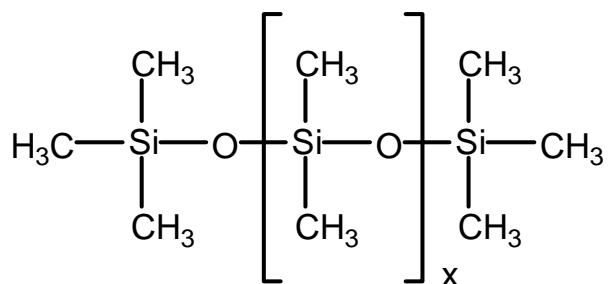


Protection and conditioning: WACKER silicones for the polishes industry

WACKER SILICONES provides an extensive range of active ingredients for the formulation of high-quality polishes. **Standard silicone fluids, organomodified silicone fluids, silicone resins/waxes** and their **o/w emulsions** give your polishes the right property profile for end users. WACKER silicones make rubbing out easier, enhance gloss and color depth and give surfaces long-lasting protection from environmental influences.

1. Polydimethylsiloxanes from the range of WACKER® AK silicone fluids

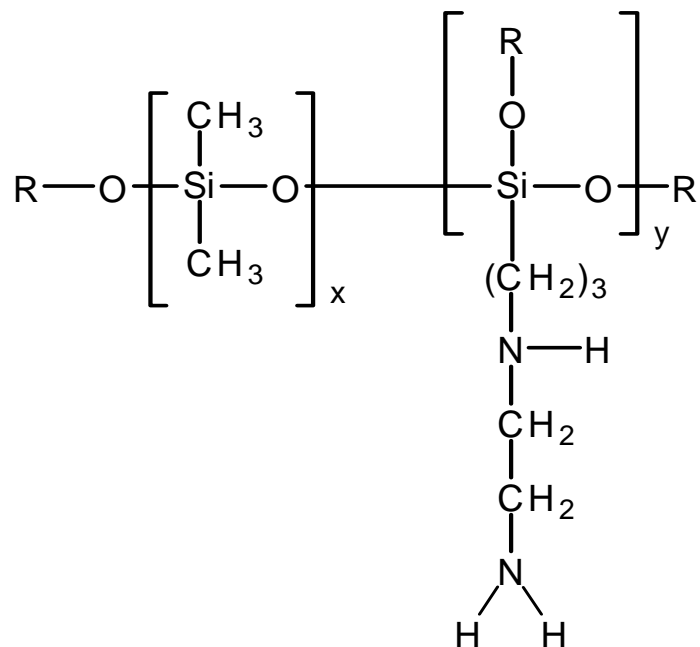


Standard silicone fluids from the WACKER® AK range are **available in a wide range of viscosities**. Polishes are best formulated from silicone fluids in a viscosity range of between $100 \text{ mm}^2 \text{ s}^{-1}$ and $60,000 \text{ mm}^2 \text{ s}^{-1}$.

WACKER® AK silicone fluids **improve polishability**, enhance **shine** and **color depth** and are characterized by **effective water repellency**. This wide range of properties enables WACKER® AK silicone fluids to be used in practically every car and household care application.

The following empirical values will help you **choose the optimum viscosity** for polishes.

- WACKER® AK silicone fluids at the lower end of the viscosity range (100 to $1,000 \text{ mm}^2 \text{ s}^{-1}$) spread and lubricate better, whereas those at the upper end ($1,000$ to $60,000 \text{ mm}^2 \text{ s}^{-1}$) yield superior gloss and depth of shade.
- Experience has shown that optimum polishability and gloss can be achieved by using a mixture of a low-viscosity silicone fluid (3-5 parts) and a high-viscosity silicone fluid (1 part). Pure solvent-based paint conditioners are an exception to this rule. In this case, a higher-viscosity fluid (between $5,000 \text{ mm}^2 \text{ s}^{-1}$ and $12,500 \text{ mm}^2 \text{ s}^{-1}$) is recommended, since polishability is also optimally enhanced.

2. Aminofunctional polydimethylsiloxanes: WACKER® L 653, L 655, L 656 and WR 301


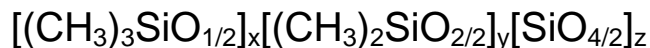
We offer aminofunctional silicone fluids containing various amounts of organic amino-alkyl functional groups in reactive and/or non-reactive variants.

- In the presence of humidity, **reactive grades** crosslink to form an insoluble polymer film with high **detergent resistance** and effective **protection**.
- **Non-reactive grades** are characterized by excellent **active-ingredient and storage stability** and do **not result in unwanted build-up**, even with frequent use.

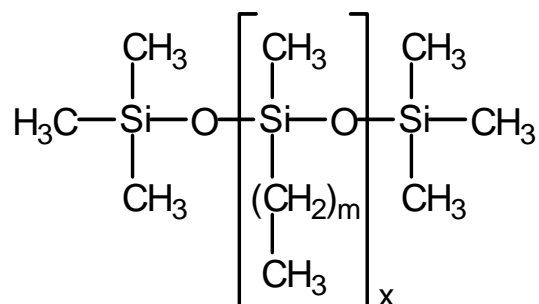
Like our standard WACKER® AK silicone fluids, aminofunctional silicone fluids **improve polishability**. However, they also offer **greater depth of shade** and improve **long-term water-repellency**. Thanks to these properties, aminofunctional silicone fluids **are recommended for household care polishes**.

The **following rules** relating to water repellency and polishability will **help you choose the right** aminofunctional silicone fluids for the formulation of polishes.

- Water repellency increase in the following order: WACKER® L 653, through L 656 to L 655.
- The polishability improves in the following order: WACKER® L 655, through L 656 to L 653.

3. Silicone resins: WACKER® TPR, WACKER® MQ 803 TF and WACKER® 1035


In combination with standard WACKER® AK silicone fluids, the **non-reactive** WACKER® TPR, WACKER® MQ 803 TF and WACKER® 1035 silicone resins yield a **water-repellent protective film** of specified **hardness** that is much more resistant than films from standard silicone fluids or aminofunctional silicone fluids. This property makes silicone resins the preferred products for **high-quality polishes**.

4. Silicone wax: WACKER® W 23


Silicone waxes offer by far the most effective **long-term water repellency** compared to standard silicone fluids, aminofunctional silicone fluids and silicone resins. Our silicone waxes are especially suitable for **very high-quality polishes and for impregnating agents**.

5. Silicone emulsions: WACKER® E 10, E 22, E 32, E 37, E 1044, E 1656, E 3155, NE 4720

For polish manufacturers without a proprietary emulsifying process, we additionally offer the most important active ingredients as o/w emulsions. Our E 10, E 1044 and E 3155 grades are non-ionic emulsions of standard silicone fluids. The emulsion E 22 is based on a very high viscous silicone fluid. The base oil of the non-ionic E 1656 is an aminofunctional silicone fluid. The emulsions E 36 and E 37 are silicone-resin based. E 32 is a non-ionically stabilized silicone wax emulsion. Our emulsion NE 4720 was especially developed for stress cracking sensitive plastics.

Our **silicone emulsions** are basically **suitable** for the **same applications** as the **silicone active ingredients they contain**.

Our **emulsions are easy to dilute with water**, preferably fully deionized water. Diluted emulsions should, however, be used as quickly as possible. We also recommend that emulsions be homogenized before use.

6. Colour Pastes: Elastosil® Pigment Pastes FL

Elastosil® Pigment Pastes FL are **ready-to-use compounds consisting of pigments and a reactive silicone polymer**, which are best recommended for colouring of shoe polishes.

The Colour Pastes are stirred in the oil-phase of the shoe polishes simply. Depending on the colour intensity, 0.5 to 4 % Elastosil® Pigment Pastes FL should be added.

The data presented in this paper are in accordance with the present state of our knowledge, but do not absolve the user from carefully checking all supplies immediately upon receipt. We reserve the right to after product constants within the scope of technical progress or new developments. The information given in this brochure 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.