

MC/AD1 Series
THERMOLAST® M

The MC/AD1 Series is your material solution for applications requiring basic medical approvals such as ISO 10993-5. The series is characterized by excellent adhesion properties to polar thermoplastics such as PC, ABS, PC/ABS. The compounds are produced exclusively by a special medical unit.

Typical applications

- Flexible Connections
- Membranes
- Seals
- Soft touch
- Valves

Material advantages

- DMF listed
- Excellent mechanical properties
- For injection molding
- Free of animal based ingredients
- KRAIBURG TPE Medical service package (description below)
- Sterilizable (autoclave 134 °C, gamma radiation 2x35 kGy, EtO)
- Tested according to ISO 10993-5

Processing Method: Injection Molding

| | Color / RAL DESIGN | Hardness Shore A DIN ISO 7619 ShoreA | Density DIN EN ISO 1183-1 g/cm ³ | Tensile Strength ¹ DIN 53504/ISO 37 MPa | Elong. at Break S2 ¹ DIN 53504/ISO 37 % | Tear Resistance ISO 34-1 Methode B (b) N/mm | Adhesion Renault D41 1916 (ABS) ² Renault Norm D41 1916 N/mm | Adhesion Renault D41 1916 (PC) ² Renault Norm D41 1916 N/mm | Adhesion Renault D41 1916 (PETG) N/mm |
|---------------|--------------------|--|---|--|--|---|--|---|---|
| TM3ADT | natural | 34 | 0.930 | 3.0 | 550 | 8.0 | 3.0 | 3.0 | 3.0 |
| TM4ADT | natural | 40 | 0.940 | 3.5 | 500 | 7.5 | 4.0 | 4.5 | 4.0 |
| TM5ADT | natural | 50 | 0.950 | 5.5 | 600 | 9.5 | 9.0 | 11.0 | 7.5 |
| TM6ADT | natural | 59 | 0.960 | 6.5 | 600 | 11.5 | 10.5 | 11.5 | 10.0 |
| TM7ADT | natural | 73 | 1.000 | 8.0 | 650 | 18.0 | 22.0 | 22.5 | 7.0 |

¹ Deviating from ISO 37 standard test piece S2 is tested with a traverse speed of 200 mm/min.

² The adhesion quality depends on mold design, product geometry and process parameters.

THERMOLAST® M Medical-Service-Package

All medical compounds are tested according to ISO 10993-5 (Cytotoxicity) and listed under a Drug Master File. Selected medical compounds are tested according to described medical basic approvals: USP Class VI (chapter 88), USP 661 (in vitro), ISO 10993-4 (Haemolysis, indirect in human blood), ISO 10993-10 (Intracutaneous Irritation) and ISO 10993-11 (Acute Systemic Toxicity). No changes in formulation or process (except of necessary adjustments e.g. due to new regulations). If any changes are necessary, KRAIBURG TPE will inform the customers at least 24 months in advance. THERMOLAST® M Compounds are produced on a dedicated medical compounding line.

This datasheet is an extract of the KRAIBURG TPE program. Please contact KRAIBURG TPE to select the compound suitable for the requirements.

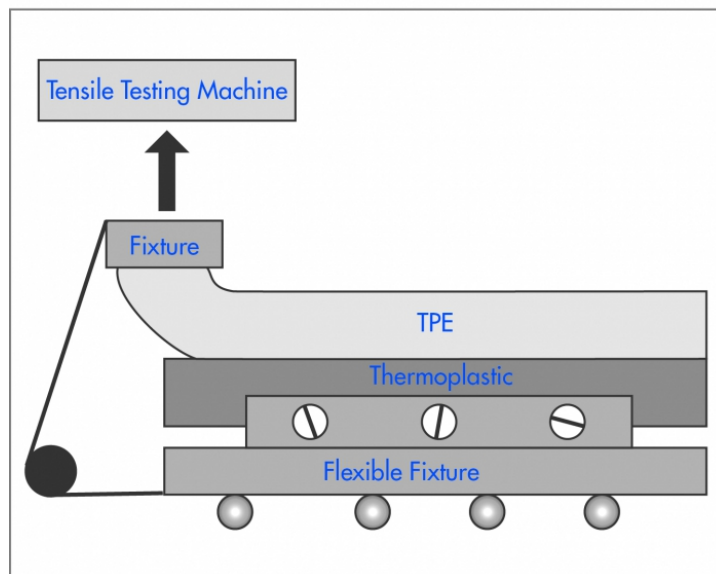
Disclaimer: The information provided in this documentation corresponds to our knowledge on the subject at the date of its publication and may be subject to revision as new knowledge and data becomes available. All values reported are typical values based on sample test results and are not a guarantee of performance. The responsibility to conduct testing to determine suitability of use for the particular process or end-use application remains with the customer. KRAIBURG TPE does not warrant or assume any liability with regards to the use of the information presented in this document.

All values published in this data sheet are rounded average values.
Specification limits are based on three-fold standard deviation from the average value.

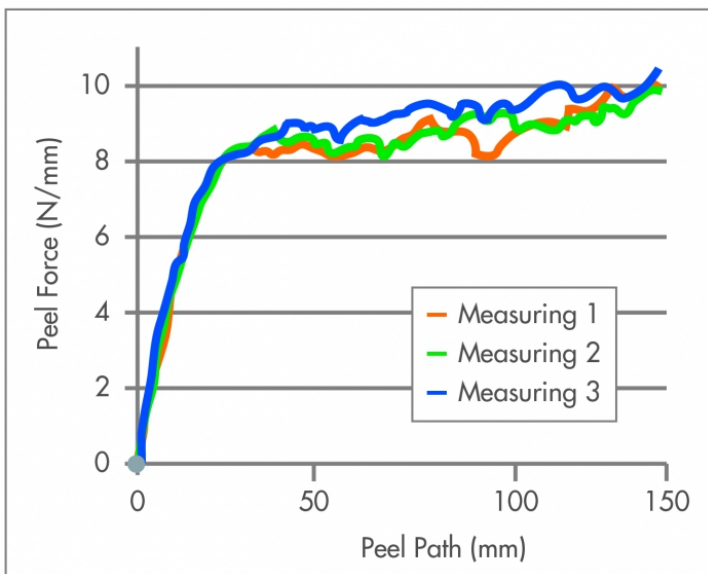
Description peel test

Peel test according to „Renault D41 1916“ standard

Test Setup



Example Diagramm as result of a peel test



The peel force is measured by a tensile testing machine in N/mm, in relation to the peel path.

Test piece dimensions: Thermoplastic part: 130 x 22 x 2 mm,
TPE part: 130 x 20 x 2 mm.

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Processing Guideline Injection Molding

| | |
|-------------------------|--|
| Cylinder temperature | 240 - 210 - 180 °C max. 250 °C (464 - 410 - 356 °F, max. 482 °F) |
| Hotrunner | Hot runner temperatures: 200 -250 °C (390 - 480 °F). The runner should be empty after a maximum of 2 - 3 shots. |
| Injection pressure | 200 - 1000 bar (2900 - 14504 psi) (depending on the size and weight of the part). |
| Injection rate | In general, the fill time should not be more than 1–2 seconds. |
| Hold pressure | We recommend to derive the optimum hold pressure from determining the solidification point, starting with 40 % - 60 % of the required injection pressure. |
| Back pressure | 20 - 50 bar (285 - 710 psi); if colour batches are used, higher back pressure is necessary. |
| Screw retraction | If an open nozzle is used processing with screw retraction is advisable. |
| Mold temperature | The mold temperature depends on the hard component. A temperature exceeding 80 °C (175 °F) should be avoided. The common temperature is 40 - 60 °C (105 - 140° F). |
| Pre drying | To achieve optimum mechanical values, drying the material for 2 - 4 hours at 60 - 80 °C (140 - 175 °F) is recommended. |
| Needle valve | With materials < 50 Shore A the use of a needle seal nozzle is advisable. |
| Screw geometry | Standard 3-zone polyolefine screw. |
| Residence time | The residence time is to be set as short as possible with a maximum of 10 minutes. |
| Cleaning recommendation | For cleaning and purging of the machine it is appropriate to use polypropylene or polyethylene. Machine must be PVC-free. |

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