



Direct-To-Metal coating resins & additives

Waterborne DTM resin solutions.

Eliminating the primer coating of metal surfaces by using **Direct-to-Metal (DTM)** coatings is an excellent way to simplify the painting process.



VARENA DTM SOLUTIONS

Direct-To-Metal WB coating resins portfolio



Direct-to-metal coating resins: Whatever you need, we have it covered

Find a great solution for formulating coatings with our family of direct-to-metal (DTM) resins.

DTM coatings combine the physical characteristics of a topcoat system and a primer in one layer, saving time and money on the application process, while waterborne technology offers a lower VOC profile.

Explore our range of solutions

Different resins, for different needs

With our balanced resin portfolio, we offer the broadest and most comprehensive selection of [water-borne DTM](#) component solutions anywhere on the marketplace.

Whatever your application, whatever your need, we have it covered.

Each product has its own set of material properties and value-added qualities, so that, with **VARENA CHEMICAL**, you will always find the answers you need. For paint manufacturers, the time to capture this opportunity is now. It starts with having the right building blocks – coating resins with finely tuned performance properties that support the requirements of specific coating applications. Leveraging our deep technical knowledge, developed over many decades of experience in producing high-quality coating resins, **VARENA CHEMICAL** brings customers our family of highperformance resins – more specially targeted solutions, each with its own unique blend of qualities and application uses. If you are looking for a one-stop shop for [DTM Coating Resins](#), you've come to the right place.



One-coat corrosion protection with high performance and low environmental impact.

Rusting is an electrochemical process, so that needs to be taken into account.

Our emulsion resins are designed to have a cleaner water phase with fewer ionic species.

Introducing our DTM portfolio:

- [VaraMul AE 1120](#)
- [VaraMul AE 1116](#)
- [VaraSol AZ 576 W](#)
- [VaraSol E 230 W](#)
- [VaraSol AZ 467 W](#)
- [VaraSol AZ 554 W](#)
- [VaraMul AE 1137](#)
- [VaraMul AE 1135](#)
- [VaraMul XK-4498](#)
- [VaraMul AE 1340](#)
- [VaraMul LDM 414](#)
- [VaraMul AE 1120](#)
- [VaraProtect PR 890 W](#)



VaraSol AZ 576 W

VaraSol AZ 576 W is a xylene-free medium-oil alkyd emulsion based on soya bean fatty acids. The unique formulation of this high-performance resin produces a high gloss level, making it the perfect choice for customers who are aiming to produce great-looking coatings with a shiny, glossy finish. Offering the lowest VOC levels of any product in our DTM portfolio, **VaraSol AZ 576 W** is also the ideal choice for internal metal substrates, while also providing the blocking resistance and durability required for external applications, including corrosion-resistant paint and coating solutions. So, for glossy coatings that shine brightly but also protect, you know who's boss.

VaraSol AZ 230 W

VaraSol E 230 W is a xylene-free short-oil alkyd emulsion. **VaraSol E 230 W** is mainly used for the production of water thinnable anticorrosive primers and high gloss pigmented topcoats with good gloss stability and extremely low VOC. Due to the fast physical and oxidative drying properties siccatives are not always necessary.

If a better crosslinking is required the use of a drier like Octa-Soligen Co 7 aqua is recommendable.

VaraSol E 230 W is shear stable.



VaraSol AZ 467 W

VaraSol AZ 467 W is a special modified, air drying alkyd resin which is supplied fully neutralized.

VaraSol AZ 467 W is used for the formulation of air drying anticorrosive primers. Initial and through-drying can be speed up by using it together with a styrene-butadien-polymer e.g. **VaraTon 100**.

Beside reduction of VOC-levels this combination shows structural viscosity which allows high film thickness with low tendency to sagging.

New developments in waterborne direct-to-metal coatings make them perform better while generating fewer VOCs



VaraSol AZ 554 W

[VaraSol AZ 554 W](#) is a medium oil alkyd emulsion based on soybean fatty acids for decorative and industrial applications.

Suitable for a range of interior and exterior applications including primers and topcoats on wood and metal including corrosion resistant primers. [VaraSol AZ 554 W](#) provides high gloss, yellowing resistance, sprayability and outdoor durability.

The drying properties of [VaraSol AZ 554 W](#) make it especially suitable for fast drying decorative and protective primers.



VaraMul LDM 414

The latest addition to our DTM resin family, [VaraMul LDM 414](#) is a waterborne high solid styrene acrylic emulsion, specifically developed for use in DTM coatings. With its unique solid content level (51%), this high-performance solution delivers an exceptional body and a high gloss level, as well as outstanding anti-corrosion and anti-humidity properties. What's more, [VaraMul LDM 414](#) comes with strong adhesion qualities, a high film build, and excellent hot-box and shear stability. It is easy to formulate, enabling production of a wide range of DTM coating applications.

It is particularly well suited to highbuild exterior and interior coatings where both high corrosion resistance and a strong, glossy appearance are required. If you're looking for the perfect building block for your coating solution, [VaraMul LDM 414](#) could be just the full-bodied solution you need.



VaraMul AE 1135

Topcoats on metal, wood, plastics (PS, ABS), also for temporary anti-corrosive primers on metal, can be combined with water-thinnable alkyd resins.

VaraMul AE 1158

VaraMul AE 1158 is acrylic emulsion polymer for direct to metal (DTM) paints and anticorrosive primers. **VaraMul AE 1158** is self-crosslinking styrene modified acrylic emulsion for primers with excellent results in corrosion protection.

VaraMul AE 1158 can be used universally to formulate waterborne direct to metal (DTM) paints and anticorrosive primers. It shows excellent adhesion to

VaraMul AE 1340

VaraMul AE 1340 is an acrylic styrene copolymer emulsion that supports a wide variety of coating applications.

VaraMul AE 1340 is self-crosslinking super hydrophobic acrylic dispersion for anti-corrosive paints, stain locking, and adhesion promoted two phase acrylic dispersion with low MFFT combined with high surface hardness, less VOC demand in formulations, fast drying and high blocking resistance, high level of elasticity and fast sandability.

VaraMul AE 1137

Styrene acrylic emulsion, VOCs, or volatile organic compounds, are common in many paints and cleaning products, and they have been scrutinized for causing short- and long-term health effects. Allround emulsion for topcoats on plastic, metal, wood and for corrosion inhibiting primers with very good adhesion on steel and low water absorption. Outstanding properties are the low water absorption and very good adhesion on steel. Therefore **VaraMul AE 1137** can be used also for anticorrosive primers.

VaraMul AE 1120

VaraMul AE 1120 is an acrylic styrene copolymer emulsion that supports a wide variety of coating applications.

VaraMul AE 1120 has excellent adhesion on blanc and zincd steel. Excellent weather stability. Due to its excellent weather resistance **VaraMul AE 1120** can be used for the production of rust inhibitive primers on metal.

Corrosion inhibiting primers on different metals (e.g. iron, aluminium), wood with weather resistance.





VaraMul XK 4498

VaraMul XK 4498 is an pur acrylic copolymer emulsion that supports a wide variety of coating applications.

VaraMul XK 4498 is self-crosslinking pure core-shell dispersion that incorporates excellent block and alkaline resistance and extraordinary wet adhesion with minimal water absorption.

The product displays early water resistance and very good weathering, as well as a non-yellowing elastic film. This emulsion shows excellent adhesion to difficult substrates such as metals and plastics. This emulsion is APEO free.

VaraMul AE 1116

VaraMul AE 1116 is a pur acrylic copolymer emulsion that supports a wide variety of coating applications.

VaraMul AE 1116 is a high solid acrylic dispersion for the formulation of high gloss emulsion paints for the production of very easy processable and DIY lacquer-systems. The outstanding characteristic of this binder is the high block resistance which is usually demanded for window- and door-application etc. Wood glazings can be created totally without solvents, pigmented top coats need for the support of the film formation and for the improve of the flow small parts of high-boiling solvents.

VaraMul DTM 417

VaraMul DTM 417 is a styrene acrylic modified emulsion polymer, suitable for coatings which require high corrosion and humidity resistance providing good adhesion to various metal substrates.

Lower environmental impact

The balanced hydrophobicity and chemical functionality of the resin allows for excellent resistance while still enabling ease of formulation and superior adhesion on a variety of substrates, including plastic.

One-coat corrosion protection with high performance and low environmental impact.

VaraSol; Alkyd emulsion resins, alkyd-urethane emulsion, water-thinnable

Type	Oil [%]	Acid value [mgKOH/g]	pH value	Viscosity, [mPa.s]/ 20°C	Flow time 20°C [s]	Supply Form [%]	Main uses and characteristics
AZ 230 W	33	15-20	7.5-8.5	max. 10.000	-	42 in water	Short-oil alkyd emulsion for (drier- free based) anticorrosive primers and topcoats.
AZ 467	30	35-45	-	-	-	60 in water / BG / sec.butanol	Air-drying and low bake industrial primers and topcoats, very fast drying, excellent corrosion resistance.
AZ 554	40	-	5.5-7.5	100 – 600	-	50 in water	Interior / exterior primers and topcoats for wood and metals, primers and topcoats for Joinery application and corrosion resistant primers.
AZ 576	40	-	7.0-9.0	100 – 1.000	-	53 in water	Interior / exterior primers and topcoats for metals, primers and topcoats for Joinery application and corrosion resistant primers.

VaraMul; Acrylic resins, water-based dispersions, solutions

Product	Monomer	Supply Form [%]	pH value	MFFT [C°]	Viscosity [mPa.s]/20°C	Main uses and characteristics
AE 1137	Styrene acrylic emulsion	42 in water	7.5-8.5	28	max. 200	Allround emulsion for topcoats on plastic, metal, wood and for corrosion inhibiting primers with very good adhesion on steel and low water absorption.
AE 1135	Styrene acrylic emulsion	42 in water	7.5-8.5	39	max. 1000	Topcoats on metal, wood, plastics (PS, ABS), also for temporary anti-corrosive primers on metal, can be combined with waterborne alkyd resins.
XK-4498	Pure acrylic dispersion	45 in water	7.0-8.5	<1	max. 500	Self-crosslinking pure core-shell dispersion that incorporates excellent block and alkaline resistance and extraordinary wet adhesion with minimal water absorption. The product displays early water resistance and very good weathering, as well as a non-yellowing elastic film. This emulsion shows excellent adhesion to difficult substrates such as metals and plastics. This emulsion is APEO free.
AE 1340	A super hydrophobic acrylic dispersion	47 in water	7.0-8.0	16	700 – 3.000	Self-crosslinking super hydrophobic acrylic dispersion for anti-corrosive paints, stain locking, and adhesion promoted two phase acrylic dispersion with low MFFT combined with high surface hardness, less VOC demand in formulations, fast drying and high blocking resistance, high level of elasticity and fast sandability.
LDM 414	Non-plasticized aqueous copolymer dispersion	50 in water	8.0-9.0	15	500 – 3.500	Copolymer dispersion based on acrylic and methacrylic acid esters. LDM 414 is especially designed as a binder for high-quality exterior coatings with excellent adhesion properties, for example on old alkyd coatings or zinc plates. The special adhesion and cross-linking system of LDM 414 give rise to outstanding wet adhesion in addition to low dirt-pickup.
AE 1120	Styrene acrylic emulsion	49 in water	8.2-9.0	15	200-800	Corrosion inhibiting primers on different metals (e.g. iron, aluminium), wood with weather resistance.
AE 1158	Styrene acrylic emulsion	49 in water	7.0-8.0	5	max. 500	Self-crosslinking styrene modified acrylic emulsion for primers with excellent results in corrosion protection.
AE 1116	Pure acrylic dispersion	55 in water	7.0-8.0	0	max. 500	A high solid acrylic dispersion for the formulation of high gloss emulsion paints for the production of very easy processable and DIY lacquer-systems and also TDM.
DMT 417	Styrene acrylic emulsion	50 in water	7.5 +-8.0	28	Max. 500	Styrene acrylic emulsion especially designed for Direct To Metal applications. Suitable for coatings which require high corrosion and humidity resistance providing good adhesion to various metal substrates

FLAMEPROTECT

The Tough Environment Tackler

VaraProtect PR 890 W

Fire retardants that are halogen-free

BUT FULL OF FIRE-STOPPING POWER

Water based acrylic copolymer, specialty developed as all-in-one adhesion promoter, corrosion inhibitor and reactive halogen free flame retardant for metal, wood, glass, minerals and composites.

Our **VaraProtect PR 890 W** solution is a fast-drying, nonflammable acrylic copolymer resin with a high solid content. Offering outstanding resistance to corrosion, humidity and gasoline, as well as salt spray and bacterial growth, this high-strength resin enables coatings to withstand tough environments and harsh climates, providing a formidable barrier against water vapor, oxygen and carbon dioxide. These unique resistance qualities make **VaraProtect PR 890 W** the DTM resin of choice for chassis parts and other essential internal and external product applications where durability and performance outweigh gloss and finish quality. If you're tackling corrosion and tough environments, **VaraProtect PR 890 W** is the product you want by your side.

VaraProtect PR
VaraProtect SIL
ACRYLIC EMULSIONS COPOLYMER



FireProtect PR 890

Water based acrylic copolymer, specialty developed as all-in-one adhesion promoter, corrosion inhibitor and reactive halogen free flame retardant.

APPLICATION:

General Industry:

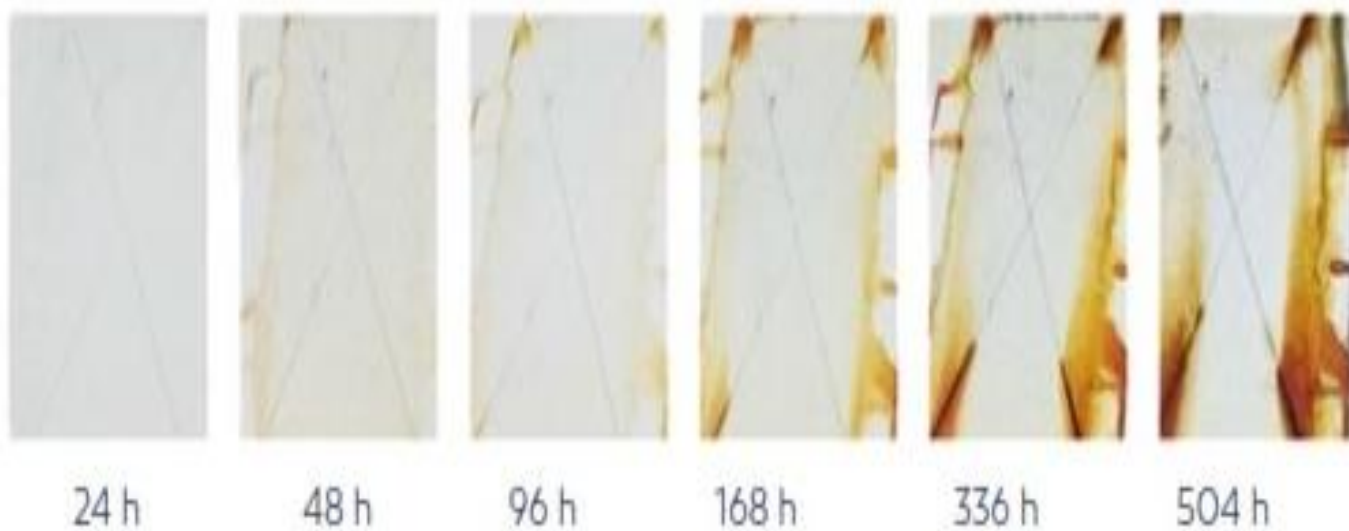
- metal, wood, glass, minerals and composites

PRINCIPAL PROPERTIES:

excellent adhesion
excellent weather stability, corrosion resistance
excellent flame retardant
excellent flexibility

Property	Range	Unit	TM
Color, APHA	0 - 100	.	DIN ISO 4630
Viscosity / 20 °C Brookfield	< 300	mPa.s	DIN EN ISO 2555
Solid content	38 ± 1	%	DIN EN ISO 3251
pH value	6.5 – 7.		
Density, 20 °C	Approx. 1,09	g/cm ³	DIN EN ISO 2811

Delivery form: 39 % in water



SYNTHORA CorroProtect; Rust inhibitor

Product	Chemical characteristic	Highlighted application/Effect	Active substance [%]	Use level [%] (on total formulation)
TR 456	Organic salts and morpholine derivate	VOC- and nitrite-free, for all waterborne DTM systems incl. 1K/2K PUR	30	0.5 – 2.0
TR 458	Organic salts	VOC- and nitrite-free, preferably for polymer-emulsion-based DTM systems	38	0.5 – 2.0
TR 790	Epoxy phosphate ester	Used as additive for waterborne stoving enamels.	72	5-15
TR 800	Epoxy phosphate ester	Used as additive for waterborne stoving enamels.	73	5-15





Markets & Applications

From construction to flexible packaging, furniture and wood coatings, printing inks to vehicles and automotive paints, decorative paints, plastic coatings and from consumer goods to general industrial applications such as ACE, our sustainable resins are proven performers - as is the knowledgeable team behind them.



INNOVATIVE TECHNOLOGIES FOR RESINS & ADDITIVES
DR. IRANKHAHI CHEMICAL COMPANY