Simply Indestructible!
The VESTANAT® EP-M Family for outstanding scratch and chemical resistance

VESTA – Developed in Germany.
Available globally.

for Wood
Metal & DIY

Evonik
Leading Beyond Chemistry
Evonik has developed a new crosslinking concept for high performance, scratch resistant coatings based on adducts of isocyanatosilanes. This class of silane-urethane hybrid crosslinkers exhibits an outstanding performance profile with regard to both mechanical and chemical properties.

### Benefits at a glance
- Outstanding scratch resistance
- Up to 100% active matter
- Fast curing cycles
- High chemical resistance
- Room temperature curing
- DIY possible

### Isocyanatopropyltrimethoxysilane (IPMS)

VESTANAT® EP-IPMS
Monomeric IPMS is an isocyanate-functionalyzed trimethoxysilane for the synthesis of non-isocyanate crosslinkers to combine PUR chemistry with moisture curable silane technology.

VESTANAT® EP-M grades
The VESTANAT® EP-M product range is based on IPMS and PUR adducts. It combines PUR properties with glass-like hardness in a single, NCO-free component. The products are curable at elevated temperatures above 80°C.

VESTANAT® EP-MF grades
The VESTANAT® EP-MF product range transforms the unique hybrid properties of IPMS-based adducts into isocyanate-free, moisture-curable systems for room temperature applications with drying times of less than one hour.

VESTANAT® EP-E grades
VESTANAT® EP-E grades impart the same high performance in terms of durability and scratch resistance as the M-grades but are based on ethoxy-silane technology. The EP-E grades offer full formulation freedom in terms of flexibility, durability and reactivity.

VESTANAT® EP-EF grades

A toolbox for custom-designed solutions
The technology platform opens up a wide range of possibilities to formulate scratch resistant low temperature cure coatings for a plethora of substrates such as wood, plastic and metals and many more. The temperature sensitivity of the substrate and the desired curing conditions determine the choice of crosslinker.

VESTANAT® EP-M based clearcoat (left)
Standard 2K PUR clearcoat (right)

VESTANAT® EP-MF based clearcoat (left)
Standard 2K PUR clearcoat (right)

Too good to be true?
Come and see for yourself!
VESTANAT® EP-M grades are silanes for curing at elevated temperatures (>80°C). These grades are used in combination with suitable binders and enable the formulation of highly scratch resistant coatings.

Benefits at a glance
- Outstanding scratch resistance
- Excellent chemical resistance
- Full performance in combination with appropriate resins
- Booster for 2K PUR systems

VESTANAT® EP-M 60, M 95, M 222 and M 222 X
With the different types of VESTANAT® EP-M 60, M 95, M 222 and M 222 X a broad range of properties like viscosity, scratch resistance or flexibility can be tailored. For best results the coating requires a catalyst such as VESTANAT® EP-CAT 11 B. Its full compatibility with standard 2K PUR systems also allows the product to be used as booster for scratch resistance and durability.

VESTANAT® EP-M grades are solvent free, ready-to-use crosslinkers. They can be used as single binder but they are also compatible with a variety of co-binding agents, such as acrylic polyols. The coatings can be cured at ambient temperature and are suitable for all kinds of substrates.

Benefits at a glance
- Ready-to-use 1K self crosslinking system
- Fast curing cycles even at room temperature
- 100% active ingredient
- Excellent chemical resistance
- Outstanding scratch performance

VESTANAT® EP-MF grades are solvent free, ready-to-use crosslinkers. They can be used as single binder but they are also compatible with a variety of co-binding agents, such as acrylic polyols. The coatings can be cured at ambient temperature and are suitable for all kinds of substrates.

Benefits at a glance
- Ready-to-use 1K self crosslinking system
- Fast curing cycles even at room temperature
- 100% active ingredient
- Excellent chemical resistance
- Outstanding scratch performance

VESTANAT® EP-MF 203
This crosslinker enables coatings with high reactivity and fast return-to-service times. It makes them conspicuous through short curing cycles at ambient temperature. VESTANAT® EP-MF 203 is the next generation product with even enhanced drying behavior and scratch resistance.

VESTANAT® EP-MF 204
This crosslinker has a higher content of urethane structures. It offers a more balanced profile between flexibility and scratch resistance. VESTANAT® EP-MF 204 is the next generation product with greater enhanced drying behavior and scratch resistance.

VESTANAT® EP-MF 205
This crosslinker has the highest flexibility of the entire EP-MF product range. A harmoniously tuned mechanical property profile allows for silyl-polyurethane coatings with good hardness and simultaneously high flexibility.

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**Properties**

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<tbody>
<tr>
<td>Active matter content</td>
<td>100%</td>
<td>100%</td>
<td>85%</td>
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<tr>
<td>Viscosity at 23°C [mPas]</td>
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<td>Solubility</td>
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<td>Ketones, Esters, Aromatics</td>
<td>Ketones, Esters, Aromatics</td>
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<tr>
<td>Scratch resistance</td>
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<td>+</td>
<td>+/o</td>
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<tr>
<td>Chemical resistance</td>
<td>++</td>
<td>+</td>
<td>+/o</td>
<td>+/o</td>
</tr>
<tr>
<td>Flexibility</td>
<td>+/-</td>
<td>+</td>
<td>++</td>
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* EP = Experimental Product

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**Properties**

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<tbody>
<tr>
<td>Active matter content</td>
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<td>100%</td>
<td>100%</td>
<td>100%</td>
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<td>Viscosity at 23°C [mPas]</td>
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<td>100 - 200</td>
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<td>Aromatics, Solvent naphtha, Glycol ethers</td>
<td>Aromatics, Solvent naphtha, Glycol ethers</td>
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<td>Hardness [Köng], 1d/final</td>
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<td>&gt; 120</td>
<td>&gt; 130</td>
<td>&gt; 130</td>
<td>&gt; 130</td>
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<tr>
<td>Touch dry at 23°C (approx.)</td>
<td>1 hour</td>
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<td>&lt; 1 hour</td>
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<tr>
<td>Appearance (distinction of image)</td>
<td>+</td>
<td>+/-</td>
<td>++</td>
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</table>

* EP = Experimental Product
VESTANAT® EP-E 95 and EP-E 222 are building blocks with different silane content for individual tuning of durability and flexibility of the coating. They can be used as sole binder in 1K coatings or as additive in 2K coating systems. In 2K applications they can be used as sole crosslinker for acrylic polyols or in combination with classical isocyanate crosslinkers.

VESTANAT® EP-E grades are high temperature curing adducts, the addition of the catalyst VESTANAT® EP-CAT 21 allows for room temperature curing within less than 60 minutes.

VESTANAT® EP-EF 201 is the fully catalyzed grade for ready to use 1K coating systems. Alternatively, it can be used in combination with appropriate acrylic polyols.

VESTANAT® EP-EF grades are high solid, ethoxy-silane-based crosslinkers for ultra high performance coatings. They can be used in the do-it-yourself sector and are characterized by fast drying times at ambient temperatures.

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<tr>
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<td>Solid content %</td>
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<td>96</td>
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<tr>
<td>Colour (Hazen)</td>
<td>&lt;50</td>
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<tr>
<td>Scratch resistance</td>
<td>++</td>
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<td>++</td>
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<tr>
<td>Chemical resistance</td>
<td>++</td>
<td>++</td>
<td>++</td>
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<tr>
<td>Flexibility</td>
<td>+/-</td>
<td>+</td>
<td>+/-</td>
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</table>

EP = Experimental Product
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