PLATAMID® COPOLYAMIDES

SPECIALTY HOT MELT ADHESIVE
Adhesive – Basic Definition

Assembly Parameters
Time, T°C, Pressure

Surface Bonding & Wetting - Adhesion -

Internal Strength - Cohesion -

Adhesive Joint or Adhesive Bond
Platamid® CoPolyamides HMA

- R = Reactive
- Reaction ↔ T° C Class
- Reaction ↔ Creep Resistance

- Specialty-Type
- Molecular Design (Not Formulated)
- Most Effective on Polar Surface
- Higher Service T° C than PO

- Volume-Type ~ 90-95% of Total Vol.
- EVA & SBC ~ 80% of Total
- Used mostly on Non Polar Surface
- Heavily Formulated (*)
- Moderate growth rate

(*) Typically contains > 50% of additives (tackifiers, oils, waxes, fillers, etc)
Advantages & Limitations

**Major Advantages**

- 100% Solid Content ➔ No Water or Solvent to Eliminate
- No VOC concern + Worker Acceptance
- Processable as One Component System
- Short Setting Times ➔ High Production Rate
- Recycling & Reduce Waste
- Amenable to Bio Based Formulation

**Limitations**

- Creep
- T°C stability

Development ongoing for a “Crosslinkable Grade”

Platamid® HX 2632
What are Platamid® CoPolyamides?

- **Random Copolymers of Polyamides**
  - Diamines & Diacids
  - Lactams & Amino-Acids

- Random Copolymerization disturbs polymer **Crystallinity**
  - Lower the **Melting Point** to the level required by the application
    - Typical Platamid® Melting Point: from 85 to 150°C (and above)
What are Platamid® CoPolyamides?

- **Monomer type dictates end-use properties**
  - Short Chain or Long Chain
  - Aliphatic, Cycloaliphatic or Aromatic
  - Bio-based or Fossil-based

- **Monomer Composition**
  - Right balance between Melting Point, Crystallinity & Crystallization Speed
    - Mechanical Properties
    - Chemical resistance
    - Open Time (Long or Short)
    - Productivity
    - Crystallinity
    - Crystallization Speed
Physical Properties & Processing

- Thermoplastic
- Good Transparency, Low Yellow Index
- Heat (Re)Activable
- Low Density (vs. CoPES or TPU) – 1.05 to 1.10
- Melting Point from 85 to 150°C (and above)
- Melt Viscosity from 40 Pa.s up to 4000 Pa.s at 160°C
- Adjustable Crystallization Speed & Open Time
Major properties

Mechanical Properties
- Good Strength (Green / Cohesive / Adhesive)
- High Specific Adhesion = [Adhesion] / [Weight]

Chemical & Environmental Resistance
- Very Good Laundry & Dry Cleaning Resistance
- Good Chemical Resistance (esp. to hydrocarbons)
- Good Hydrolysis Resistance
- Good Heat Resistance (vs. Olefin CoPolymers)
- Good UV Resistance (vs. CoPES)
Major properties

Specific Properties (Grade Dependent)

- Crosslinkable (E-Beam, UV, Peroxyde)
- Tailored Bio Based Content up to 100%
- Elastic / Soft (Bloc CoPolymer Technology)
- Low VOC
- Solubility in Mild Alcohols
- Steam Activable
Main Processing Options

PELLET
- Melt Print
  - Coated Film
  - Net
- Extrusion
  - Film
  - Web
- Low Pressure Molding
  - Fiber & Filament
  - Overmolding
  - Varnish & Coating
  - Solvt. Based Adhesive
  - Textile Interlining

POWDER
- Solution
- Scatter
- Paste

Note: Platamid® are generally not amenable to Injection Molding (will adhere onto metal mold !)
Main Applications

- Technical Textile
- Automotive Textile
- Floor Covering
- Masterbatch
- Electronics
Platamid® Product Offer

10 Main grades

- **M 1657**
- **M 1757**
- **M 2469**
- **H 106**
- **HX 2544**
- **HX 2592**
- **H 2519**
- **H 2513**
- **H 003**
- **M 1276**

- **Standard**
- **Universal Adhesion**

- **Low Viscosity**
- **Medium Viscosity**

- **Low Melting Range**
- **Medium Melting Range**
Platamid® Product Offer

**Melt Viscosity**
- **Low** ➔ Melt Print, Low Pressure Molding
- **Medium** ➔ Extrusion

**Fusing Range**
- **Low** ➔ T°C Sensitive Substrates
- **Medium** ➔ General Purpose

**Chemistry**
- **Standard** ➔ General Purpose
- **Universal** ➔ Difficult-to-Bond Substrates

**Crystal Speed**
- **Normal** ➔ General Purpose
- **Fast** ➔ High Productivity
# Products recommendation

<table>
<thead>
<tr>
<th>PLATAMID® Grade</th>
<th>DSC Melting Point (°C)</th>
<th>Melt Volume Flow Rate (g)</th>
<th>Relative Viscosity (g)</th>
<th>Bio-Based Carbon Content (%)</th>
<th>Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal Adhesion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HK 2592</td>
<td>106</td>
<td>24</td>
<td>1.40</td>
<td>Good Adhesion to all kind of Substrates / High Bio-Based Carbon Content</td>
<td></td>
</tr>
<tr>
<td>H 2519</td>
<td>109</td>
<td>8</td>
<td>1.60</td>
<td>Good Adhesion to all kind of Substrates</td>
<td></td>
</tr>
<tr>
<td>M 1276</td>
<td>110</td>
<td>6</td>
<td>1.60</td>
<td>Good Adhesion to all kind of Substrates</td>
<td></td>
</tr>
<tr>
<td>Standard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M 2468</td>
<td>102</td>
<td>26</td>
<td>1.40</td>
<td>Low Fusing / Medium Viscosity</td>
<td></td>
</tr>
<tr>
<td>HK 2544</td>
<td>95</td>
<td>104</td>
<td>1.30</td>
<td>Low Fusing / Low Viscosity</td>
<td></td>
</tr>
<tr>
<td>H 106</td>
<td>112</td>
<td>70</td>
<td>1.30</td>
<td>Medium Fusing / Low Viscosity</td>
<td></td>
</tr>
<tr>
<td>H 005</td>
<td>115</td>
<td>10</td>
<td>1.50</td>
<td>Medium Fusing / Medium Viscosity</td>
<td></td>
</tr>
<tr>
<td>H 2513</td>
<td>128</td>
<td>26</td>
<td>1.40</td>
<td>Medium Fusing / Medium Purpose / Excellent Steam &amp; Laundry Resistance</td>
<td></td>
</tr>
<tr>
<td>M 1657</td>
<td>107</td>
<td>210</td>
<td>1.30</td>
<td>Fast recrystallization / Very Low Viscosity</td>
<td></td>
</tr>
<tr>
<td>M 1757</td>
<td>106</td>
<td>27</td>
<td>1.50</td>
<td>Fast recrystallization / Excellent Steam &amp; Laundry Resistance</td>
<td></td>
</tr>
</tbody>
</table>

All measurements made on dried material

(s) per ISO 11357 · (g) per ISO 1133 · (s) per DIN 537 27 · (g) per ASTM D8666
### Products recommendation

<table>
<thead>
<tr>
<th></th>
<th>Textiles</th>
<th>Thermoplastics (incl. Foams)</th>
<th>Thermosets</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton &amp; Wool</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polyester</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polyamid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polycrylonitrile</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polyolefins</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>ABS/SAN</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>PVC Rigid/Soft</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>PC</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>PU</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>Epoxies</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>Phenolics</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>Metal</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>Leather</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>GF Reinforced Composites</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

**Preferred**

**Recommended**

**Not Adapted**

**Products**:
- HX 2544
- M 2468
- M 1657
- M 1757
- H 106
- H 005
- H 2513
- HX 2592
- M 1276
- H 2519
For more information, please contact:

Richard CHAIGNEAU  
*Market Development Leader*  
richard.chaigneau@arkema.com