

Dynasytan® 6598

Reactive vinyl-alkyl siloxane oligomer, ethoxy functional

Technical data

Properties and test methods	Value	Unit	Method
Density (20 °C/ 68 °F)	approx. 1	g/cm ³	DIN 51757
Boiling point (1013 hPa)	> 255/ 491	°C / °F	ASTM D-1120
SiO ₂ -content	approx. 42	% w/w	AN-SAA 0754
Flash point	> 70/ >158	°C / °F	DIN EN ISO 2719 (Pensky-Martens, closed-cup)
Viscosity (20 °C/ 68 °F)	approx. 3-7	mPa·s / cSt	DIN 53015

Registrations

Dynasytan® 6598

AICS (Australia):	No
DSL/NDSL (Canada):	*
PICCS (Philippines):	Yes
TSCA (USA):	Yes
IECS (P.R. China):	Yes
ENCS (Japan):	Yes
EINECS/ELINCS (EU):	Yes
ECL (South Korea):	Yes
REACH (Europe)	Exempted
* = available on request	

Dynasytan® 6598 is an oligomeric siloxane containing vinyl, propyl and ethoxy groups.

Dynasytan® 6598 is a further development of Dynasytan® VTMOEO, vinyl-tris(2-methoxy-ethoxy)silane.

Dynasytan® 6598 is a colourless, nearly odorless low-viscosity liquid. Dynasytan® 6598 is an excellent silane compatibiliser between inorganic fillers (e.g. kaolin, MDH, ATH) and organic polymers (EPDM, EVA, PE). The application of Dynasytan® 6598 in mineral-filled and peroxide-crosslinked cable systems results in improved mechanical and electrical properties, especially upon exposure to moisture. The high boiling start of Dynasytan® 6598, together with its high flash point, gives it several advantages over monomeric silanes with respect to safety, handling and processing. From an environmental viewpoint it should be noted that the amount of released hydrolysis ethanol (VOC) is considerably less than for monomeric silanes.

Safety and handling

Before considering the use of Dynasytan® products please read its Safety Data sheet (SDS) thoroughly for safety and toxicological data as well as for information on proper transportation, storage and use. The Safety Data Sheet is available after registration on our website www.dynasytan.com or upon request from your local representative, customer service or from Evonik Resource Efficiency GmbH, Product Safety Department, E-MAIL sds-hu@evonik.com.

Packaging, storage and shelf life

Dynasytan® 6598 is supplied in 25 kg, 200 kg drums and 900 kg ibc containers.

The containers must remain tightly sealed and stored in a cool, well-ventilated place protected against moisture.

In the unopened container the shelf life of Dynasytan® 6598 is min. 12 months from delivery.

Properties and applications

Dynasylan® 6598 is excellent as an adhesion promoter in mineral-filled, peroxide-crosslinked compounds. The silicon-functional ethoxy groups of Dynasylan® 6598 hydrolyse in the presence of moisture, which is usually present on the filler surface, forming active silanol groups. The condensation of these silanol groups with hydroxyl groups on the filler surface leads to a tight chemical bond between Dynasylan® 6598 and the filler. The vinyl functional end of Dynasylan® 6598 can be coupled to the polymer in a further reaction that runs parallel to peroxide crosslinking.

The propyl groups of Dynasylan® 6598 are hydrophobic and result in markedly improved electrical properties of the filled compounds, especially after exposure to water.

A major field of application for mineral-filled compounds is the cable industry. EPDM and kaolin can be processed into cable compounds through the adhesion promoting and hydrophobic effects of Dynasylan® 6598. It can also be used in the manufacture of halogen-free, non-toxic, environmentally-friendly flame retardant compounds (HFFR) based on EVA or PE and ATH or MDH. In addition, Dynasylan® 6598 can be used in many other applications such as filler and pigment treatment, use in dispersions etc.

Typical property improvements obtained by using Dynasylan® 6598 in filled polymers are:

- improved filler dispersion
- increased hydrophobicity that results in improved electrical values (dielectric constant ϵ_r , electric dissipation factor $\tan \delta$, volume resistivity ρ_D) especially after exposure to water/ moisture
- increase in maximum filler loading
- excellent balance between tensile strength and elongation at break at a high level
- improved heat resistance
- improvement of creep behavior at increased temperature
- improved chemical resistance
- strongly reduced tendency to stress cracking
- higher impact strength
- higher abrasion resistance
- good processability

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