ISO9001 QC system to ensure that customers are confident about the reliable and consistent performance of the polymer sheet during thermoforming operations. On-line thickness measurement is used, along with a range of in-house test to confirm reliable and consistent properties.

Environment:

Produced from 100% post-consumer raw materials, this sheet product fits closely with our Axpoly® recycled resin grades. Axfoil® PS01 sheet offers the following user benefits:

- Successfully replaces virgin resin
- Huge savings in CO₂ impact - at least 80% less
- Fully recyclable
- Appeals to 'greener' customers
- Cost-down on raw material
- Saves the Planet!

Axfoil® is available in various thicknesses ranging from 0.5 to 1.7 mm and is supplied on reels format. Max reel size is 800 kilos; minimum 200 kilos.

Notes: All grades are assessed to ISO Standards, are RoHS compliant and REACH ready.



| Parameter | ISO | Spec | | Typical Properties |
|--------------------|-----------|--------|------|-------------------------|
| | | Min | Max | |
| MFI (5 kg @ 200°C) | 1133 | 5 | 9 | 7 g / 10 mins |
| Density | 1183-1 | 1.02 | 1.06 | 1.03 g /cm ³ |
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| Impact Strength | 180 | 6 | 10 | 8 kJ / m ² |
| Moisture Content | % | <0.25% | | 0.17% |
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