

mediprene® a

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ELASTO
A HEXPOL COMPANY

ADHESION COMPOUNDS

Mediprene® A series

Adhesion in overmoulding and co-extrusion applications

Introduction

Overmoulding is a powerful technique that allows the production of finished parts in soft and hard material combinations without trimming or assembly.

It offers many design and product advantages, allowing designers to differentiate products while meeting important user and patient demands, including soft-touch and cushioning for greater comfort and non-slip surfaces with improved grip for safety.

Special features

- Unfilled
- PVC, silicone & latex free
- 35 to 65 Shore A
- Medically approved raw materials
- Production site accredited to ISO 13485
- Sterilizable with gamma, EtO and steam
- Flexibility over broad temperature range
- Easy to colour
- Resistant to many fluids used in the health care environment
- Short cycle times

Adhesion to a variety of substrates

The standard Mediprene® series bonds very well to polyolefins like polyethylene (PE) and polypropylene (PP). However, in several medical applications transparent engineering plastics like ABS, PC, PETG and SMMA (and their blends) are utilised. The Mediprene® A2 series has been developed to address demands for medical grade TPEs that bond well to these substrates.

Regulatory compliance

Representative Mediprene® grades have passed cytotoxicity tests according to ISO 10993-5 and are compliant with USP Class VI.

Mediprene® TPE materials are PVC, silicone and latex free, making them allergen free and a viable alternative to PVC based compounds.

Applications

Potential applications for the Mediprene® A series include; seals, membranes, closures, friction grips, soft-touch handles.

Mediprene® TPEs provide enhanced sealing capabilities in fluid environments.

A selection of Mediprene® A2 grades Adhesion onto ABS, PC, PETG and SMMA

| Material | Hardness Shore A | Colour | Specific Gravity g/cm ³ | Tensile Strength MPa | Elongation at Break % | Tear Strength kN/mm | Modulus 100% MPa | Modulus 300% MPa | MFR 5 kg/190°C g/10 min | Peel Force N/mm |
|-------------|--------------------------|---------|------------------------------------|----------------------|-----------------------|---------------------|------------------|------------------|-------------------------|-------------------------|
| Test Method | ASTM D 2240 ¹ | | ASTM D 792 | ASTM D 638 | ASTM D 638 | ASTM D 624 | ASTM D 638 | ASTM D 638 | ASTM D 1238 | ASTM D 903 ⁴ |
| A2 500350M | 35 | Natural | 0.94 | 3 | 550 | 16 | 1.0 | 2.0 | 30 ² | 2.5 |
| A2 500450M | 45 | Natural | 0.96 | 4 | 550 | 21 | 1.5 | 2.7 | 17 ² | Cohesive ⁵ |
| A2 500550M | 55 | Natural | 0.97 | 5 | 500 | 24 | 2.0 | 3.5 | 7 ³ | 5 |
| A2 500650M | 65 | Natural | 1.00 | 7.5 | 650 | 30 | 2.8 | 4.6 | 1 ³ | Cohesive ⁵ |

¹) 4mm

²) 5kg/190°C

³) 10kg/190°C

⁴) 90° peel tests conducted at 100 mm/min with Mediprene® A2 grade (2.5 mm thickness, 25 mm width) overmoulded onto ABS (Terlux 2802HD)

⁵) Cohesive means that bonding strength is greater than tensile strength

Processing

The material has excellent processing characteristics and can be processed using conventional thermoplastic fabricating methods, including injection moulding and extrusion.

Service Temperature Range -50 to +125°C (unstressed material)

| Processing Temperatures | Injection Moulding | Extrusion |
|--------------------------------|---------------------------|------------------|
| Barrel Temperatures °C | 210 - 250 | 210 - 250 |
| Mould Temperatures °C | 30 - 60 | |

To achieve optimal bonding, it is important that the correct processing temperatures are used. The recommended melt temperature for the Mediprene® A2 series is 220-250°C. A steep temperature profile, starting with 180°C at the hopper should be applied. The surface temperature of the engineering plastic should be approximately 60°C.

The above information is, to the best of our knowledge, true and accurate, but any recommendations or suggestions which may be made are without guarantee, since the conditions of use are beyond our control. which may be made are without guarantee, since the conditions of use are beyond our control.

Contact us...

Sweden

t : 46 (0) 532 60 75 00
f : 46 (0) 532 60 75 99
info@elastotpe.com

UK

t : 44 (0)161 654 6616
f : 44 (0)161 654 2333
sales@elastotpe.co.uk

France

t : 33 (0) 160 43 17 17
f : 33 (0) 160 43 11 13
pascal.gruyer@elastotpe.com

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