# FORMULATE THE FUTURE

**PRODUCT REFERENCE GUIDE**

EVONIK
Leading Beyond Chemistry

# Your formulation is our focus.

With our innovative solutions for coatings, paints, printing inks and adhesives not only do we help our customers to overcome challenges, but we also give them significant advantages to successfully grow their business.

We go beyond our own products by putting your formulation at the center of all our activities. Our experts are always curious to come up with new ideas to improve existing formulations, develop new ones and ultimately optimize the coating itself.

## Contents





# Coating Additives

The Coating Additives business line supplies its customers with optimal solutions in the paints, coatings and printing ink sectors and supports them with the production of resource-efficient coatings. The business line bundles a diverse product portfolio for the coatings industry, like additives, co-binders, matting agents, fumed silica, specialty resins and nanoresins.

| Product name | Additives |
|---|---|
| **ACEMATT®** | Precipitated and thermal silica matting agents for gloss reduction and haptic properties |
| **AERODISP®** | Dispersions based on AEROSIL® fumed silica for rheology control and pigment stabilization for waterborne coatings |
| **AEROSIL®** | Fumed silica for rheology control, pigment stabilization, free flow, reinforcement and improved corrosion resistance for solvent, waterborne, UV, and powder coatings |
| **AEROXIDE®** | Fumed aluminium oxide for powder coatings to improve free flow properties |
| **AIRASE®** | Defoamers and deaerators for waterborne applications, each formulated to provide optimum defoaming and compatibility |
| **CARBOWET®** | Effective wetting and surface tension reduction additives with varying degrees of emulsification and stabilization |
| **DYNOL™** | Superwetting surfactants for the most difficult to wet surfaces |
| **SIPERNAT®** | Synthetic amorphous silicates for replacement of $TiO_2$ and specialty silica for improvement of film properties |
| **SPHERILEX®** | Spherical amorphous precipitated silica for improving the mechanical resistance of coatings |
| **SURFYNOL®** | Range of multi-functional surfactants and defoamers including low foam dynamic wetting agents, unique molecular defoamers, and specialty surfactants |
| **TEGO® Airex** | Prevents air inclusions and pinholes in waterborne, solventborne, and radiation-curing coatings |
| **TEGO® ColorAid** | Compatibilizers to optimize incorporation of pigment concentrates in base paints |

# Coating Additives – *continued*

| Product name | Additives – *continued* |
|---|---|
| **TEGO® Dispers** | Promotes pigment wetting and stabilization and prevents floating, flooding and settling of pigments |
| **TEGO® Foamex** | Prevents foam formation in waterborne coatings and printing inks |
| **TEGO® Flow**<br>**TEGO® Glide** | Improves flow/leveling, slip and scratch resistance. Prevents cratering, pigment flooding and floatation |
| **TEGO® Humectant** | Humectant for colorants, minimized influence on coatings properties |
| **TEGO® Phobe** | Used to make hydrophobic waterborne exterior paints. Special products for other systems are available |
| **TEGO® Protect** | Anti-graffiti and easy-to-clean additives for polyurethane coatings |
| **TEGO® Rad** | Crosslinkable, acrylate additives which improve slip, substrate wetting, scratch resistance and leveling in energy-curable formulations |
| **TEGO® Twin**<br>**TEGO® Wet** | Substrate wetting and anti-cratering additives |
| **TEGO® ViscoPlus** | Polyurethane thickeners for waterborne coatings providing different rheology profiles |
| **ZETASPERSE®** | Dispersants providing effective stabilization of pigments and particles in aqueous systems |

| Product name | Specialty binders |
|---|---|
| **SILIKOFTAL®** | Silicone-polyester resins which provide heat and weathering resistance, low surface tension, low thermoplasticity, high flexibility, and good pigmentability |
| **SILIKOPHEN®** | Methyl and phenyl-methyl silicone resins which provide corrosion protection and heat stability up to 650 °C |
| **SILIKOPON®** | Silicone-epoxy hybrid resins that are the basis for isocyanate-free, air-drying, 2K anti-corrosion top coats |

| Product name | Specialty binders – *continued* |
|---|---|
| **SILIKOPUR®** | Waterborne, silicone-modified 1K polyurethane dispersion. Flexible coating resin for leather, wood, plastic, rubber, and metal |
| **SILIKOTOP®** | Low-viscosity, isocyanate-crosslinking silicone polyester resins used for corrosion protection in top coat applications |
| **TEGOMER®** | Building blocks |

| Product name | Nanoresins |
|---|---|
| **ALBIDUR®** | Silicone elastomer particles to modify coatings to improve fracture toughness and release properties without affecting the glass transition temperature of the cured formula |
| **NANOCRYL®**<br>**NANOPOL®** | Liquid silica nanocomposites for surface hardness and scratch/abrasion resistance of coatings without impairing transparency or gloss |

| Product name | Co-binders |
|---|---|
| **TEGO® AddBond** | Polyester co-binders which improve the adhesion on various substrates and corrosion resistance |
| **TEGO® VariPlus** | Widely compatible co-binders that increase solids content and accelerate touch drying while improving hardness, gloss, and film build |


**Contact**
**Coating Additives**
Phone +49 201 173-2222
coating-additives@evonik.com
www.coating-additives.com


Please scan this QR Code to find a suitable contact partner at Evonik or visit **www.coating-additives.com**

# Crosslinkers

Crosslinkers offers a wide variety of isocyanates and diamines to the coatings market to make highly functional, chemically resistant, non-yellowing urethane resins and epoxy hardeners. We also offer new, non-isocyanate based technologies as well as new innovations for the powder coatings industry.

| Product name | Applications |
|---|---|
| **VESTANAT® IPDI**<br>**VESTANAT® $H_{12}$MDI**<br>**VESTANAT® TMDI** | Aliphatic diisocyanates for PUDs, UV oligomers, prepolymers, and elastomers |
| **VESTANAT® T 1890** | 2K PUR coatings for automotive OEM; refinish, aircraft, plastic coatings etc. |
| **VESTANAT® B series** | Blocked polyisocyanates for thermosetting 1K PUR; excellent light stability and weather resistance |
| **VESTANAT® B 1186A** | Blocked polyisocyanate for thermosetting 1K PUR BPA free interior can coatings; FCN status for interior can coatings |
| **VESTANAT® EP-DS series** | Cosolvent-free aqueous dispersions of a blocked crosslinker for light-stable PUR systems |
| **VESTANAT® EP-M series**<br>**VESTANAT® EP-MF series**<br>**VESTANAT® EP-E series** | Non-isocyanate, high scratch and chemical resistant 1K and 2K coatings systems, suitable for various substrates |
| **VESTAGON® B series**<br>**VESTAGON® BF series** | PUR powder coating crosslinkers for exterior weatherable, anti-graffiti, lawn & garden, heat transfer, etc. |
| **Oxyester T series** | Flexible polyesters for 1K and 2K PUR systems; helps reduce viscosity and VOCs in refinish systems |
| **VESTAMIN® A139** | Blocked diamine; accelerator for moisture cure PUR systems |
| **VESTAMIN® IPD**<br>**VESTAMIN® TMD**<br>**VESTAMIN® PACM** | Amines to formulate epoxy hardeners for ambient and heat cure; chain extender for PUR systems |
| **VESTASOL®** | Solvents for can and coil coatings, as well as ink applications |

**The new eCO Series for reduced $CO_2$ emissions**

**VESTASOL® IP eCO**

**100% renewable carbon, mass balance**
- improves levelling and gloss
- excellent solvent power
- interlayer adhesion
- high boiling

**VESTASOL® IP eCO**

**90% renewable carbon, mass balance**
- improves levelling and gloss
- excellent solvent power
- interlayer adhesion
- high boiling

**VESTANAT® IPDI eCO**

**75% renewable carbon, mass balance**
- chemical resistance
- weatherability
- compatibility
- light stability


**Contact**
**Crosslinkers**
www.evonik.com/crosslinkers

Please scan this QR Code to find a suitable contact partner at Evonik or visit **www.evonik.com/crosslinkers-contact**

# Crosslinkers – *continued*

As the world leader in high-quality, performance-oriented epoxy curing agents and modifiers, Evonik brings formulating solutions and products with unique performance advantages to epoxy systems. Formulators look to our expansive line of products across a breadth of chemistries, along with our technical support to achieve success with their most challenging projects.

### Ancamide® Curing Agents

**Amidoamine**
Low viscosity; very good adhesion, particularly to concrete; good cure in humid conditions; modified amidoamines offer faster cure speed and improved chemical resistance
- civil engineering (flooring, concrete bonding and crack injection, tile grouts)
- high-solids coatings

**Polyamide**
Excellent corrosion resistance; good flexibility and toughness with high viscosity; long pot life and good water resistance
- solventborne, two-pack (2K) primers and finishes (marine coatings, pipe and tank coatings)

### Ancamine® Curing Agents

**Aliphatic**
High reactivity; fast cure at ambient or low temperatures; relatively moisture insensitive; good chemical/solvent resistance
- civil engineering (patch repair systems and flooring)
- high-solids coatings

**Cycloaliphatic**
Very good chemical resistance; cure at low temperatures under damp conditions; resistant to amine blush and water spotting; excellent color/color stability
- solvent free and high-solids coatings
- flooring
- chemically-resistant linings and secondary containment

### Ancarez® Waterborne Epoxy Resins

Specialty resins designed to deliver corrosion resistance when used with Evonik's waterborne curing agents (below)
- industrial coatings
- flooring

### Anquamine®, Epilink® Low/No VOC Curing Agents

Waterborne curing agents that provide low VOC and low color, and are easy to apply and clean. Products with different cure speeds for use with various types of epoxy resins
- protective and industrial concrete coatings
- steel coatings
- anti-corrosive primers

### Epodil® Reactive Diluents

Viscosity reduction for ease of application; improved pigment/filler wetting. Mono-, di-, and multifunctional diluents.
- metal coatings
- concrete coatings

### Amicure® Polycarbamide Curing Agents

Designed for use with polyisocyanate resins; deliver coatings with rapid hardness development, excellent low temperature cure, good color and UV stability and excellent surface appearance
- concrete coatings
- direct-to-metal (DTM) coatings

### Hybridur® Waterborne Polymer Dispersions

For one part (1K) systems; rapid dry; low VOC; barrier properties; durability and UV resistance
- wood coatings (e.g. gymnasium floors)
- metal coatings
- concrete coatings
- hard plastic coatings (e.g. automotive interiors)

### Contact

**Epoxy Curing Agents, Customer Service**
www.evonik.com/crosslinkers-contacts

Please scan this QR Code to find further information or visit
**www.evonik.com/crosslinkers**

# Coating & Adhesive Resins

The Coating & Adhesive Resins business line manufactures high-quality binders based on polyesters and polymethacrylates for a broad spectrum of markets and applications. It includes solutions for coil coating and food packaging applications.

In addition, the Coating & Adhesive Resins business line supplies solutions for a multitude of other industries. From polymers for hot melts, to reactive sealants and synthetic waxes, they provide specially designed products for a wide variety of adhesive & sealant applications.

### DYNAPOL®

Polyester resins designed for can coating, coil coating & flexible packaging applications

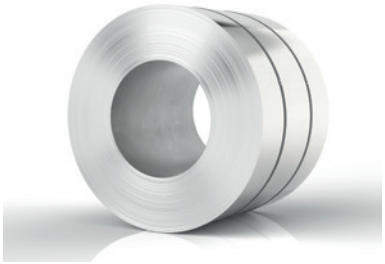
- Alternative to BPA based coatings
- High molecular weight
- High chemical resistance

### DEGACRYL® HS

Polymers for heat seal coating formulations

- Universal and secure sealing
- Transparency with anti-fog
- Recyclable PET packaging

| Product name | Applications |
|---|---|
| **POLYVEST® (Polybutadiene)** | Car doors, engine hoods, sound dampening, printing plates, defoamers, foams, printing inks, insulated glass sealants |
| **VESTOPLAST® (APAO)** | Raw material for hot melt adhesives for e.g. hygiene, automotive and woodworking applications |
| **VESTOWAX® (FT Wax)** | PVC lubricants, printing inks and coatings or as additive for hot melt formulations |
| **DYNACOLL® (Polyester)** | Bonding/lamination of car interiors; lamination for panel bonding and sandwich construction |



**Contact**
**Coating & Adhesive Resins**

Please scan this QR Code to find further information or visit
**www.evonik.com/designed-polymers**

# Specialty Methacrylates

VISIOMER® methacrylates provide a broad portfolio of Specialty Methacrylate monomers with different functionalities. In close collaboration with our customers, we develop solutions for their current and future challenges.

Our VISIOMER® product range offers alkyl and aryl methacrylates, ether and acetal methacrylates, amino methacrylates, di- and trifunctional crosslinkers and monomers for adhesion promotion.

**VISIOMER® Terra** offers sustainable building blocks with reduced carbon footprints. VISIOMER® Terra methacrylates are friendly labeled and have a biocarbon content of up to 90%.

Life-cycle analysis data are available for all our VISIOMER® Terra products, demonstrating the carbon footprint reduction throughout the entire value chain.

The VISIOMER® Terra product range is continuously extended to meet our sustainability ambitions.

| Product name | Applications |
|---|---|
| **VISIOMER® Terra IBOMA** | Has a bio content of 71%, provides scratch- and weather resistance to coatings and allows for low volatiles in solvent borne coatings. |
| **VISIOMER® Terra C17.4-MA** | Has a very high bio content of 81% and provides resins with maximum hydrophobicity and resistance against water and polar media. |
| **VISIOMER® Terra C13-MA** | Has a bio content of 76%, makes resins more hydrophobic, thereby improving resistance against water and solvents. |

**VISIOMER® methacrylates** take usability and performance of emulsion paints to a higher level. Various functionalities provide individual effects for our customers' products.

| Product name | Applications |
|---|---|
| **VISIOMER® HEMA-P** | Provides superior adhesion of both solvent- and water-borne paints to metal substrates and enhances corrosion resistance. Additionally, it acts as a polymerizable, non-migrating flame-retardant for transparent coating applications. |
| **VISIOMER® MPEG-MAs** | Provide water borne paints with excellent low temperature stability against agglomeration and ensure stable pigment dispersion. |
| **VISIOMER® MEEU** | Improves wet adhesion and wet scrub resistance of water borne paints on wood substrates in humid climate. On metal surfaces, it enhances adhesion to the substrate and corrosion resistance. |
| **VISIOMER® C18 PEG 1105 MA W** | Helps to control the viscosity of water borne paints via associative thickening and thus improves sag control and anti-settling properties. |


**Contact**
**Specialty Methacrylates**
visiomer@evonik.com


Please scan this QR Code to find a suitable contact partner at Evonik or visit **www.visiomer.com**

# Performance Intermediates

Performance Intermediates offers a broad range of high-quality ingredients and additives which are also used for the paints and coatings industry.

| Product name | Applications |
|---|---|
| **1,3-Butadiene** | 1.3-Butadiene is used for the production of copolymers and styrene butadiene latex (SBL) for the paint industry as well as for the production of high solid styrene butadiene rubber (HSSBR), liquid polybutadiene (LPBD) and nitrile butadiene rubber (NBR) for the coatings industry |
| **2-Propylheptanol** | 2-Propylheptanol (2-PH) is used in the production of 2-Propylheptacyrlate, which may be used for the manufacture of coatings |
| **DRIVOSOL®** | The DRIVOSOL® product family is used as a propellant in paint aerosols with various mixing ratios of the components n-Butane, Iso-Butane and Propane. The mixing ratio can individually be adapted to your requirements by flexible pressure settings in a range from 1.2 to 7.8 bar. Create your individual mix with our DRIVOSOL® Tuner: drivosol-tuner.evonik.com |
| **ELATUR® CH** | Diisononyl-cyclohexanoate (DINCH) is a plasticizer used for the manufacture of coatings, inks and colors |
| **ELATUR® DPT** | ELATUR® DPT (di(iso)-pentyl- terephthalate) is a new fast fuser for special PVC applications, like coatings flooring, wall coverings and films. It is especially effective when used in combination with ELATUR® CH |
| **Isotridecyl alcohol** | Isotridecyl alcohol (ITDA) can be used as and for the production of specialty solvents as well as specialty resins for coatings & inks |
| **Tertiary-Butanol** | Tertiary-Butanol (TBA) is offered in different qualities (pure and azeotrope) and is used in the production of hydroxyethyl cellulose, which is a thickener for dispersions, film-building agent for distempers and the main component of wallpaper paste |
| **VESTINOL® 9** | Diisononyl-phthalate (DINP), an INA-based plasticizer, used for the manufacture of coatings, inks and colors |

**Contact**
**Performance Intermediates**
c4-chemicals@evonik.com
**www.evonik.com/c4-chemicals**

# Functional Silanes

Dynasylan® functional silanes are used as additives in coating formulations to boost adhesion, improve weathering and durability, and also change the surface properties of the coating. Our proprietary technologies include low VOC multi-functional oligomeric silanes, water-borne HYDROSIL series, ethyl polysilicate SILBOND® binders, stain repellent F-series and heavy metal-free corrosion protection SIVO® solgel binders. Dynasylan® is the solution for your next cutting-edge idea. Protectosil® products provide long-term protection for mineral-based substrates and are well-known as hydro- and oleophobizing agents, preventing corrosion, graffiti and other surface damaging effects.

| Product name | Applications |
|---|---|
| **Dynasylan®** | Adhesion promotion, crosslinking, surface modification |
| **Dynasylan® GLYEO** | Adhesion promotion for water-based coating systems |
| **Dynasylan® HYDROSIL** | Waterborne, adhesion promotion |
| **Dynasylan® SIVO®** | Cr-VI-free corrosion protection |
| **Dynasylan® SILBOND®** | Binder for inorganic zinc rich coatings, inorganic zinc rich paints |
| **Protectosil®** | Water repellents , graffiti control, corrosion control (admixed and surface applied) and surface protection (easy-to-clean) |


**Contact**
**Functional Silanes**
Phone +49 6181 59-13226
dynasylan@evonik.com
silanes@evonik.com
protectosil@evonik.com


Please scan these QR Codes to find a suitable contact partner at Evonik or visit **www.dynasylan.com** and **www.protectosil.com**

## High Performance Polymers

VESTOSINT® and VESTAMELT® bring structure to coatings. Our polyamide 12 powders transform drab surfaces into decorative or functional structured elements. Surfaces treated with coatings which are formulated with VESTAMELT® or VESTOSINT® additives have high flexural strength and elasticity and excellent abrasion resistance. Our VESTAKEEP® brand of PEEK (Polyether ether ketone) powders deliver high performance coatings, offering high temperature performance, strength, durability, and excellent wear resistance.

| Product name | Applications |
|---|---|
| **VESTOSINT®** | Coating of metal, coil coating, textured paints, wood paints, packaging foils, rubber surfaces |
| **VESTAMELT®** | Coil coating, textured paints |
| **VESTAKEEP®** | Coating of metal (electrostatic spraying, flame spraying), dispersion coating, tribological coating |

**Contact**
**High Performance Polymers**
evonik-hp@evonik.com
**www.vestosint.com**
**www.vestakeep.com**



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**EVONIK INDUSTRIES AG**
Rellinghauser Straße 1–11
45128 Essen
Germany
**www.evonik.com**
**www.evonik.com/coatings**





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