

AEROSIL® R 972

A PERFECT RHEOLOGY MODIFIER FOR RTV-1C SILICONE SEALANTS

AEROSIL®



Hydrophobic fumed silica AEROSIL® R 972 offers a perfect combination of thickening efficiency, reinforcement and storage stability in moisture sensitive silicone sealant formulations.

AEROSIL® fumed silica such as hydrophilic AEROSIL® 150 is used as a thickening and reinforcing thixotropic filler in silicone sealants. These hydrophilic fumed silica products have freely accessible silanol groups (Si-OH) on their surface causing moisture absorption from environment. However, moisture absorption reduces the shelf-life of the silicone sealants, especially of moisture sensitive neutral alkoxy formulations. Hydrophobization with DDS eliminates the silanol groups and turns the hydrophilic surface of the fumed silica to hydrophobic, for example in AEROSIL® R 972.

Since the moisture adsorption is significantly reduced, AEROSIL® R 972 is the optimum silica product for long shelf-life of moisture sensitive silicone sealant formulations (see Figure 1).

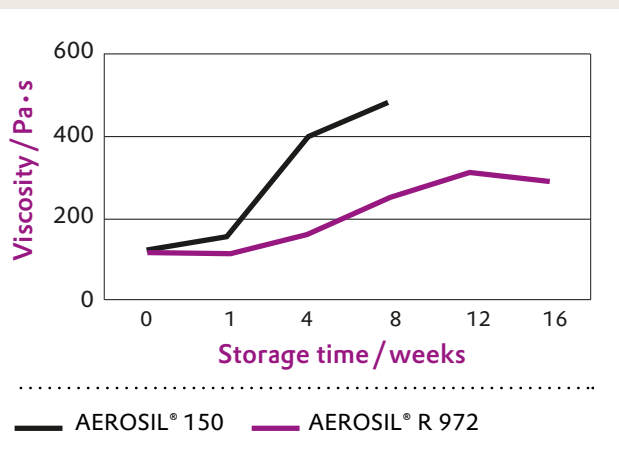


Figure 1 Shelf-life in alkoxy silicone sealants

At first glance, hydrophilic and hydrophobic fumed silica are identical – both are fine white powders. The fundamental difference becomes clear, when they are dispersed in water: while hydrophilic products are completely wetted by water, hydrophobic products do not mix with water at all and remain floating on its surface. This water-repellent behavior is caused by the organic groups anchored at the surface of the fumed silica.

AEROSIL® R 972 is a fumed silica aftertreated with DDS (dimethyldichlorosilane). An impressive example of the altered surface properties is the absorption of moisture (see Figure 2).

Thanks to the nonpolar surface of AEROSIL® R 972 compared with hydrophilic AEROSIL® 150 (a product with no surface treatment), the moisture absorption is significantly reduced.

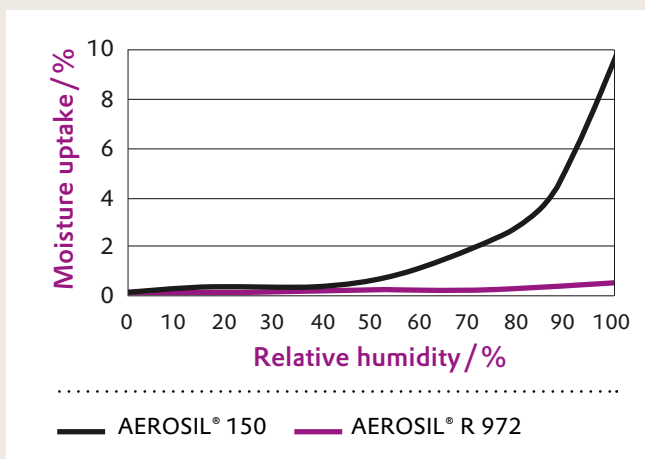


Figure 2 Moisture uptake at room temperature

This information and any recommendations, technical or otherwise, are presented in good faith and believed to be correct as of the date prepared. Recipients of this information and recommendations must make their own determination as to its suitability for their purposes. In no event shall Evonik assume liability for damages or losses of any kind or nature that result from the use of or reliance upon this information and recommendations. EVONIK EXPRESSLY DISCLAIMS ANY REPRESENTATIONS AND WARRANTIES OF ANY KIND, WHETHER EXPRESS OR IMPLIED, AS TO THE ACCURACY, COMPLETENESS, NON-INFRINGEMENT, MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE (EVEN IF EVONIK IS AWARE OF SUCH PURPOSE) WITH RESPECT TO ANY INFORMATION AND RECOMMENDATIONS PROVIDED. Reference to any trade names used by other companies is neither a recommendation nor an endorsement of the corresponding product, and does not imply that similar products could not be used. Evonik reserves the right to make any changes to the information and/or recommendations at any time, without prior or subsequent notice. AEROSIL® is a registered trademark of Evonik Industries or its subsidiaries.

Evonik Resource Efficiency GmbH
 Business Line Silica
 Rodenbacher Chaussee 4
 63457 Hanau
 Germany

Phone +49 6181 59-12532
 Fax +49 6181 59-712532
 ask-si@evonik.com
 www.evonik.com/silica

FS-38-EN-01-2019/12-TMC

The Silica specialists at Evonik – Inside, to get it right.