

WACKER® SILICATE TES 40 WN

Ethyl Silicates

WACKER® SILICATE TES 40 WN is an ethyl silicate polymer. It is a low-viscous liquid providing approximately 41% of silicon dioxide (silica) upon complete hydrolysis.

Properties

WACKER® SILICATE TES 40 WN offers these properties

- storage-stable, low-viscous liquid with a high silica content (41% SiO₂, after full hydrolysis/dehydration)
- high flash point > 62°C
- reactive binder after alkaline or acid-catalyzed hydrolysis for many applications
- actual binder are polymeric SiO₂-structures formed by hydrolysis and condensation reactions

Technical data

General Characteristics

Property	Condition	Value	Method
Acidity	-	max. 10 mg/kg	-
Appearance	-	colorless, clear	-
Color Index	-	0 - 7 APHA	-
Density	20 °C	1.06 - 1.07 g/cm ³	DIN 51757
Flashpoint	-	≥ 62 °C	-
Hydrolyzable chloride	-	max. 10 mg/kg	-
SiO ₂ -content	-	approx. 41 %	-

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.

Store in a dry and cool place.

Protect against moisture.

Applications

- Anti-Corrosive Coatings
- Marine & Protective Coatings
- Industrial Coatings

Application details

General

WACKER® SILICATE TES 40 WN is being used for the precipitation of silica (polymeric SiO₂ structures) upon complete hydrolysis. The hydrolysis creates ethanol as a by-product.

The polymeric SiO₂ structures firmly bind inorganic fillers and pigments and adhere well to different inorganic substrates like glass, ceramics or metall. Chemical and mechanical properties of the substrates can be improved by the thin SiO₂ film, which is also highly heat-resistant.

Application examples

- binder for zinc-rich anti-corrosive coatings, e.g. shop primers
- binder for refractory fillers (production of ceramic shells and cores)
- precision casting
- coating material for pigments and fibers
- liquid source of SiO₂ as binder
- crosslinking agent, e.g. for silicone elastomers
- sol-gel processes

Use as binder for two-pack zinc-rich ethyl silicate primers

Hydrolysis of WACKER® SILICATE TES 40 WN induced by atmospheric humidity is too slow for typical moisture-curing coating applications like shop primers. The ethoxy groups must be activated by further chemical hydrolysis. This is typically done in a chemical reactor by the addition of water and an acid catalyst in a water-miscible co-solvent. Condensation and formation of larger polymeric molecules already start during hydrolysis. The hydrolysate is the actual binder for the zinc-rich shop primer. Shelf-life of the hydrolysate is limited because the condensation slowly proceeds upon storage.

Packaging and storage

Packaging

- 25 kg steel can
- 215 kg steel drum
- 1000 kg IBC

Storage

WACKER® SILICATE TES 40 WN must be stored in the tightly closed original container under exclusion of moisture.

The "Best use before end" date of each batch is shown on the product label.

Storage beyond the date specified on the label does not necessarily mean that the product is no longer usable. In this case however, the properties required for the intended use must be checked for quality assurance reasons.

Safety notes

Comprehensive instructions are given in the corresponding Material Safety Data Sheets. They are available on request from WACKER subsidiaries or may be printed via WACKER web site <http://www.wacker.com>.

QR Code WACKER® SILICATE TES 40 WN



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

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