

Technical Information

VQM 900 SERIES Vinylfunctional QM-resin-compounds

The VQM products are formulations comprising a vinyl-functional QM resin and vinylfunctional silicone polymers. They are used for producing transparent, filler-free formulations with good mechanical properties or for improving the mechanical properties and the flow behavior of filled systems.

Technical Data

Product name	Resin content [wt.-%]	Viscosity at 25 °C [mPas]	Vinyl content [mmol/g]
VQM 903	20	10 000	0.18
VQM 906	25	50 000	0.19
VQM 907	20	5 000	0.20
VQM 909	20	1 000	0.23
VQM 973	45	30 000	0.34
VQM 985	45	4 000	0.45

Properties

Parameter	Unit	Value
Appearance	-	clear, colorless liquid
Refractive Index n_D^{20}	-	1.41
Density (20 °C)	[g/cm ³]	appr. 1

Application

In transparent silicone formulations Polymer VS can be either partially or fully replaced with VQM products.

In filler-containing formulations VQM can be used as a substitute for both, Polymer VS and some of the filler and/or silica.

Please note that the vinyl content of VQM products is higher than that of Polymer VS grades of comparable viscosity. This can generally be offset by increasing the SiH content (Crosslinker 100/200 series).

Comparison Silica- vs. VQM-Formulation

The following table shows a comparison between a VQM-based formulation and an analogous formulation based on fumed silica (AEROSIL®). Both formulations contain 30 % silica and/or silicone resin. In both cases, the crosslinker concentration was adjusted to have an SiH / Vinyl ratio of 2.0.

Test values show the typical differences between these two technologies. Significantly, lower viscosities can be achieved with crystal-clear VQM formulations. Silica, in contrast, yields better elasticity and tear propagation resistance.

Further information about designing formulations with VQM is available upon request.

Formulation

Ingredient	Unit	Formulation S	Formulation Q
Polymer VS 1000	wt.-%	68	21
VQM 973	wt.-%	-	67
AEROSIL®8200	wt.-%	30	-
Catalyst 510	wt.-%	0.1	0.1
Crosslinker 210	wt.-%	2.0	12
Inhibitor DVS	wt.-%	0.05	0.05
SiH / Vinyl	mol / mol	2.0	2.0
Content silica or resin	wt.-%	30	30

Properties

Parameter	Unit	Formulation S	Formulation Q
Viscosity	mPas	85 000	6 200
Apperance	-	opaque	transparent
Pot life (23 °C)	min	88	62
Shore A	-	30	50
Tensile strength (S2)	N/mm ²	7.2	9.6
Elongation (S2)	%	630	130
Tear resistance	N/mm	16	3.4

Packaging and Storage

Packaging	950 kg IBC
Shelf life	12 months in originally sealed containers
Storage	dry, up to 30°C (86°F) in sealed containers, do not permanently expose to intensive sunlight

Safety and Handling

The rules and regulations for the handling and use of chemicals have to be observed.

Information concerning

- classification and labelling according to regulations for transport and for dangerous substances
- protective measures for storage and handling
- measures in case of accidents and fire
- toxicity and ecological effects

is given in our material safety data sheets.

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