Desmocomp®

Raw materials for pultruded PU composites with extreme UV, chemical and weathering resistance

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RAMSPEC - Milano IT
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Environmental exposure: UV irradiation

Protection: sunscreen
Environmental exposure: water / salt
Corrosion protection: coating
Environmental exposure: UV irradiation / water / salt

Typical corrosion protection measures often fail
Desmocomp®

- NEW UV- AND WEATHERING STABLE PU RESIN FOR COMPOSITES
- SIMPLE PROCESSING (1K)
- EXTREMELY LONG POT-LIFE
- SNAP-CURE BEHAVIOR
Covestro
Formerly Bayer MaterialScience AG

Polyurethanes
Raw materials for rigid and flexible foams

Polycarbonates
Granules and sheets for a wide variety of applications

Coatings, Adhesives & Specialties
Raw materials for coatings, adhesives and specialties

Basic Chemicals
Chlorine production as the backbone for product manufacture
Covestro
Serving Major Industries

Automotive/transportation  Construction  Wood/furniture  Electrical/electronics  Chemicals  Sports/leisure, cosmetics, health

22%  19%  18%  13%  9%  19%
For companies which produce Fiber Reinforced Materials

by PULTRUSION, we offer:

Brand new matrix material with excellent properties

- Avoid costly finishing process (coating or lamination)
- Reduce additives (UV stabilizers, mats, veils, etc.)
- Increased production speed (compared to e.g. UP)
What is Pultrusion?
Continuous manufacturing of fiber-reinforced thermosets

- Rovings
- Injection box (open resin bath)
- Forming and curing die
- Reciprocating pulling system
- Metered mix pump (optionally)
- Cut-off saw
What is Pultrusion?
Continuous manufacturing of fiber-reinforced thermosets
Pultruded PU Composites
Superior properties in comparison with traditional structure materials

**Durability**

PUL ~ Aluminum ~ PVC  
>> Wood

**Mechanical Stability**

[E-Modulus in GPa]

Aluminum [70] ~ PUL [50]

**Dimensional Stability**

[thermal expansion coefficient in 10^-6 1/K]

>> Aluminum [23] >> PVC [50]

**Thermal Insulation**

[thermal conduction coefficient in W/mK]

Wood [0.2] ~ PUL [0.5] ~ PVC [50]
>> Aluminum [236]
Pultruded PU Composites

Conclusion: Pultruded PU composites show superior transversal bending strength compared to UP or VES.

Conclusion: Pultruded PU composites show significantly better ILSS when compared with UP or VES.
Covestro’s offer to the Pultrusion Industry
Different formulations for different industry needs

Aromatic PU formulation
Highly reactive
High speed processing

• 2 component formulation
• PU metering system
• Injection box
• Line speed up to 2 m/min

Aliphatic PU formulation
UV and weathering stable
Versatile and simple processing

• 1 or 2 component formulations
• PU metering system
• I-box or open resin bath
• Line speed up to 1 m/min
Why Desmocomp®?

Extreme weathering, UV, and chemical stability without coating

Other resins
~ 6 months on rooftop in Leverkusen

Desmocomp ®
~ 6 months on rooftop in Leverkusen
Why Desmocomp®?

Extreme stability in accelerated weathering tests

Desmocomp® pultruded parts > 6000 h without changes in CAM 180

Desmocomp® (matrix only) > 20,000 h in Salt spray tests

Pultruded VES after 3000 h in CAM180
**Why Desmocomp®?**

Excellent flammability properties

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<th>Flammability Class&lt;sup&gt;1&lt;/sup&gt;</th>
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<th>Droplet Formation Class&lt;sup&gt;1&lt;/sup&gt;</th>
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<sup>1</sup>DIN EN 13823: 2010
DIN EN 13501-1:2010
Applicable in various shapes and colors
Summary

- Desmocomp® can be used as matrix material in an established, robust and reliable pultrusion process.
- Due to the intrinsic UV-stability of Desmocomp®, surface protection of pultrudates by coatings or lamination is not required.
- Pultrudates on the basis of Desmocomp® provide superior mechanical properties (strength, durability, flame retardance), when compared with other resin materials.
- Desmocomp® widens for our customers the application range of polyurethane-based resins.
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