

SPECIFIC TYPE PU PROFILE 82ShA

Thermoplastic Polyester based Polyurethane

Characteristics:

Thermoplastic Polyester-Polyurethane with excellent mechanical properties and wear resistance, good damping characteristic and high resilience performance, UV stabilized. Processable by injection moulding and extrusion. Suitable for a wide variety of applications, within transmission/engineering/automotive/aerospace/food industries in both indoor and outdoor applications. All types below can be welded by Heat, High frequency, Friction or Solvent with the added ability to thermoform to almost any shape required

Application Areas:

Tubular Belts, Drive belts, Conveyor Belts, Twist Belts, Edging strips, Protection strips.

FOOD CONTACT INFORMATION; Regulations in Germany and European Community (EC):

Regulations in Germany and European Community (EC):

Presuming appropriate processing the products can be used in the countries of the European Community for food contact materials or articles according to article 3 of Regulation (EC) No 1935/2004 on materials and articles intended to come into contact with food.

Compliance with the provisions of Regulation (EC) No 1935/2004 especially the suitability of the articles for the given application, the effect on smell and taste of the food, and observance of any given limitations, must be ensured by the person who introduces the articles into circulation.

The products are manufactured according to the requirements of Commission Regulation (EC) No 2023/2006 of 22 December 2006 on good manufacturing practice for materials and articles intended to come into contact with food.

The compositions of the products comply with the requirements of the Commission Regulation (EU) No 10/2011 of 14 January 2011 on plastic materials and articles intended to come into contact with food most recently amended by the Commission Regulation (EU)2023/1627 of 10th August 2023.

Above mentioned products do not contain dual use additives.

The compositions of the products comply with "Bedarfsgegenständeverordnung" of 23.12.1997, last updated 15. February 2016.

Furthermore the compositions of the products comply with Recommendation XXXIX of BfR, last updated 01. January 2012, which covers articles manufactured from polyurethane.

The following restrictions have to be ensured:

Generally application simulating testing, in accordance with regulations in EU (e.g. Regulation (EU) 10/2011) has to demonstrate that global migration, specific migration and other restrictions for substances does not exceed allowed quantities. Among others it has to be proven that primary amines are not detectable (Regulation (EU) 10/2011, Annex II, Article 2). It is also a requirement that articles intended to come into contact with food shall not influence appearance, taste or odour of the foodstuff.

Physical Properties	
Hardness Shore A	82 ± 3
Type	Ester
Specific Gravity	1.21 ±0.04 g/cm
Tensile Strength	515 kg/cm ²
Tensile strength at 100% Elongation	90 kg/cm ²
Tensile Strength at 300% Elongation	150kg/cm ²
Tensile Strength at Ultimate Elongation	600 %
Abrasion Loss	40mm ²
Tear Strength	100 kg/cm

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Manufacturers & Worldwide Distributors of Polyurethane Extrusions & Belting Products

Based on our current experience with food contact articles made of above described materials we expect that articles will be in accordance with article 3 of Regulation (EC) No 1935/2004 for contact with dry foodstuff (excluding packaging materials) and for contact with wet foodstuff for a maximum period of 10 minutes. Migration is amongst others dependent on food type, conditions of use, volume-to-surface ratio, film thickness and processing steps. Thus it is the responsibility of the producer or seller of the final product to guarantee its compliance and to check it on a regular basis.

Upon your request, we will supply this company proprietary information regarding ingredients with specific migration limitations (SML) under secrecy agreement to an accredited food contact testing laboratory.

Regulations in USA:

The compositions of the products comply with the requirements of FDA Regulation 21 CFR 177.2600 "Rubber Articles Intended for Repeat Use".

Regulation in Japan:

The compositions of the products comply with the requirements for base polymer and additives. They are listed on Appended Table 1 dated April 28th 2020, hereafter referred to as the Positive List (PL), which is provided under the Specifications and Standards for Food and Food Additives, etc (MHW Notification No.370). The polymer is listed as a base polymer falling under Section 26: Thermoplastic polyurethane on the Table 1-(1) of the Positive List.

The following restrictions have to be ensured:

Polymer Group: Group 3

Food types: Acidic, Oily and Fatty, Milk and Milk product, Alcoholic beverage, and Others

Maximum temperature: II ($\leq 100^{\circ}\text{C}$)

The products contain additive components subject to the PL requirements. All these additive components are listed on Table 2 of the Positive List and are compliant with the use level (wt %) for Polymer Group 3.

Further general technical recommendations in Food Contact Applications to avoid material degradation:

Material degradation might have possible impacts on the migration behaviour and also might have an impact on the formation of primary amines.

At the point of processing it is necessary to ensure that the moisture content of the granulate is $< 0.02\%$. We also advise against steam sterilization as this might increase a generation of primary amines. Long-term operation of the final products under ambient high temperature conditions (as present in e.g. an oven) also might lead to material degradation. And finally, disinfectants containing active chlorine also can cause degradation of TPU. Further information concerning storage, pre-treatment, processing and post-treatment is available in our technical booklet "Elastollan – Processing Recommendations".

The compliance with legal requirements and generally accepted standards for consumer protection has to be proven for the specific application using the final article.

Conditions	Migration Mg/Dm ²	Mean
2 hours at 70°C in distilled water simulant	2.3, 1.8, 2.4	2.2
10 days at 40°C in distilled water simulant	3.0, 2.9, 2.9	2.9
30 minutes at 40°C in iso-octane simulant	2.3, 2.3, 2.3	2.3
2 hours at 20°C in iso-octane simulant	2.8, 2.8, 2.6	2.4

Overall migration testing was undergone in triplicate using the total immersion procedure.

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1dm² portions were cut into 4 strips and placed in large glass test tubes. The samples were then totally immersed in 100ml of distilled water simulant and placed into a thermostatically controlled oven at 70°C for 2 hours.

The process was then repeated with new samples and isooctane stimulant.

Using test conditions appropriate for short term contact with hot foodstuffs and also longer term contact at temperatures less than 40°C. Migration test results obtained are in compliance with current UK and European directives on plastic materials used in contact with all aqueous and fatty foods (overall migration <10mg/dm²)

These food classifications include dry food, vegetables, meat, fish, chocolate, biscuits, pastries etc. Testing with acidic and alcoholic food has not been undertaken.

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