Copolyamide

Due to of their favorable processing and performance properties and their cost effective value copolyamides are today the most important thermoplastic class of materials for coating and Interlining/fixing inserts. Only by copolymerization of ternary systems, consisting for example from the polyamide-forming agents laurolactam (lactam 12), caprolactam and AH-Salt, it was possible to produce with those terpolyamides melt adhesive properties that are required for fusion of interlinings. This made it possible to lower the melting temperatures up to the desired sealing temperatures.

For example, the reachable melting temperatures shows the melting temperature triangle of Copolyamide-Systems 6/6.6/12.

The melting temperatures of such ternary copolyamides may be lowered even further if the components of the ternary system by other polyamide-forming agents be replaced partially or completely.

Meanwhile, it is possible to adjust the melting temperatures of copolyamides between 50°C and 250 °C which depends on the monomer composition of the ternary system PA 6/6.6/12.

In an analogous manner also quaternary and multinary copolyamides are available.

The wide variation in the use of the system components and the possibility of the addition of fastness enhancing additives and polycondensation regulators make the heat seal polyamides to a relatively complex composite hot melt adhesive.
The water absorption of the ternary system can be influenced by the content of the polyamide-12 share, it is lower for polyamide 12 compared to polyamide 6 and 6.6.

**Water absorption**

**Polyamide-type under standard conditions / water storage**

<table>
<thead>
<tr>
<th>Polyamide Type</th>
<th>Water Absorption</th>
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</thead>
<tbody>
<tr>
<td>Polyamid 6</td>
<td>3 - 4 %</td>
</tr>
<tr>
<td>Polyamid 12</td>
<td>1,0 %</td>
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</tbody>
</table>

Due to this fact for boiling wash-resistancy polyamides consisting of 60-65% of polyamide 12 are used.

**Properties of Copolyamides**

Nowadays Copolyamides in Clothtech area we take as granted.

Compared to other thermoplastic hot melt adhesive systems copolyamides have excellent properties such as:

- Wide fusing temperature range (90 - 160 °C)
- Very good adhesion to a variety of different substrates
- Efficient processing
- Environmentally friendly
- High resistance, e.g. to washing and cleaning treatments (chemical cleaning), steam and enzyme wash, stonewash and Postdyeing
- High heat resistance
- Modification opportunities for fastness improvement in aqueous paste-methods

**Competence**

We are happy to advise you further. Contact our experienced technicians.

ROWAK AG