

Leading Innovation. Trusted Performance.  
Environmentally Friendly

# ADVANCED ALKYD EMULSIONS

High-Performance Solutions for Sustainable Paints & Coatings



# The Power of PU Modification – Advanced Performance Through Internal Emulsification

VaraSol U (PU) modification with internal emulsification. Hydroxy-functional alkyd resins react with diisocyanates to create a robust, high-molecular-weight polymer network (see Figure 1). By permanently integrating hydrophilic groups into the polymer structure, the system achieves excellent dispersion stability without relying on external emulsifiers. The absence of free surfactants enhances water resistance and contributes to superior long-term coating performance.

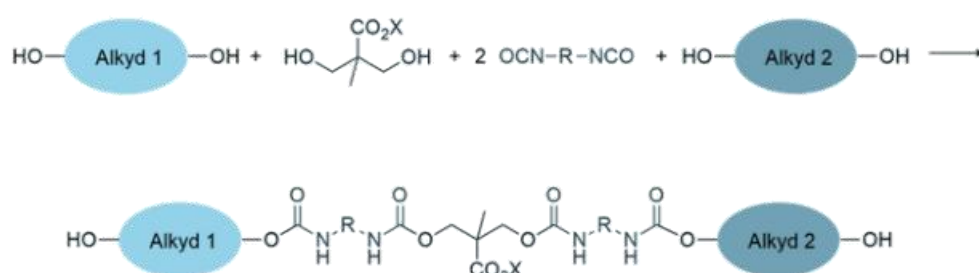


Fig. 1: Chemical reaction for the production of a PU-modified alkyd emulsion

**This unique polymer structure delivers several key advantages:**

- High molecular weight, enabling performance characteristics typically associated with solventborne systems
- Outstanding shear stability, ensuring reliable processing in dissolvers and even bead mills
- Rapid film formation with fast hardness development, early water resistance, and excellent blocking resistance



PU-modified alkyd emulsions for high-performance coating systems

# VaraSol

## The Modular Binder System – Tailor-Made Solutions for Diverse Requirements

The VaraSol PU Series has been developed as a modular performance platform. Depending on the formulation target, products can be selectively chosen and combined to precisely tailor the desired performance profile.

### Three Key Application Areas

- Wood coatings for windows, doors, exterior woodwork, and premium furniture finishes
- Architectural coatings for interior and exterior applications, including demanding renovation systems
- Industrial coatings for metal, machinery, automotive, and general industrial applications

Our [VaraSol](#) portfolio of water-borne alkyds includes resins for primers, stains, and topcoats, including corrosion-resistant primers. These resins are suitable for wood and metal interior and exterior applications. They deliver excellent penetration, substrate wetting, adhesion, drying speeds, and outdoor durability.

Alkyd emulsions with excellent property profiles for various applications, with a renewable raw material content of 40% and without the addition of co-solvents or amines.

Are you looking for an alkyd emulsion for topcoats, air drying decorative items, home and DIY paints or wood preservative glazes?

Our [VaraSol PU 250 W](#) for fast air and forced drying systems offers many advantages and areas of application:

- High gloss top coats are available
- Good outdoor resistance
- The color shows good gloss stability after storage

**Good to Know:** It shows good compatibility with many alkyd resins that can be diluted with water and acrylic dispersions.

## Performance that sets the standard The all-rounder: VaraSol PU 250 W

VaraSol PU 250 W is the versatile all-rounder for high-quality coating formulations. The product combines the classic appearance of an alkyd resin with the drying speed of modern systems.



Amin and co-solvent free, external alkyd emulsified resin

The development of hardness can be specifically influenced by selecting suitable siccatives (see Diagram 1).

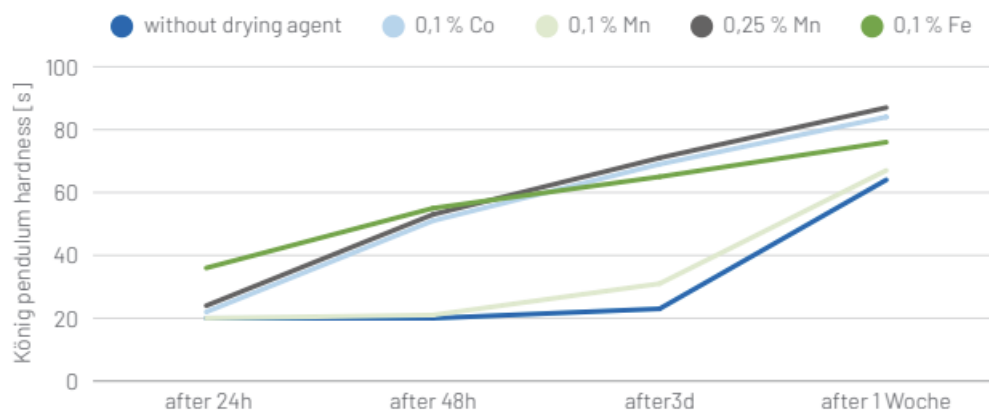


Diagram 1: Hardness development of VaraSol E 250 W with various siccatives

# VaraSol PU 250 W

VaraSol PU 250 W is a medium PU modified alkyd emulsion without organic solvents designed for yellowing-resistant top coats and onecoat paints for industrial application (air and forced drying) on wood, steel and aluminum with excellent gloss retention and elasticity. This resin contains no emulsifiers and may be thinned with water at all ratios. Coating systems based on VaraSol PU 250 W exhibit very rapid physical drying.

## Technical Data:

|                                 | Value        | Unit     | Test Method     |
|---------------------------------|--------------|----------|-----------------|
| Non-volatile content, 1h/125 °C | 40 ± 1       | %        | DIN EN ISO 3251 |
| Viscosity, Rheometer, 20 °C     | 50 – 1.000   | mPa.s    | DIN EN ISO 2555 |
| pH-value                        | 7.0 – 8.0    | -        | DIN ISO 976     |
| Oil content                     | approx. 44   | %        | -               |
| Acid value, on solids           | max. 30      | mg KOH/g | DIN EN ISO 3682 |
| Delivery form                   | 40% in water |          |                 |

## Application and Properties:

VaraSol PU 250 W is mainly suitable for the manufacture of fast air and forced drying systems. Topcoats with high gloss, excellent hardness and very good water resistance can be formulated. Furthermore a good outdoor resistance should be mentioned. Paints based on VaraSol PU 250 W show good gloss stability after storage.

Further application fields for VaraSol PU 250 W are air drying decorative, house and DIY-paints as well as wood protective glazings.

VaraSol PU 250 W shows good compatibility with many water thinnable alkyd resins and acrylic dispersions. Of course, a thorough compatibility test should be done.



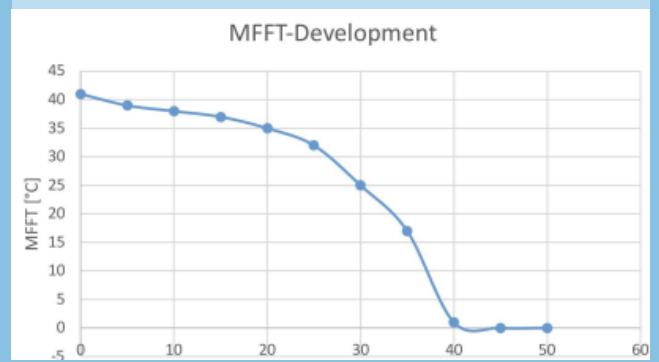


## VaraSol PU 253 W

Medium oil modified PU alkyd emulsion

**A medium oil modified PU alkyd emulsion**, the perfect product for the manufacture of airdrying water thinnable paint systems for metal and wood.

Our VaraSol PU 253 W is the perfect product for the manufacture of airdrying water thinnable paints. It is mainly used on paint systems for wood and metal and also shows good compatibility with acrylic resins, e.g. VaraMul AE 1110.



# VaraSol PU 253 W

VaraSol PU 253 W is a medium oil modified PU alkyd emulsion for the manufacture of air-drying water thinnable paint systems.

## Technical Data:

|                                 | Value                             | Unit              | Test Method       |
|---------------------------------|-----------------------------------|-------------------|-------------------|
| Non-volatile content, 1h/125 °C | 30 ± 1                            | %                 | DIN EN ISO 3251   |
| Viscosity, Rheometer, 20 °C     | max. 10.000                       | mPa.s             | DIN EN ISO 2555   |
| pH-value                        | 7.0 – 8.5                         | -                 | DIN ISO 976       |
| Oil content                     | approx. 53                        | %                 | -                 |
| Acid value, on solids           | 38                                | mg KOH/g          | DIN EN ISO 3682   |
| Density, 20 °C                  | 1.05                              | g/cm <sup>3</sup> | DIN EN ISO 2811-1 |
| Appearance                      | milky to slightly turbid emulsion |                   |                   |
| Delivery form                   | 30% in water                      |                   |                   |

## Application and Properties:

VaraSol PU 253 W is mainly used for the production of water dilutable fast drying paint systems for wood and metal.

Due to the fast physically and oxidative drying cobalt drier is not necessary in many cases. Varnishes based on VaraSol PU 253 W show a good wood firing, good water- and chemical resistance and high abrasion resistance.

VaraSol PU 253 W is well compatible with acrylic resin emulsion, e.g. VaraMul AE 1110, it can completely replace film-forming agents and thus significantly reduce the VOC content. Furthermore, the binder mixture has a positive effect on the drying speed.

|                                        |                        | VARAMUL AE 1110                                | VARASOL PU 253 W             |
|----------------------------------------|------------------------|------------------------------------------------|------------------------------|
| VOC                                    | < 1 g/L                |                                                |                              |
| MFFT, Minimum film forming temperature | < 1°C                  |                                                |                              |
| Viscosity                              | 6.300 mPas             | Self-crosslinking acrylic copolymer dispersion | Medium oil PU alkyd emulsion |
| pH-value                               | 7,8                    |                                                |                              |
| Pendulum hardness 1W RT                | 48 s                   |                                                |                              |
| Gloss 60°/85°                          | 13 GE / 27 GE          |                                                |                              |
| Chalk on glass 120µm                   | well writeable         |                                                |                              |
| Wipe away on glass 120µm               | yes, minimally visible | 45% in water                                   | 30% in water                 |
| Chalk on cardboard 2 x 120µm           | yes                    | max. 500 mPas                                  | max. 10.000 mPas             |
| Wipe away on cardboard 2 x 120µm       | 14 min                 | 8,0 – 9,0                                      | 7,0 – 8,0                    |
| TG 4                                   | < 1h                   | MFFT                                           | 39°C                         |
| GT steel / aluminium                   | 0 / 3                  |                                                | ---                          |
| Wet abrasion resistance                | class 2                | TG                                             | 45°C                         |
|                                        |                        | Acid value                                     | ---                          |
|                                        |                        | Oil content                                    | ---                          |
|                                        |                        |                                                | max. 38                      |
|                                        |                        |                                                | approx. 53%                  |

The urethanised alkyd resin emulsion shows better adhesion properties, but has a slower hardness development.

# VaraSol PUD 227 W

Solvent free polyurethane dispersion PUD; modified with fatty acids. Used for the production of water thinnable lacquers for wood. Offers very good through drying and hardness.

## Technical Data:

|                                 | Value        | Unit              | Test Method       |
|---------------------------------|--------------|-------------------|-------------------|
| Non-volatile content, 1h/125 °C | 40 ± 2       | %                 | DIN EN ISO 3251   |
| Viscosity, Rheometer, 20 °C     | max. 10.000  | mPa.s             | DIN EN ISO 2555   |
| pH-value                        | 7.0 – 8.0    | -                 | DIN ISO 976       |
| Oil content                     | approx. 27   | %                 | -                 |
| Acid value, on solids           | max. 30      | mg KOH/g          | DIN EN ISO 3682   |
| Density, 20 °C                  | 1.04         | g/cm <sup>3</sup> | DIN EN ISO 2811-1 |
| Appearance                      | milky fluid  |                   |                   |
| Delivery form                   | 40% in water |                   |                   |

## Application and Properties:

VaraSol PUD 227 W is mainly used for the production of water thinnable lacquers for wood with excellent through drying and hardness even without the addition of Co-drier.

Polyurethane dispersions PUD; for high-quality coating applications



# VaraSol E 230 W

VaraSol E 230 W is a short oil modified PU alkyd emulsion for the manufacture of air drying water thinnable paint systems.

## Technical Data:

|                                 | Value          | Unit              | Test Method       |
|---------------------------------|----------------|-------------------|-------------------|
| Non-volatile content, 1h/125 °C | 42 ± 2         | %                 | DIN EN ISO 3251   |
| Viscosity, Rheometer, 20 °C     | max. 10.000    | mPa.s             | DIN EN ISO 2555   |
| pH-value                        | 7.5 – 8.5      | -                 | DIN ISO 976       |
| Oil content                     | approx. 33     | %                 | -                 |
| Acid value, on solids           | 15 - 20        | mg KOH/g          | DIN EN ISO 3682   |
| Density, 20 °C                  | 1.046          | g/cm <sup>3</sup> | DIN EN ISO 2811-1 |
| Appearance                      | clear - opaque |                   |                   |
| Delivery form                   | 42% in water   |                   |                   |

## Application and Properties:

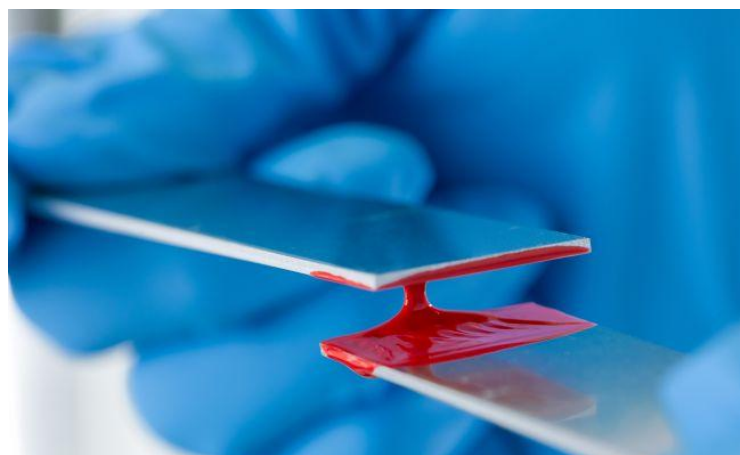
VaraSol E 230 W is mainly used for the production of water thinnable anticorrosive primers and high gloss pigmented topcoats with good gloss stability and extremely low VOC. VaraSol E 230 W is engineered to deliver outstanding corrosion protection and is particularly well suited for direct-to-metal (DTM) topcoats as well as high-performance primer formulations.

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.



### Metal anticorrosion primer

- Adhesion: steel: GT 0-1
- Salt spray resistance: approx. 240h
- Dust free time: approx. 20 min
- Tack free time: approx. 2h



A special type is VaraSol E 230 W, which is particularly suitable for corrosion protection primers, but also for glossy topcoats. The oxidative hardening of the fatty acids it contains leads to good mechanical and chemical resistance; this is further enhanced by internal emulsification. The linseed oil fatty acid used is particularly suitable for corrosion protection due to its high iodine value. In addition, it emphasises the grain when coating wood and thereby leads to a great look, which further broadens the field of possible applications (see Fig. 1).

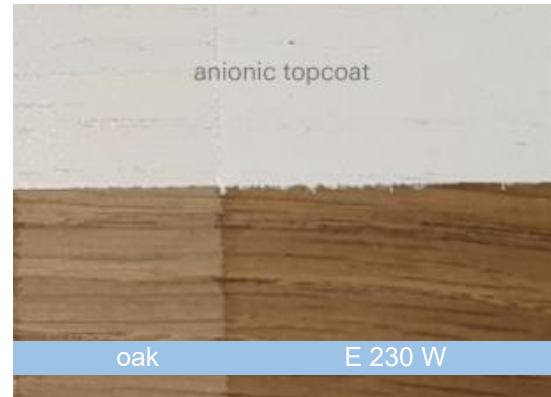


Figure. 1

Urethanisation further increases the resistance of the coating, ensures fast drying and higher hardness, and thus enables the use of VaraSol E 230 W in corrosion protection primers without the use of siccatives. If necessary, cross-linking, which also leads to faster pendulum hardness development, can be accelerated with a small amount of iron siccative (e.g. Borch® OXY-Coat 1101).

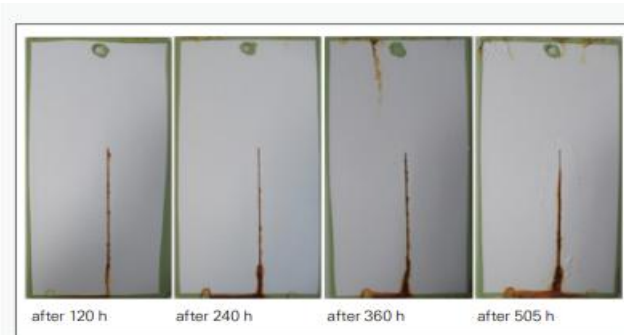


Figure 2: Results after exposure in the salt spray test



Figure 3: Orange high-gloss topcoat RR 3.3894-06 on steel

VaraSol E 230 W  
PU-Alkyd Emulsion

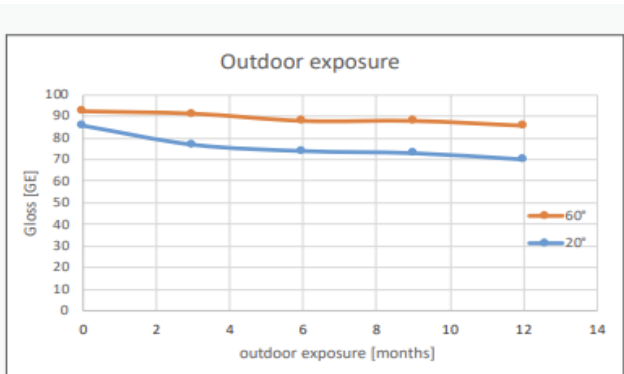


Figure 4: Gloss development during outdoor weathering of RR 3.3894-06 on steel

Optimum corrosion protection  
primer and aesthetic topcoat

# VaraSol AZ 247 W

VaraSol AZ 247 W is a long-oil, amine and co-solvent free alkyd emulsion.

## Technical Data:

|                                 | Value               | Unit              | Test Method       |
|---------------------------------|---------------------|-------------------|-------------------|
| Non-volatile content, 1h/125 °C | 60 ± 2              | %                 | DIN EN ISO 3251   |
| Viscosity, Rheometer, 20 °C     | max. 1.500          | mPa.s             | DIN EN ISO 2555   |
| pH-value                        | < 7                 | -                 | DIN ISO 976       |
| Oil content                     | approx. 74          | %                 | -                 |
| Acid value, on solids           | max. 30             | mg KOH/g          | DIN EN ISO 3682   |
| Density, 20 °C                  | 1.013               | g/cm <sup>3</sup> | DIN EN ISO 2811-1 |
| Appearance                      | white, milky liquid |                   |                   |
| Delivery form                   | 60% in water        |                   |                   |

## Application and Properties:

VaraSol AZ 247 W is suitable for the manufacture of wood impregnations and glazings. A further application field for VaraSol AZ 247 W is open time and body improvement of decorative and house paints based on VaraSol PU 250 W by addition of 3 - 10% on total formulation.



Copolymer emulsions based on **VaraSol** are the preferred binders for wood stains, wood impregnating varnishes and wood care like teak oil. The extreme low viscosity of the base resin exhibits excellent wetting and colour enhancement of the wood fibers. Open pore varnishes systems based on **VaraSol** products feature an outstanding penetration behavior, good stability and water resistance.

# VaraSol AZ 337 W

VaraSol AZ 337 W is a modified linseed oil polymer. It is readily reducible with water for formulating exterior stains and wood impregnations.

## Technical Data:

|                                 | Value                              | Unit              | Test Method       |
|---------------------------------|------------------------------------|-------------------|-------------------|
| Non-volatile content, 1h/125 °C | 59 ± 2                             | %                 | DIN EN ISO 3251   |
| Colour, Gardner, delivery form  | max. 15                            | -                 | DIN ISO 4630      |
| Viscosity, Rheometer, 20 °C     | approx. 230                        | s                 | DIN 53211-4       |
| Appearance                      | slightly turbid to clear solution  |                   |                   |
| pH-value, 59% solution in water | 7.5 – 8.5                          | -                 | DIN ISO 976       |
| Acid value, on solids           | 55 - 80                            | mg KOH/g          | DIN EN ISO 3682   |
| Density, 20 °C                  | 0.998                              | g/cm <sup>3</sup> | DIN EN ISO 2811-1 |
| Delivery form                   | 59 % in water / butyl glycol 80:20 |                   |                   |

## Application and Properties:

VaraSol AZ 337 W is a unique resin for the manufacture of water thinnable clear wood impregnations, pigmented and transparent stains and wood care oils. It shows extremely good penetration into the wood, excellent durability, easy application, no nailhead rusting, good chalk binding and long term elasticity.

The storage stability is even with low solid content very good. Pigments, extenders and matting agents can be dispersed on all common aggregates. The pH-value of formulations based on VaraSol AZ 337 W should be between 8.2 - 8.5 so that the optimum stability is guaranteed. Ammonia is recommended as neutralization agent. As driers cobalt and manganese, have proved to be suitable. Nuodex WEB Co 8% has proven itself as a dryer.



## VaraSol AZ 337 W

Alkyd emulsion with good sanding, excellent for wood coatings.

Beautiful Wood. Expertly Restored. Made to Last.

# VaraSol AZ 307

VaraSol AZ 307 is an air drying, high solid, water thinnable special fatty acid based alkyd, which will be water thinnable after neutralization with ammonia or amines.

## Technical Data:

|                                 | Value                                  | Unit              | Test Method       |
|---------------------------------|----------------------------------------|-------------------|-------------------|
| Non-volatile content, 1h/125 °C | 75 ± 2                                 | %                 | DIN EN ISO 3251   |
| Colour, Gardner, delivery form  | max. 10                                | -                 | DIN ISO 4630      |
| Viscosity, Rheometer, 20 °C     | 18.000 – 35.000                        | mPa.s             | DIN EN ISO 2555   |
| Oil type                        | special fatty acids                    |                   |                   |
| Oil content                     | approx. 37                             | %                 | -                 |
| Acid value, on solids           | 35 - 50                                | mg KOH/g          | DIN EN ISO 3682   |
| Density, 20 °C                  | 1.03                                   | g/cm <sup>3</sup> | DIN EN ISO 2811-1 |
| Delivery form                   | 75% in butyl glycol / sec. alcohol 1:1 |                   |                   |

## Application and Properties:

VaraSol AZ 307 is a short oil, fast drying alkyd water.thinnable resin. VaraSol AZ 307 is especially suited for the manufacture of water thinnable air and forced drying primers and topcoats with a relatively low viscosity. For the fastest air dry rate ammonia should be used. For high gloss topcoats and long term stability we recommend a combination of triethyl amine and ammonia. Alternatives like AMP-90 (Angus) etc. are also suitable.

## VaraSol AZ 307

Water thinnable air and forced drying primers and topcoats



# VaraSol AZ 461S

VaraSol AZ 461S is an air drying, special fatty acid based alkyd, which will be water thinnable after neutralization with ammonia or amines.

## Technical Data:

|                                       | Value                                  | Unit              | Test Method       |
|---------------------------------------|----------------------------------------|-------------------|-------------------|
| Non-volatile content, 1h/125 °C       | 75 ± 2                                 | %                 | DIN EN ISO 3251   |
| Colour, Gardner, delivery form        | max. 10                                | -                 | DIN ISO 4630      |
| Flow time, 20 °C, 50% in butyl glycol | 70 – 90                                | s                 | DIN EN ISO 2431   |
| Appearance                            | slightly turbid to clear solution      |                   |                   |
| Acid value, on solids                 | 35 - 50                                | mg KOH/g          | DIN EN ISO 3682   |
| Density, 20 °C                        | 1.06                                   | g/cm <sup>3</sup> | DIN EN ISO 2811-1 |
| Delivery form                         | 75% in butyl glycol / sec. alcohol 1:1 |                   |                   |

## Application and Properties:

VaraSol AZ 461S is a short oil alkyd water thinnable resin for the manufacture of water thinnable, air and forced drying primers and topcoats For the fastest air dry rate ammonia should be used.

For high gloss topcoats and long term stability we recommend a combination of triethyl amin and ammonia. Alternatives like AMP-90 (Angus) etc. are also suitable.



# VaraSol AZ 133

VaraSol AZ 133 is a chemically modified, very low viscous safflower oil polymer.

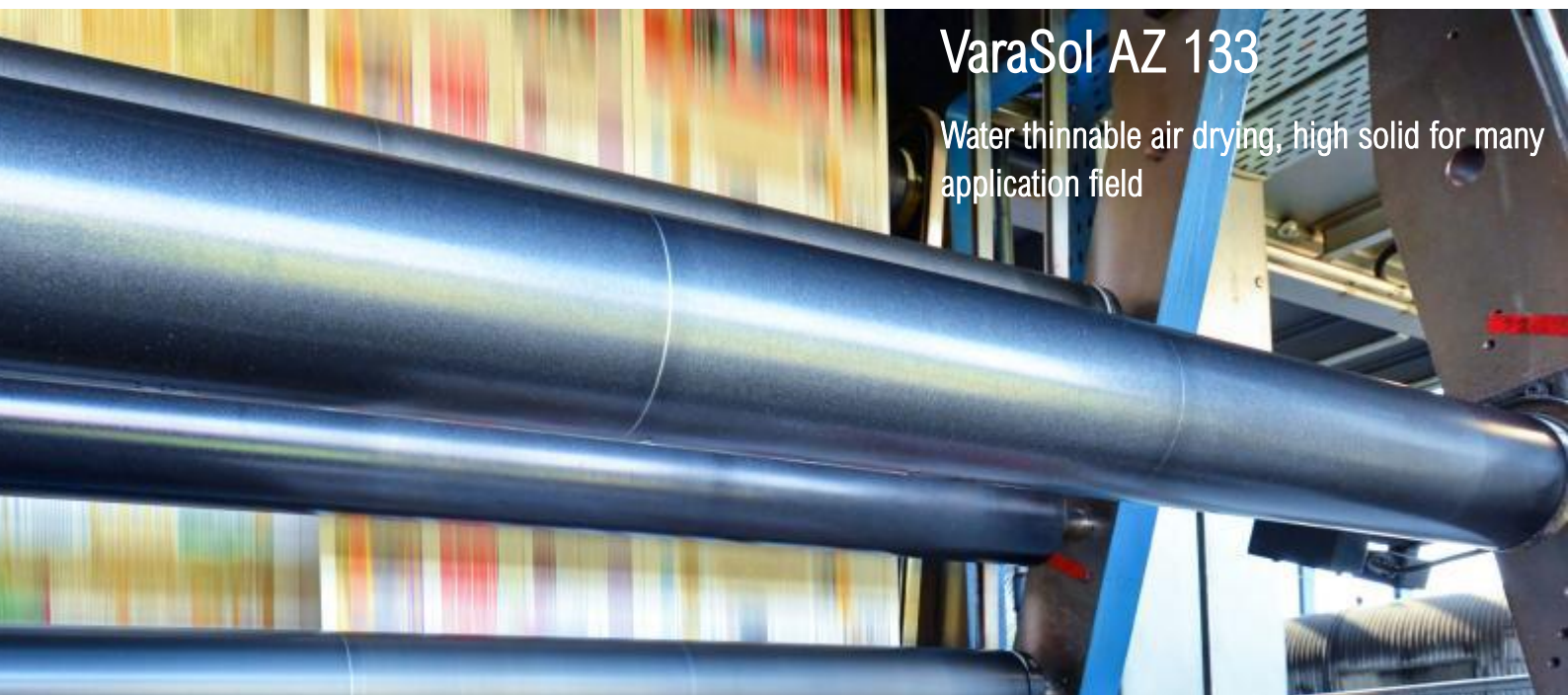
## Technical Data:

|                                 | Value                             | Unit              | Test Method       |
|---------------------------------|-----------------------------------|-------------------|-------------------|
| Non-volatile content, 1h/125 °C | 100                               | %                 | DIN EN ISO 3251   |
| Colour, Gardner, delivery form  | max. 15                           | -                 | DIN ISO 4630      |
| Viscosity, Rheometer, 20 °C     | 500 – 1200                        | mPa.s             | DIN EN ISO 2555   |
| Appearance                      | slightly turbid to clear solution |                   |                   |
| pH-value, 40% solution in water | 4 - 5                             | -                 | DIN ISO 976       |
| Acid value, on solids           | max. 20                           | mg KOH/g          | DIN EN ISO 3682   |
| Density, 20 °C                  | 1.02                              | g/cm <sup>3</sup> | DIN EN ISO 2811-1 |
| Delivery form                   | 100 %                             |                   |                   |

## Application and Properties:

Due to the main characteristics of VaraSol AZ 133 like solubility with water - only given if 10-15% co-solvent (calculated on solids) are added - and solvents (e.g. white spirit), high and easy pigmentation, freeze-thaw stability and high gloss there are many interesting application fields, like e.g.:

- Printing inks
- Additive for dispersion systems
- Pigment preparations or tinting colours
- Artists' paints
- Temporary anticorrosive paints



## VaraSol AZ 133

Water thinnable air drying, high solid for many application field

# VaraSol SI 468 A

VaraSol SI 468 A is a silicone modified, air drying alkyd resin, which is water thinnable after neutralization with ammonia or amines.

## Technical Data:

|                                       | Value               | Unit              | Test Method       |
|---------------------------------------|---------------------|-------------------|-------------------|
| Non-volatile content, 1h/125 °C       | 75 ± 2              | %                 | DIN EN ISO 3251   |
| Colour, Gardner, delivery form        | max. 10             | -                 | DIN ISO 4630      |
| Flow time, 20 °C, 50% in butyl glycol | 50 – 100            | s                 | DIN 53211-4       |
| Appearance                            | opaque              |                   |                   |
| Oil content                           | approx. 32          | %                 | -                 |
| Oil type                              | special fatty acids |                   |                   |
| Acid value, on solids                 | 35 - 40             | mg KOH/g          | DIN EN ISO 3682   |
| Density, 20 °C                        | 1.07                | g/cm <sup>3</sup> | DIN EN ISO 2811-1 |
| Delivery form                         | 75% in butyl glycol |                   |                   |

## Application and Properties:

VaraSol SI 468 A is a short oil alkyd water thinnable resin for the manufacture of water thinnable, air and forced drying primers and topcoats For the fastest air dry rate ammonia should be used.

For high gloss topcoats and long term stability we recommend a combination of triethyl amie and ammonia. Alternatives like AMP-90 (Angus) etc. are also suitable.

Primers based on VaraSol SI 468 A show a very fast drying and through drying with excellent corrosion resistance.

VaraSol SI 468 A can also be used as a stoving binder. The suitable reaction partners are cymel 303 (Allnex), Residrol WM 501 (Hoechst) or similar.



# VaraSol PU 601 W

VaraSol PU 601 W is a PU modified short oil alkyd emulsion based on linoleic rich oils/fatty acids. Used in industrial metal primers- insulating wall paints and interior industrial wood stains. Possesses good drying speed and salt spray resistance.

## Technical Data:

|                                 | Value        | Unit              | Test Method       |
|---------------------------------|--------------|-------------------|-------------------|
| Non-volatile content, 1h/125 °C | 44 ± 1       | %                 | DIN EN ISO 3251   |
| Viscosity, Rheometer, 23 °C     | 200 - 450    | mPa.s             | DIN EN ISO 2555   |
| Oil content                     | approx. 25   | %                 | -                 |
| pH-value                        | 6.0 – 8.0    | -                 | DIN ISO 976       |
| Density, 20 °C                  | 1.05         | g/cm <sup>3</sup> | DIN EN ISO 2811-1 |
| Type of oil                     | linolic rich |                   |                   |
| Delivery form                   | 44% in water |                   |                   |

## Application and Properties:

Suitable for a range of industrial metal primers, insulating wall paints and interior industrial wall paints. VaraSol PU 601 W provides outdoor durability, drying speed and salt spray resistance.

The drying properties of VaraSol PU 601 W make it especially suitable for fast drying decorative and protective primers. VaraSol PU 601 W is mainly used in spraying- or dipping Primer. Addition of a polymer dispersion will improve the adhesion to difficult substrates such as galvanised steel.

Because of the good non-lifting properties primers based on VaraSol PU 601 W can be recoated with a broad variety of water based and/or solvent based systems.

## VaraSol PU 601 W

Water thinnable air drying, alkyd emulsion for polyurethane coatings, drying speed and salt spray resistance !



# VaraSol AG 584

VaraSol AG 584 is a short oil, water thinnable alkyd resin for stoving systems.

## Technical Data:

|                                                         | Value                               | Unit              | Test Method       |
|---------------------------------------------------------|-------------------------------------|-------------------|-------------------|
| Non-volatile content, 1h/125 °C                         | 44 ± 1                              | %                 | DIN EN ISO 3251   |
| Colour, Gardner, delivery form                          | max. 10                             | -                 | DIN ISO 4630      |
| Oil content                                             | approx. 30                          | %                 | -                 |
| Oil type                                                | special fatty acids                 | -                 | -                 |
| Viscosity Rheometer, 20 °C, C 60/2°, 30 s <sup>-1</sup> | 10,000 – 20,000                     | mPa.s             | DIN EN ISO 2555   |
| Appearance                                              | clear - opaque                      |                   |                   |
| pH value                                                | 6.7 – 8.5                           | -                 | DIN ISO 976       |
| Density, 20 °C                                          | 1.06                                | g/cm <sup>3</sup> | DIN EN ISO 2811-1 |
| Neutralizer                                             | dimethyl ethanolamine,<br>1.5 – 2.0 | %                 | -                 |
| Delivery form                                           | 44% in water / butyl glycol         |                   |                   |

## Application and Properties:

VaraSol AG 584 has been developed for the manufacture of water thinnable stoving systems like primers, clearcoats and topcoats. The delivery form, 2% cosolvents, allows formulations with a total solvent content < 2%. As reactive partners for the curing range 140-180 °C methylated melamine resins like Cymel 303 (Allnex) and Maprenal MF 904 (Prefere) have proved to be suitable. By the use of reactive melamin resins like Cymel 327 (curing temperature 120 - 140°C) the addition of approx. 3 % butyl glycol is necessary to get a better storage stability.



# VaraSol AF 846 W

VaraSol AF 846 W is a long oil, co-solvent and amin free alkyd emulsion.

## Technical Data:

|                                 | Value        | Unit              | Test Method       |
|---------------------------------|--------------|-------------------|-------------------|
| Non-volatile content, 1h/125 °C | 60 ±2        | %                 | DIN EN ISO 3251   |
| Appearance                      | white milky  |                   |                   |
| Viscosity, Rheometer, 23 °C     | max. 1.500   | mPa.s             | DIN EN ISO 2555   |
| Oil content                     | approx. 74   | %                 | -                 |
| pH-value, liquid electrom       | < 7          | mg KOH/g          | DIN ISO 976       |
| Density, 23 °C                  | 1.013        | g/cm <sup>3</sup> | DIN EN ISO 2811-1 |
| Delivery form                   | 60% in water |                   |                   |

## Application and Properties:

VaraSol AF 846 W is used in primers and transparent / opaque stains.

VaraSol AF 846 W is suitable for the production of wood impregnations and varnishes.

Another application of VaraSol AF 846 W is to improve the open time and fullness of paints and architectural coatings based on VaraSol PU 250 W by adding 3 - 10 % to the total formulation. VaraSol AF 846 W is also recommended for printing inks applications.

## VaraSol AF 846 W

Water thinnable air drying, alkyd emulsion for  
co-solvent & amin free coatings



# VaraSol PU 362 W

VaraSol PU 362 W is a medium oil PU alkyd emulsion for the manufacture of airdrying, water thinnable paint systems.

## Technical Data:

|                                 | Value        | Unit     | Test Method     |
|---------------------------------|--------------|----------|-----------------|
| Non-volatile content, 1h/125 °C | 40 ± 2       | %        | DIN EN ISO 3251 |
| Viscosity, Rheometer, 20 °C     | max. 1500    | mPa.s    | DIN EN ISO 2555 |
| pH-value                        | 7.0 – 8.0    | -        | DIN ISO 976     |
| Oil content                     | approx. 44   | %        | -               |
| Acid value, on solids           | max. 30      | mg KOH/g | DIN EN ISO 3682 |
| Delivery form                   | 40% in water |          |                 |

## Application and Properties:

VaraSol PU 362 W is mainly suitable for the manufacture of fast air and forced drying systems. Top coats with high gloss, excellent hardness and very good water resistance can be formulated. Furthermore a good outdoor resistance should be mentioned. Paints based on VaraSol PU 362 W show good gloss stability after storage.

Further application fields for VaraSol PU 362 W are air drying decorative, house and DIY-paints as well as wood protective glazings.

VaraSol PU 362 W shows good compatibility with many water thinnable alkyd resins and acrylic dispersions. Of course, a thorough compatibility test should be done.

Drier recommendation: 0- 0.1% Co (metal on solid binder).



## VaraSol PU 262 W

Polyurethane topcoats with high gloss, excellent hardness and very good water resistance.

A comprehensive range of high performance and durable solutions  
for decorative and wood paints and coatings.

# VaraSol AZ 210 W

Solvent free medium oil special modified alkyd emulsion for water thinnable decorative and D.I.Y. paints.

## Technical Data:

|                                 | Value        | Unit              | Test Method       |
|---------------------------------|--------------|-------------------|-------------------|
| Non-volatile content, 1h/125 °C | 46 ± 2       | %                 | DIN EN ISO 3251   |
| Viscosity, Rheometer, 20 °C     | max. 3.000   | mPa.s             | DIN EN ISO 2555   |
| pH-value                        | 7.5 – 8.5    | -                 | DIN ISO 976       |
| Oil content                     | approx. 34   | %                 | -                 |
| Acid value, on solids           | max. 30      | mg KOH/g          | DIN EN ISO 3682   |
| Density, 20 °C                  | 1.050        | g/cm <sup>3</sup> | DIN EN ISO 2811-1 |
| Delivery form                   | 46% in water |                   |                   |

## Application and Properties:

VaraSol AZ 210 W is mainly used for the production of water dilutable fast drying paint systems for architectural and DIY-paints.

The solvent free, short-oil, specially modified alkyd emulsion is used in water thinnable decorative and architectural paints as well as interior wall paints and wood stains with good hardness development.

VaraSol AZ 210 W is not recommended to use in the grinding phase.



## TECHNOLOGIES FOR A SECURE FUTURE

Big Opportunities in the Bio-Based & Water-Based Resin and Additive Market



### VaraSol AF 808 W

- Waterborne alkyd emulsion (oxidatively drying)
- Amine-free
- Co-solvent-free

Zero VOC

## VaraSol AF 808 W

VaraSol AF 808 W is an externally emulsified, flexible alkyd resin binder, for high gloss paints with good exterior resistance and wall paints with good wet abrasion resistance. It can be used as a sole binder or as a co-binder.

With a renewable raw material content of 55% and without the addition of co-solvents or amines, this product also offers some sustainability aspects.

### High gloss and good outdoor resistance

High-gloss decorative coating

### Key facts

- High gloss
- High solid (60%)
- High flexibility
- Good outdoor resistance

# VaraSol AF 808 W

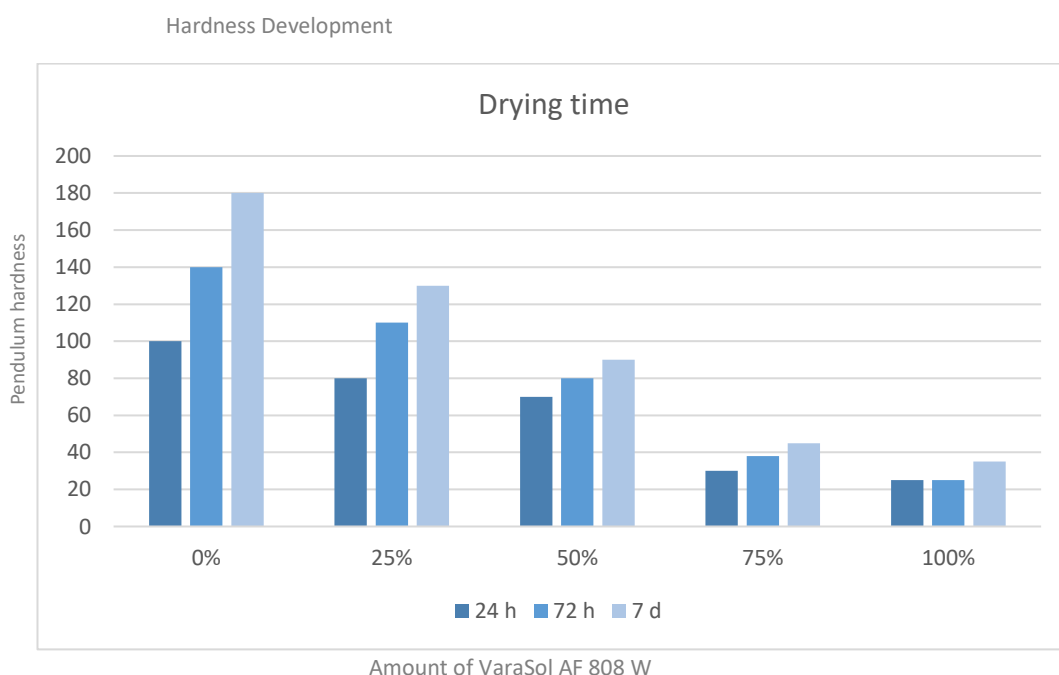
VaraSol AF 808 W is an amin and co-solvent free, short oil, external alkyd emulsified alkyd resin.

## Technical Data:

|                                      | Value         | Unit              | Test Method       |
|--------------------------------------|---------------|-------------------|-------------------|
| Non-volatile content, 1h/125 °C      | 60 ±2         | %                 | DIN EN ISO 3251   |
| Appearance                           | milky liquid  |                   |                   |
| Viscosity, Rheometer, 20 °C, C 60/2° | 2,000 – 6,000 | mPa.s             | DIN EN ISO 2555   |
| Oil content                          | approx. 37    | %                 | -                 |
| pH-value, liquid electrom            | 5 - 7         | mg KOH/g          | DIN ISO 976       |
| Density, 23 °C                       | 1.090         | g/cm <sup>3</sup> | DIN EN ISO 2811-1 |
| Delivery form                        | 60% in water  |                   |                   |

## Application and Properties:

VaraSol AF 808 W is suitable for the production of water thinnable, air drying decorative varnishes with a very high gloss. By using suitable siccatives, films which are based on this product dry in a few hours. The binder is also suitable for the formulation of wall paints and anticorrosive primers. VaraSol AF 808 W is mainly intended for use as a sole binder in high-gloss waterborne interior and exterior paints. However, it can also be easily combined with VaraSol PU 250 W or other urethanesed alkyd resin emulsions. In addition, the product has been successfully tested in a wall paint formulation.



## VaraSol AF 808 W - High gloss for indoor and outdoor use

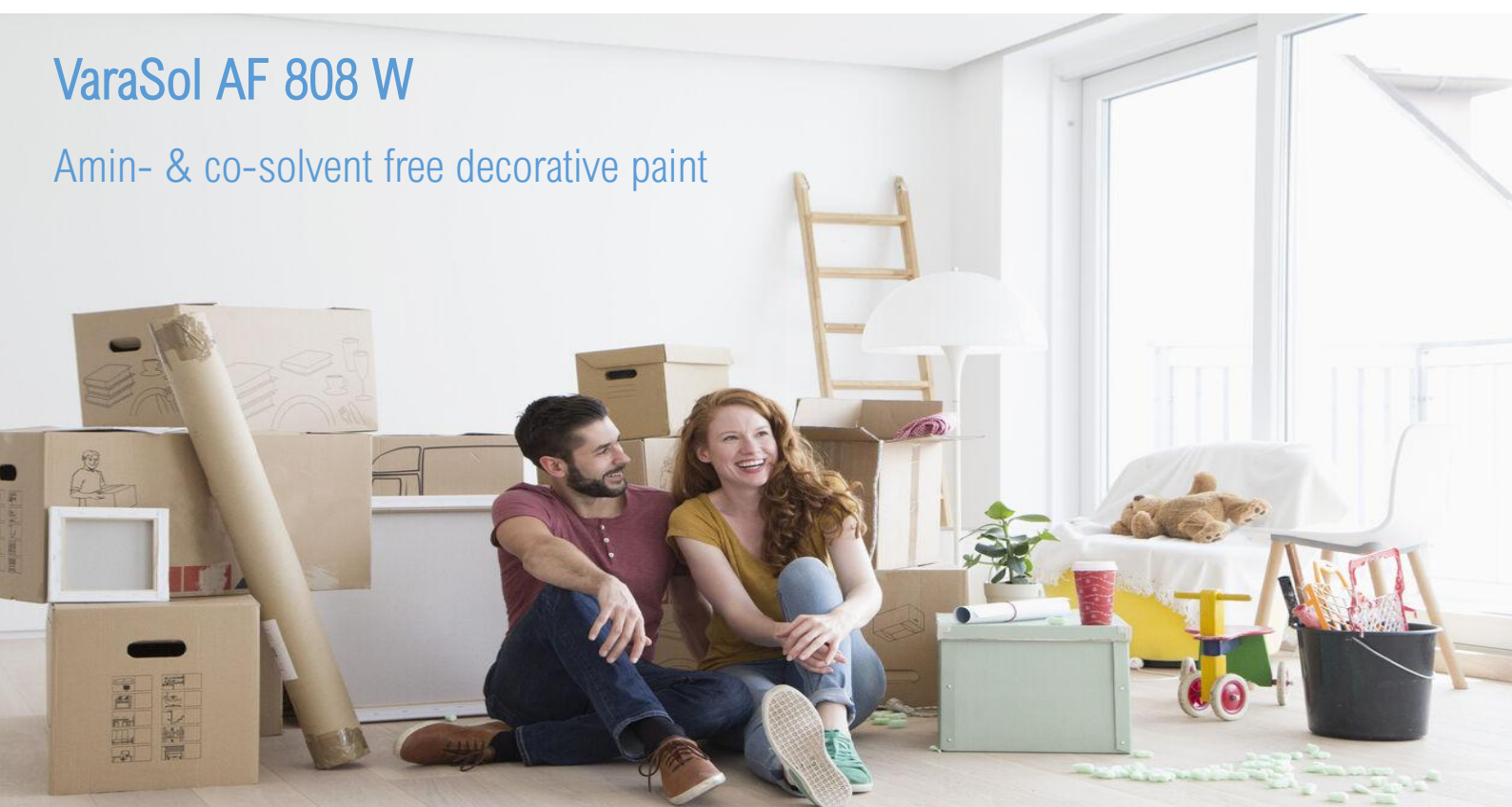
The VaraSol AF 808 W allows the formulation of high gloss paints, with gloss levels of 95 GU at 20° could be obtained. The white paint is sufficiently flexible without sticking and has already shown excellent gloss retention on the weathering stand for one year, so that outdoor use can be optimistically anticipated.



Organic solvents such as propylene glycol are often used to improve flow and gloss. VaraSol AF 808 W achieves high gloss even without the addition of solvents.

## VaraSol AF 808 W

Amin- & co-solvent free decorative paint



# VaraSol AZ 454 W

VaraSol AZ 454 W is a 100% solid, water soluble modified linseed oil for decorative and industrial applications.

## Technical Data:

|                                 | Value      | Unit              | Test Method       |
|---------------------------------|------------|-------------------|-------------------|
| Non-volatile content, 1h/125 °C | 100        | %                 | DIN EN ISO 3251   |
| Viscosity, Rheometer, 23 °C     | 600 - 900  | mPa.s             | DIN EN ISO 2555   |
| Colour, Gardner                 | max. 13    | -                 | -                 |
| Oil content                     | approx. 58 | %                 | -                 |
| Acid value, on solids           | 16 - 20    | mg KOH/g          | DIN EN ISO 3682   |
| Density, 20 °C                  | 1.01       | g/cm <sup>3</sup> | DIN EN ISO 2811-1 |
| Type of oil                     | linseed    |                   |                   |
| Delivery form                   | 100%       |                   |                   |

## Application and Properties:

Suitable for wood impregnation applications providing deep penetration and wetting properties. VaraSol AZ 454 W can be diluted with water by slowly adding water to the material with proper mixing to achieve a translucent hydrosol. This process can be made easier with the use of warm water, or by neutralisation to pH 7,5.

VaraSol AZ 454 W can be thinned with water and has limited dilutability with aliphatic and aromatic hydrocarbons.



## VaraSol AZ 454 W

Our solutions cover a wide variety of substrates, from interior and exterior wall paints to trim paints, floor coatings, metal coatings, furniture lacquers, and primers of many varieties.



# VaraSol AZ 554 W

VaraSol AZ 554 W is a medium oil alkyd emulsion for decorative and industrial applications.

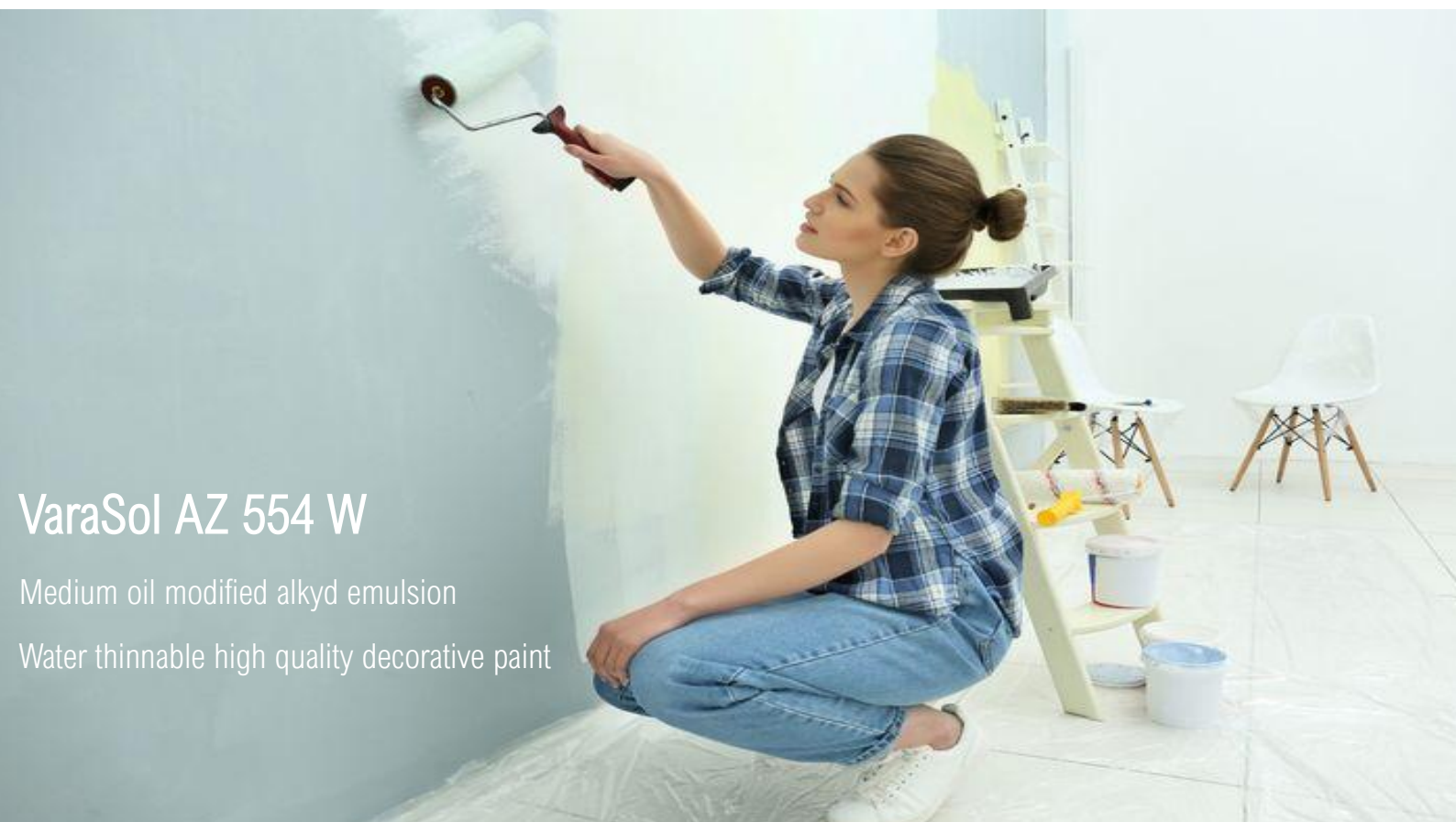
## Technical Data:

|                                 | Value        | Unit              | Test Method       |
|---------------------------------|--------------|-------------------|-------------------|
| Non-volatile content, 1h/125 °C | 50 ± 1       | %                 | DIN EN ISO 3251   |
| Viscosity, Rheometer, 23 °C     | 100 - 600    | mPa.s             | DIN EN ISO 2555   |
| Appearance                      | milky        | -                 | -                 |
| Oil content                     | approx. 40   | %                 | -                 |
| pH-value                        | 5.5 – 7.5    | -                 | DIN ISO 976       |
| Density, 20 °C                  | 1.07         | g/cm <sup>3</sup> | DIN EN ISO 2811-1 |
| Type of oil                     | soya-bean    |                   |                   |
| Delivery form                   | 50% in water |                   |                   |

## Application and Properties:

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.



## VaraSol AZ 554 W

Medium oil modified alkyd emulsion

Water thinnable high quality decorative paint

## Typical coating applications

- High gloss trim paints
- Wall and ceiling paints from flat to high gloss
- Interior/ exterior primers for wood and metal
- Direct-to-metal DTM coatings with anticorrosive properties
- Transparent and semi-transparent stains

## Polymer design

- Medium oil alkyd
- APEO and ammonia-free
- Low VOC capable < 50 g/L

## Performance coating benefits

- High gloss potential and excellent gloss retention
- Very good hardness
- Quick dry time
- Low yellowing
- Good stability with anticorrosive pigments
- Good application characteristics
- Outstanding resin for blending with other technologies, including styrene acrylics, acrylics and polyurethane dispersions



## ALKYD RESIN INNOVATIONS

Bio-based alkyd resins & alkyd emulsions  
for more sustainable coating systems !



### VaraSol Bio 709 W / Water-based

VaraSol Bio 709 W is a special modified, air drying, medium-oil alkyd biomer emulsion resin for the manufacture of water-based bio paints.

With 97% the content of renewable raw materials is higher than in conventional alkyd resins.

The solvent free, medium-oil, specially modified alkyd emulsion is used in water thinnable decorative and architectural paints as well as interior wall paints and wood stains with good harness development.

# VaraSol BIO 709 W

VaraSol BIO 709 W is a special modified, air drying, medium-oil alkyd biomer emulsion resin for the manufacture of water-based bio paints.

With 97% the content of renewable raw materials is higher than in conventional alkyd resins.

## Technical Data:

|                                                          | Value          | Unit  | Test Method     |
|----------------------------------------------------------|----------------|-------|-----------------|
| Non-volatile content, 1h/125 °C,                         | approx. 50     | %     | DIN EN ISO 3251 |
| Viscosity, Rheometer, 20 °C, C 60/2°, 30 s <sup>-1</sup> | < 2.000        | mPa.s | DIN EN ISO 2555 |
| pH value                                                 | 8.5 – 10.5     | -     | DIN ISO 976     |
| Appearance                                               | milky solution |       |                 |
| Delivery form                                            | 50 in water    | %     | -               |

## Application and Properties:

With 97% renewable raw materials content, the new binder VaraSol BIO 709 W is environmentally friendly. The solvent free, medium-oil, specially modified alkyd emulsion is used in water thinnable decorative and architectural paints as well as interior wall paints and wood stains with good harness development.

VaraSol BIO 709 W is not recommended to use in the grinding phase.

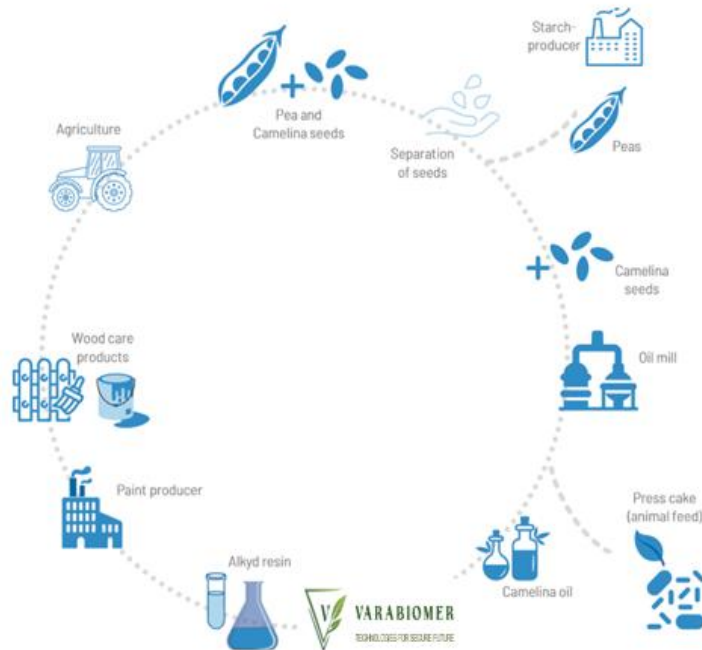


## VaraSol BIO 709 W

Medium oil modified alkyd emulsion  
water thinnable high quality decorative  
paint

**VARABIOMER**  
VARENA BIOPOLYMERE

## Biodiversity and efficiency



Of course, the economics for the farm to grow and provide the arable land for the camelina pea mixture plays a role. Even in very dry weather conditions, where the pea does not grow, camelina still provides a certain yield, while in very wet weather conditions the pea dominates and provides yields. This is an advantage in the course of climate change. In heavy rain or storms, for example, the pea-only fields fold over faster than the pea-and-camelina fields.

Water-based alkyd resins based on camelina oil VaraSol BIO 274 W is a long oil, completely co-solvent and amine free alkyd emulsion. With its high content of renewable raw materials of approx. 75 % it allows the formulation of especially ecological glazes and wood care oils. Due to its very good compatibility with VaraSol PU 250 W, it can also be used as a combination binder to improve penetration and open time.



## VaraSol Emulsions as a Modular Partner for Various Binder Systems

The VaraSol PU series integrates seamlessly into existing coating systems. Through targeted hybridization, coating properties can be precisely tailored to specific performance requirements without the need for a complete system change.

### Fine-Tuning with PUDs

Combining VaraSol PU with PUDs such as [VaraTan PUDs VP 1163 CA](#) or [VaraTan PUDsVP 1199](#) significantly enhances blocking resistance and mechanical performance. This provides additional formulation flexibility, particularly for high-quality wood coating applications.

Conversely, incorporating [VaraSol PU](#) into [PUDs](#) with a high minimum film-forming temperature (MFT) can help reduce the amount of co-solvent required in the formulation, supporting both performance optimization and VOC reduction.

Depending on the formulation focus, different performance objectives can be achieved.

- In acrylate-dominant systems, VaraSol emulsions typically enhances flexibility, flow, and gloss while also providing attractive cost optimization potential.
- In VaraSol emulsion-dominant systems, the acrylate component contributes to faster physical drying and improved color stability.



Processing characteristics and film properties can also be fine-tuned through combination with established externally emulsified alkyd emulsions. For example, [VaraSol AF 247 W](#) can be used to extend open time, while [VaraSol AF 808 W](#) enhances gloss and color brilliance in [VaraSol PU](#)-based formulations.

Conversely, conventional externally emulsified alkyd emulsions can benefit from the incorporation of [VaraSol](#) emulsion products, which contribute to increased hardness as well as improved mechanical and chemical resistance.

## VaraSol Thix; Thixotropic alkyd emulsion resins, water-thinable

| Type            | Oil [%] | Oil type            | PA [%] | Color / Gardner | Acid value [mgKOH/g] | Flow time 20°C [s] | Supply Form [%] | Main uses and characteristics                                                                                        |
|-----------------|---------|---------------------|--------|-----------------|----------------------|--------------------|-----------------|----------------------------------------------------------------------------------------------------------------------|
| <b>TE 666 W</b> | 40      | Special fatty acids | -      | -               | max. 30              | Gel                | 40 in water     | TE 666 W is an emulsion alkyd, designed for waterbased thixotropic drip-resistant lacquer systems and wood finishes. |
| <b>TE 665 W</b> | 40      | Special fatty acids | -      | -               | max. 30              | Gel                | 40 in water     | TE 665 W is an alkyd emulsion which enables the production of waterbased nondrip systems.                            |



VARATHIX TE 665 W



VARATHIX TE 665 W

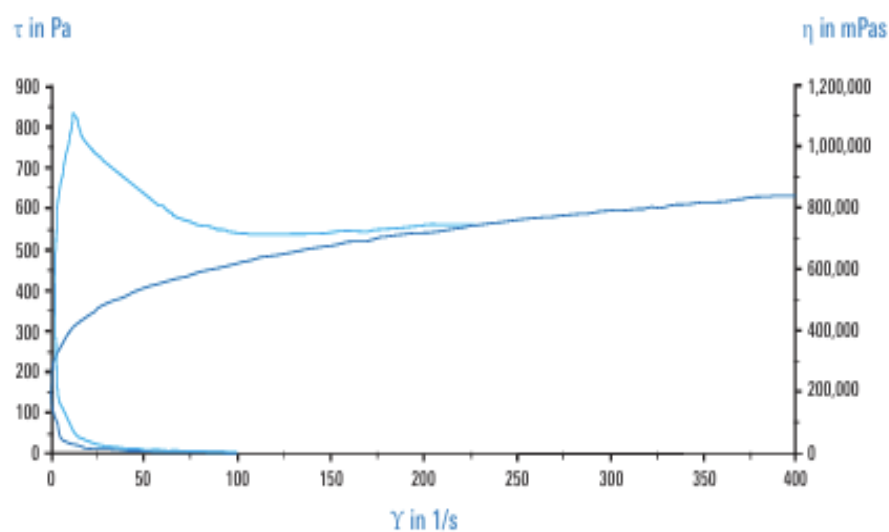


VARATHIX TE 666 W

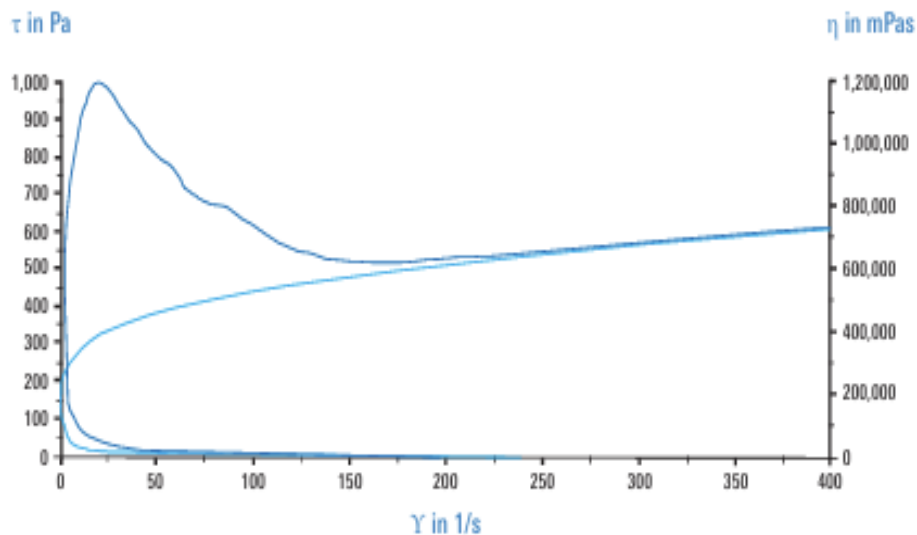


VARATHIX TE 666 W

Flow curve of the VaraSol Thix TE 665 W initial:



Flow curve of the VaraSol Thix TE 665 W after 3.5 months initial:



The two product types differ in their viscosity. While VaraSol Thix TE 665 W is offered as a strong gel, VaraSol Thix TE 666 W is available as a soft gel.

As co-binder, VaraSol Thix TE 665 W and VaraSol Thix TE 666 W reduce phase separation in paint storage and improve rheology in application on vertical surfaces. Both products are shear-stable and have a solid content of 40 per cent. Furthermore, polar solvents have little or no effect on the thixotropy of paint systems

## THIXOTROPIC ALKYD EMULSIONS

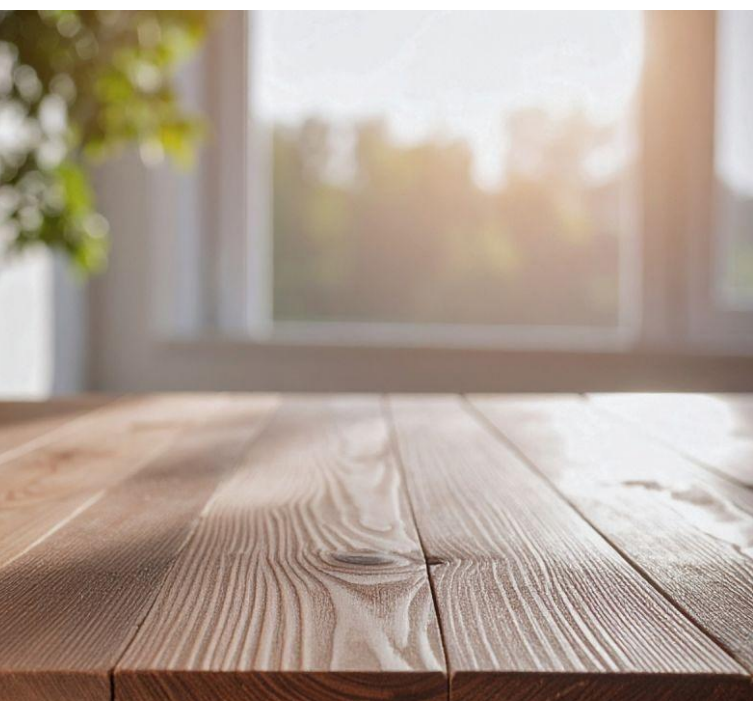


## VaraSol; Alkyd emulsion resins, alkyd-urethane emulsion, water-thinnable

| Type            | Oil [%] | Acid value [mgKOH/g] | pH value DIN 53785 | Viscosity, [mPa.s]/20°C | Flow time 20°C [s] | Supply Form [%]                              | Main uses and characteristics                                                                                                                                                                                                           |
|-----------------|---------|----------------------|--------------------|-------------------------|--------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PU 250 W</b> | 44      | max. 30              | 7.0-8.0            | 50 – 1.500              | -                  | 40 in water                                  | Medium-oil alkyd emulsion for high gloss decorative, D.I.Y.- and industrial paints, most versatile type.                                                                                                                                |
| <b>E 230 W</b>  | 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.                                                                                                                                                    |
| <b>AZ 280 W</b> | 39      | 15-25                | 7.0-8.0            | max. 10.000             | -                  | 42 in water                                  | AZ 280 W is especially suitable for the production of water dilutable air-drying wall and decorative paints (also radiator paints) with very good yellowing resistance.                                                                 |
| <b>PU 253 W</b> | 53      | max. 38              | 7.0-8.5            | max. 10.000             | -                  | 30 in water                                  | Medium-oil alkyd emulsion for fast drying wood paints and lacquers.                                                                                                                                                                     |
| <b>AZ 227 W</b> | 27      | max. 30              | 6.8-7.5            | max. 10.000             | -                  | 40 in water                                  | Short-oil alkyd emulsion for fast curing wood coatings and all types (also drier-free).                                                                                                                                                 |
| <b>AZ 242 S</b> | 42      | max. 30              | 7.0-8.5            | max. 5.000              | -                  | 40 in water                                  | Medium-oil silicone modified alkyd emulsion for high gloss paint systems (also decorative) with excellent outdoor resistance.                                                                                                           |
| <b>AZ 210 W</b> | 40      | -                    | -                  | max. 3.000              | -                  | 46 in water                                  | Solvent-free medium special modified alkydemulsion for water-thinnable decorative and D.I.Y.- paints with good brushability, flow and filling properties, for high gloss topcoats and wood protection stains.                           |
| <b>AF 247 W</b> | 74      | -                    | -                  | max. 1.500              | -                  | 60 in water                                  | Amine and co-solvent-free alkyd emulsion for wood impregnations and wood protecting paints, also suitable as a co-binder to improve open time and filling properties of decorative paints.                                              |
| <b>AZ 352</b>   | 26      | -                    | -                  | max. 1.000              | -                  | 40 in water/<br>propylenglycol / Dowanol PnB | Short-oil alkyd emulsion for the production of air-drying, cobalt free decorative paints.                                                                                                                                               |
| <b>AG 709</b>   | -       | -                    | -                  | max. 2.000              | -                  | 50 in water                                  | Medium-oil special modified alkyd emulsion with renewable raw materials over 97%, suitable for the production of water-dilutable painter and building paints as well as wall paints and wood stains with very good hardness and drying. |
| <b>AZ 307</b>   | 37      | 35-45                | -                  | -                       | 80-140 (50% in BG) | 75 in BG / sec.butanol                       | Air-drying and low bake industrial primers and topcoats, low viscous, very fast dust free drying, early water resistance.                                                                                                               |
| <b>AZ 330</b>   | -       | max. 20              | 4.0-5.0            | 500 – 1.200             | -                  | 100                                          | Water-soluble modified linseed oil type, readily reducible with water for printing inks, as additive for latex paints, tinting and artist colours and pigment pastes.                                                                   |
| <b>AZ 331</b>   | 90      | 85-115               | -                  | 350 – 900               | -                  | 45 in water/BG 80:20                         | Water-dispersible linseed oil polymer, readily reducible with water for in- and outdoor stains and wood preservation, extremely good penetration and outdoor resistance.                                                                |
| <b>AZ 333</b>   | 90      | 90-140               | -                  | 1.000 – 2.000           | -                  | 45 in water/BG                               | Water-dispersible linseed oil polymer, readily reducible with water for in- and outdoor stains and wood preservation, extremely good penetration and outdoor resistance.                                                                |
| <b>AZ 337</b>   | 90      | 55-80                | -                  | 230                     | -                  | 59 in water/BG                               | Medium linseed oil polymer for wood protection systems, excellent penetration and weather resistance on different woods and long-term elasticity.                                                                                       |
| <b>AZ 461</b>   | 30      | 35-45                | -                  | 70-90 (50% in BG)       | -                  | 75 in BG / sec.butanol                       | Air-drying and low bake industrial primers and topcoats, very fast drying, excellent corrosion resistance.                                                                                                                              |
| <b>AZ 463</b>   | 30      | 35-50                | -                  | -                       | 50-70 (50% in BG)  | 75 in ethoxy-propanol                        | Air-drying and low bake industrial primers and topcoats, very fast drying, excellent corrosion resistance.                                                                                                                              |
| <b>AZ 466</b>   | 30      | 40-50                | -                  | -                       | 70-90 (50% in PnB) | 70 Dowanol PnB                               | Air-drying and low bake industrial primers and topcoats, very fast drying, excellent corrosion resistance.                                                                                                                              |
| <b>AZ 467</b>   | 30      | 35-45                | -                  | -                       | -                  | 60 in water / BG / sec.butanol               | Air-drying and low bake industrial primers and topcoats, very fast drying, excellent corrosion resistance.                                                                                                                              |

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

| Type            | Oil [%] | Acid value [mgKOH/g] | pH value DIN 53785 | Viscosity, [mPa.s]/20°C | Flow time 20°C [s] | Supply Form [%]                      | Main uses and characteristics                                                                                                                                                         |
|-----------------|---------|----------------------|--------------------|-------------------------|--------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AZ 469</b>   | 30      | 30-40                | -                  | -                       | 50-70 (45% in BG)  | 70 in BG / sec-buatnol / Dowanol PnB | Air-drying and low bake industrial primers and topcoats, very fast drying, early water resistance, suitable for agricultural machinery paints.                                        |
| <b>AZ 468 S</b> | 32      | 35-45                | -                  | -                       | 50-100 (50% in BG) | 75 in BG                             | Silicon-modified alkyd resin for air-drying and stoving systems with excellent weather, heat and humidity resistance.                                                                 |
| <b>AG 584</b>   | 30      | -                    | 6.7-8.5            | 1.000–20.000            | -                  | 44 in water / BG (1,0%)              | For waterborne stoving systems, high gloss, good mechanical properties, total co-solvent content < 1%.                                                                                |
| <b>AG 585</b>   | 30      | -                    | 6.7-8.5            | 6.000–20.000            | -                  | 43 in water / BG (5.5%)              | As AG 584, but more reactive.                                                                                                                                                         |
| <b>AZ 454</b>   | 62      | 16-20                | 6.0-8.0            | 600 – 800 / 23°C        | -                  | 100                                  | Water soluble long oil alkyd for wood impregnation, temporary paints and impregnation, wetting and water-soluble paints.                                                              |
| <b>AZ 500</b>   | 65      | 14-18                | -                  | 3.400 – 4.300 / 23°C    | -                  | 80 in water                          | Architectural and decorative undercoats, solvent based and waterborne wood and furniture coatings and wood stains.                                                                    |
| <b>AZ 502</b>   | 73      | -                    | 5.0-8.0            | 50 – 1.000 / 23°C       | -                  | 60 in water                          | Primers and transparent / opaque stains.                                                                                                                                              |
| <b>AZ 504</b>   | 53      | -                    | 1.8-2.5            | 4.000 –10.000 / 23°C    | -                  | 55 in water                          | Interior / exterior primers, transparent / opaque wood stains and exterior and interior wall coatings.                                                                                |
| <b>SF 105</b>   | 71      | 16-20                | -                  | 500 – 1.000             | -                  | 100                                  | Water soluble long oil alkyd for wood, metal coatings.                                                                                                                                |
| <b>AZ 554</b>   | 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.                                           |
| <b>AZ 600</b>   | 26      | -                    | 6. 7-8.5           | 500 – 1.000             | -                  | 42 in water                          | Industrial metal primers, insulating wall paints, interior industrial wood stains and stoving enamels.                                                                                |
| <b>PU 601</b>   | 25      | -                    | 6.0-8.0            | 200 – 450               | -                  | 44 in water                          | PU modified short oil alkyd emulsion for industrial metal primers, insulating wall paints and interior industrial wood stains with speed drying and salt spray resistance properties. |
| <b>AZ 576</b>   | 40      | -                    | 7.0-9.0            | 100 – 1.000             | -                  | 53 in water                          | Interior / exterior primers and topcoats for metals, primers and topcoats, DTM and for Joinery application and corrosion resistant primers.                                           |



Expert Care for Beautiful, Long-Lasting Wooden Furniture.

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

| Type            | Oil [%] | Acid value [mgKOH/g] | pH value DIN 53785 | Viscosity, [mPa.s]/23°C | Flow time 20°C [s]          | Supply Form [%]           | Main uses and characteristics                                                                                                                                                                                                                                                                                                                                                               |
|-----------------|---------|----------------------|--------------------|-------------------------|-----------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PU 510 W</b> | 44      | max. 30              | 7.0-8.0            | 50 – 1.500              | -                           | 40 in water               | Co-solvent free, amine-free PU medium alkyd emulsion for the manufacture of airdrying water-thinnable paint systems. DIY-varnishes, paraquet varnishes and industrial coatings applications.                                                                                                                                                                                                |
| <b>PU 580 W</b> | 28      | -                    | 6.0-9.0            | 50 – 1.500              | -                           | 48 in water               | PU-modified alkyd, has been specifically formulated for trim enamel and wall paint applications, where toughness and easy cleanup is needed, multi-substrate adhesion, transparency, film hardness also scratch resistance, water resistance and low yellowing.                                                                                                                             |
| <b>AF 565 W</b> | 40      | -                    | 7.0-9.0            | 200 – 450               | -                           | 53 in water               | Medium oil, co-solvent and amine free alkyd emulsion, interior / exterior primers and topcoats for wood and metals, primers and topcoats for Joinery application and corrosion resistant primers, with drying speed, leveling, film hardness, gloss level, yellowing resistance, exterior durability and water resistance.                                                                  |
| <b>AZ 500</b>   | 65      | 14-17                | 7.0-9.0            | 3.400 – 4.300           | -                           | 80 in HC 180-220          | Water dilutable long oil alkyd; based on linseed/ soya-bean oil, architectural and decorative undercoats, solvent based and waterborne wood and furniture coatings and wood stains; drying speed, offers low viscosity, very good outdoor durability.                                                                                                                                       |
| <b>CP 809</b>   | 31      | 35-45                | -                  | 2.500 – 4.000           | -                           | 70 in water / butylglycol | A short oil hydroxyl and water dispersion alkyd resin, with Hydroxyl content (on solid) = 2.3%, fast air-dry topcoats and primers, spray, dip and flow coat, bake systems using melamine resins, drying speed, excellent corrosion resistance, salt spray resistance and excellent adhesion.                                                                                                |
| <b>PU 548 W</b> | -       | -                    | 7.3-8.5            | 100 – 500               | -                           | 42 in water               | An alkyd dispersion modified with aliphatic polyurethane, decorative interior/exterior stains and trim paints for wood and metals and joinery, drying speed, transparency, film hardness, scratch- and water resistance.                                                                                                                                                                    |
| <b>MR 608 W</b> | 39      | -                    | -                  | max. 500                | -                           | 50 in water               | A short-oil, specially modified alkyd emulsion and is amine-free. MR 608 is suitable for the production of water-dilutable paints and varnishes, building paints.                                                                                                                                                                                                                           |
| <b>AF-S 610</b> | 38      | 40-46                | -                  | 200 – 300 / 150°C       | -                           | 84-86 in DPnP             | A short-oil, specially modified alkyd emulsion and is amine-free, oven and air drying anti-corrosion coatings.                                                                                                                                                                                                                                                                              |
| <b>MZ 722 E</b> | 52      | 48-58                | -                  |                         | 70-100 s 50% in butylglycol | 75 in ethoxy-propanol     | A medium-oil air-drying modified with special fatty acids alkyd resin, which is water-dilutable after neutralization with ammonia or amines.                                                                                                                                                                                                                                                |
| <b>AZ 218 W</b> | 30      | -                    | 6.8-7.2            | max. 500                | -                           | 44 in water               | A solvent-free, modified alkyd emulsion, especially for the production of water-dilutable anti-corrosion primers.                                                                                                                                                                                                                                                                           |
| <b>S 199 W</b>  | 38      | -                    | 6.1-6.3            | max. 100                | -                           | 40 in water               | A short-oil, specially modified alkyd emulsion for wood, metal, anti-corrosion coatings.                                                                                                                                                                                                                                                                                                    |
| <b>SM 221 W</b> | 35      | -                    | 6.8-7.2            | 500 – 1.000             | -                           | 44 in water               | Modified alkyd emulsion with medium oil length. The emulsion does not contain APEO and is free of VOC. The emulsion is neutralized with ammonia. offers excellent stain blocking properties against water soluble substrate contaminations like e.g. nicotine, tobacco condensate, markers and wood ingredients, stain blocking primers and wall paints, tannin blocking wood impregnation. |
| <b>AF 846 W</b> | 74      | -                    | < 7.0              | max. 1.500              | -                           | 60 in water               | A long oil, amine and co-solvent free alkyd emulsion, for the production of wood impregnations and wood stains. Another application for 846 is the improvement of open time and highbuild of painters and building paints based on water-based alkyd by adding 3 - 10% total formulation.                                                                                                   |

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

| Type            | Oil [%] | Acid value<br>[mgKOH/g] | pH value<br>DIN 53785 | Viscosity,<br>[mPa.s]/23°C | Flow time<br>20°C [s]         | Supply Form<br>[%] | Main uses and characteristics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------|---------|-------------------------|-----------------------|----------------------------|-------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SF 108</b>   | 70      | max. 20                 | 4.0-5.0               | 10.000-20.000-             | 50 – 100 s<br>(85% in<br>BuG) | 100                | The distinctive features of <b>SF 108</b> include its ability to be thinned with water, provided that <b>10–15% co-solvent</b> (based on the solid resin content) is added. Suitable co-solvents include hydrocarbons such as <b>white spirit</b> . SF 108 also offers excellent pigment wetting, high pigment loading capacity, freeze–thaw stability, and a high-gloss finish, making it suitable for a wide range of applications. Typical applications include printing inks, pigment preparations, tinting pastes, temporary corrosion protection coatings, artists' colors, and as an additive for dispersion systems. |
| <b>PU 667 W</b> | 44      | max. 30                 | 6.5-7.5               | max. 3.000                 | -                             | 45<br>in water     | PU 667 W is a medium-oil PU alkyd emulsion for the production of air-drying waterborne paint systems for the production of quick-drying air and air forced drying systems suitable. It can be topcoats with high gloss, excellent hardness and very good formulate water resistance, a good outdoor resistance should be mentioned.                                                                                                                                                                                                                                                                                          |
| <b>PU 800 W</b> | 31      | -                       | 6.0-9.0               | 500 – 1.500                | -                             | 48<br>in water     | Polyurethane modified alkyd dispersion, for use in formulation at low VOC levels for trim enamel and wall paint applications, where toughness and easy cleanup is needed.                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>SF 188</b>   | 68      | max. 15                 | -                     | 10.000-20.000              | -                             | 100                | A long-oil alkyd resin, which is particularly suitable for the production of aqueous interior wall paints. It is characterized by a high filling power, good elasticity, high hiding power and very good processing properties.                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>PU 364 W</b> | 44      | max. 30                 | 7.0-8.0               | 50-2.000                   | -                             | 40<br>in water     | PU-alkyd emulsion for use in air drying decorative, house and DIY-paints as well as wood protective glazings.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |



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