

VINNOL[®] H 40/60



Vinyl chloride Co- and Terpolymers

VINNOL[®] H 40/60 is a copolymer of approx. 61 wt.% vinyl chloride (VC) and approx. 39 wt.% of vinyl acetate (VAc). Its main use is as a binder for surface coating compounds and printing inks.

Properties

VINNOL[®] H 40/60 is a thermoplastic, physically drying binder that forms a film when the solvent contained in the formulation has evaporated.

Like all VC copolymers, VINNOL[®] H 40/60 is extremely tough, showing permanent flexibility, abrasion resistance, little tendency to swell in the presence of water and low gas permeability. It is also highly resistant to oil, grease, dilute aqueous acids, alkalis, and saline solutions, as well as to aliphatic hydrocarbons, such as white spirit, and alcohols.

Special features

VINNOL[®] H 40/60 is a vinyl acetate-rich VC copolymer. It is therefore especially suitable as a cobinder for formulating flexible VINNOL[®]-paint and printing ink formulations. The solubility in various monomers enables to use VINNOL[®] H 40/60 as an additive in solvent-free 100% systems to improve adhesion and pigment wetting or to reduce shrinking. VINNOL[®] H 40/60 also shows certain compatibility with ester-soluble nitrocellulose resins up to a mixing ratio of 50/50 and can be used for their modification.

Technical data

Specification

Property	Condition	Value	Method
Viscosity, dynamic (20% in MEK) ⁽¹⁾	20.0 °C	150 - 210 mPa·s	DIN 53015 (20°C)
K-value	-	59 - 61	DIN EN ISO 1628-2
Chlorine content	-	34.0 - 35.2 wt. %	specific method
Volatiles	-	< 2.0 wt. %	specific method

¹after dissolving at 50 °C

General Characteristics

Property	Condition	Value	Method
Molecular weight (Mw)	-	100000 - 140000 g/mol	SEC, PS-Standard
Glass transition temperature	-	approx. 62 °C	DSC (DIN 53765 / ISO 11357-5)
Density	-	1.31 g/cm ³	DIN 66137-2
Bulk density	-	approx. 750 kg/m ³	DIN EN ISO 60
Supply form	-	white powder	Visual
Efflux time (20% in MEK)	-	approx. 145 s	DIN EN ISO 2431 (4 mm)
Particle size	-	< 1.0 mm	specific method

These figures are only intended as a guide and should not be used in preparing specifications.

All the information provided is in accordance with the present state of our knowledge. Nonetheless, we disclaim any warranty or liability whatsoever and reserve the right, at any time, to effect technical alterations. The information provided, as well as the product's fitness for an intended application, should be checked by the buyer in preliminary trials. Contractual terms and conditions always take precedence. This disclaimer of warranty and liability also applies particularly in foreign countries with respect to third parties' rights.

Application details

Typical applications for VINNOL® H 40/60:

- Printing inks
- Paper and film coatings
- Strippable lacquers
- Heat-sealable lacquers
- Wood varnishes
- Masonry paints
- Road-marking paints

Processing

VINNOL® H 40/60 is generally used in dissolved form. Ketones, in particular, are excellent solvents for VINNOL® surface coating resins. In the case of VINNOL® H 40/60, esters, too, may be used as single solvents. Of the chlorinated hydrocarbons, methylene chloride and chloroform are true solvents. Aromatic hydrocarbons have a swelling effect but may be combined to a limited extent with true solvents up to 50%. Alcohols and aliphatic hydrocarbons do not dissolve VINNOL® H 40/60. VINNOL® H 40/60 is also soluble in various monomers (e.g. styrene, methyl methacrylate, 2-ethylhexyl acrylate, 1,6-hexanediol diacrylate, and others).

VINNOL® H 40/60 can be plasticized with monomeric and polymeric plasticizers, such as phthalates, adipates, sebacates, citrates, phosphates, epoxides, and chlorinated paraffins.

VINNOL® H 40/60 is fully compatible with all other VINNOL® surface coating resins. It also combines well with many acrylic polymers and ketone resins as well as with some epoxides. Ester soluble nitrocellulose is limited compatible, alkyd resins, polyvinyl acetates and polyvinyl butyrals are in general incompatible with VINNOL® H 40/60. We recommend always checking the compatibility of VINNOL® H 40/60 with the polymer in question. VINNOL® H 40/60 shows good compatibility with pigments routinely used in the coatings industry. Care must be taken when using pigments containing zinc or cadmium because these catalyze the decomposition of VC copolymers at elevated temperatures. The same applies to iron-oxide pigments.

Despite good inherent stability, it is necessary for some applications to stabilize coatings based on VINNOL® H 40/60 against heat and/or UV light. Epoxy compounds often suffice to stabilize these coatings against low thermal impact. Where higher temperatures are involved, it is advisable to use calcium/zinc or organotin stabilizers. Outdoor applications require the additional use of UV stabilizers along with thermal stabilizers optimized for these conditions.

To avoid risk of discoloration, contact with iron should be avoided both during the preparation of the solution and during subsequent storage of the product. VINNOL®-based surface-coating resins should be stored in coated containers.

Additional Information

The product can be used for applications with food contact in compliance with FDA 21 CFR §175.105 and §175.300. Comprehensive information regarding evaluation with respect to other food contact regulations may be requested from our account managers and Wacker subsidiaries.

If the product is used in applications other than those mentioned, the choice, processing and use of the product is the sole responsibility of the purchaser. All legal and other regulations must be complied with.

Packaging and storage

Packaging

VINNOL® H 40/60 is packed in 25-kg, coated three-ply paper bags containing a polyethylene liner.

Storage

Store VINNOL® H 40/60 under dry conditions and at room temperature (below 25 °C). Under these conditions, the product has a shelf life of at least 12 months, from the delivery date. If the material is kept beyond the recommended shelf life, it is not necessarily unusable, but the user should perform a quality control on the properties relevant to the application.

The properties determined in our pre-release quality control may change during storage, depending on storage conditions, and deviate from the specification.

Safety notes

Comprehensive instructions are given in the corresponding Material Safety Data Sheets. These are available on request from WACKER sales offices or may be downloaded from the WACKER Web site www.wacker.com/vinnol.

QR Code VINNOL® H 40/60



For technical, quality or product safety questions, please contact:

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The data presented in this medium are in accordance with the present state of our knowledge but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this medium should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies' raw materials are also being used. The information provided by us does not absolve the user from the obligation of investigating the possibility of infringement of third parties' rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the product for a particular purpose.