

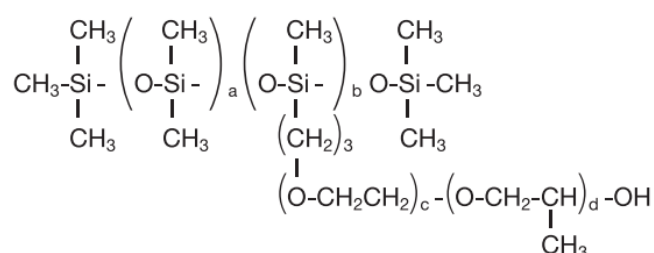
KORASILON® Additive PS

Short Description

KORASILON® Additive PS are so-called polyether siloxanes. They belong to the large group of modified siloxanes and combine properties typical of silicone (e. g. low surface tension and excellent release and sliding behavior) with properties which are not typical of silicone (e. g. water solubility and system compatibility).

Product Properties

The general chemical structure of **KORASILON® Additive PS** is shown below; there is also a distinction between three basic types:

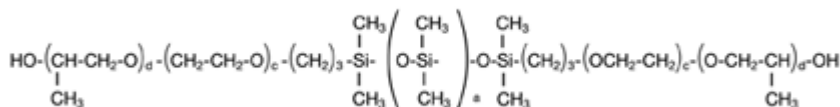


Multi structure:

Parameters a; b; c; d are variable.

Trisiloxane (special case of multi structure):

Parameters a = 0; b = 1; c; d are variable.



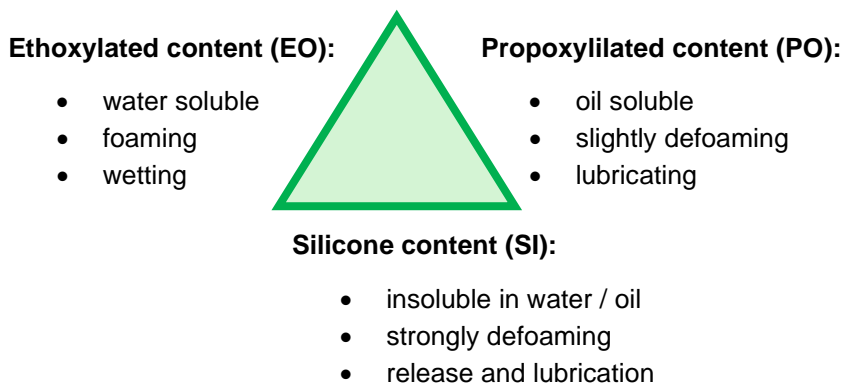
Linear:

Parameter a; c; d are variable.

The basic structure as well as the parameters a; b; c; d can be varied depending on the product and the desired properties. Of course, the ethoxylated (EO) or propoxylated (PO) side chains or terminating groups are of particular importance. In addition, the end group of the polyether chain (shown above as a hydroxyl group) can be modified, so at this point in the molecule e. g. a methoxy group is also possible.

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The **KORASILON® Additive PS** can also be viewed as a compromise between three different molecules or structures:



These almost infinite possibilities of modification result in numerous possible applications in a wide variety of branches and industries. The **KORASILON® Additive PS** are therefore real "all-rounders and problem solvers" for a wide variety of applications.

Product data

Please note that the following product data are only informative values and are not suitable for binding specifications. Further products with individual tailored structures could be requested if required.

General information:

KORASILON® Additiv	CAS-Number	Basic structure	Modification	End group
PS 1	27306-78-1	Trisiloxan	EO	Methoxy
PS 2	67674-67-3	Trisiloxan	EO	Hydroxy
PS 3	68937-54-2	Multi	EO	Hydroxy
PS 4	68937-54-2	Multi	EO	Hydroxy
PS 5	68937-54-2	Multi	EO	Hydroxy
PS 6	68937-55-3	Multi	EO + PO	Hydroxy
PS 7	68937-55-3	Multi	EO + PO	Hydroxy
PS 8	n.a. (mixture)	Multi	EO + PO	Hydroxy
PS 9 N	n.a. (mixture)	Linear	EO + PO	Hydroxy
PS 10	n. a.	Multi/modified	EO + PO	Hydroxy

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Chemical-physical properties:

KORASILON® Additiv	Appearance	Viscosity at 25°C	Cloud point 1% in water	Surface tension 0,1% in water
PS 1	beige, clear liquid	25 mPas	< 25 °C	20,8 mN/m
PS 2	beige, clear liquid	40 mPas	< 25 °C	21,1 mN/m
PS 3	beige, clear liquid	250 mPas	= 60 °C	28,0 mN/m
PS 4	yellow, clear liquid	200 mPas	< 25 °C	36,2 mN/m
PS 5	beige, clear liquid	100 mPas	= 50 °C	21,8 mN/m
PS 6	beige, clear liquid	400 mPas	< 25 °C	30,6 mN/m
PS 7	yellow, clear liquid	2.000 mPas	= 40 °C	32,9 mN/m
PS 8	yellow, clear liquid	600 mPas	= 40 °C	---
PS 9 N	colourless, clear, liquid	5 mPas	---	---
PS 10	beige, clear liquid	550 mPas	= 40 °C	29,3 mN/m

Application-information (I):

KORASILON® Additiv	Active content	HLB-value (classified)	Foaming behaviour 1% in water (without additives)	Foaming behaviour 1% in surfactant- solution (anionic)
PS 1	100 %	High	+	+
PS 2	100 %	High	+	+
PS 3	100 %	High	+	0
PS 4	100 %	Medium	0	-
PS 5	100 %	High	+	0
PS 6	100 %	Low	0	-
PS 7	100 %	Medium	+	0
PS 8	55 % in Glycol	---	+	0
PS 9 N	10 % in Glycol ether	---	+	0
PS 10	100 %	---	+	0

* Evaluation of foam behaviour: 0 = no or little effect // + foam-reinforcing // - foam-reducing

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Application-information (II):

KORASILON® Additiv	Solubility 1% in water	Solubility 1% in n-Heptane	Solubility 1% in iso-Propanol	Correspondence BfR XV
PS 1	dispersible	dispersible	soluble	no
PS 2	dispersible	dispersible	soluble	no
PS 3	soluble	dispersible	soluble	yes
PS 4	dispersible	dispersible	soluble	yes
PS 5	soluble	dispersible	soluble	yes
PS 6	dispersible	dispersible	soluble	yes
PS 7	soluble	dispersible	soluble	yes
PS 8	soluble	dispersible	soluble	no
PS 9 N	soluble	soluble	soluble	no
PS 10	soluble	dispersible	soluble	---

* Further information regarding the regulatory and food law status of the products is available on request.

Product applications and special features

KORASILON® Additiv PS 1:

- Particularly powerful and effective super spreader for highest requirements
- Improves the wetting of aqueous and non-aqueous formulations on almost all substrates
- Textile application → Wetting of fibers by treatment agents and deeper penetration into the fiber
- Application of crop protection → Wetting of leaves with herbicides and thus reduced consumption
- Use of release agents → Formation of even and thin release films
- Application of paints / varnishes → Levelling for uniform coatings without surface defects

KORASILON® Additiv PS 2:

- Powerful super spreader with a good price / performance ratio for high requirements
- Improves the wetting of aqueous and non-aqueous formulations on almost all substrates
- Textile application → Wetting of fibers by treatment agents and deeper penetration into the fiber
- Application of crop protection → Wetting of leaves with herbicides and thus reduced consumption
- Use of release agents → Formation of even and thin release films
- Application of paints / varnishes → Levelling for uniform coatings without surface defects

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KORASILON® Additiv PS 3:

- Particularly good water solubility and improved hydrolysis resistance compared to PS 1 and PS 2
- Improves the wetting, especially of aqueous formulations
- Textile application → Wetting of fibers by treatment agents and deeper penetration into the fiber
- Application emulsions → Emulsifier for (silicone) oil in water emulsions
- Application paper → Levelling additive for functional and decorative paper coatings
- Application of paints / varnishes → Levelling for uniform water-based coatings without surface defects

KORASILON® Additiv PS 4:

- Suitable for use in both solvent-based and aqueous formulations (self-emulsifying)
- Application leather → Reinforcement of soft handle and lubrication as well as wetting
- Textile application → Wetting of fibers by treatment agents and deeper penetration into the fiber
- Application of emulsions → Emulsifier for (silicone) oil in water emulsions (also as secondary emulsifier)
- Automotive application → Enhancement of the gloss and lubricating properties of the formulations
- Application of paints / varnishes → Resistance to abrasion and dirt as well as improved levelling

KORASILON® Additiv PS 5:

- Universally applicable to improve wetting in numerous applications and formulations
- Photo application → Levelling additive for functional and decorative film coatings
- Application emulsions (I) → Emulsifier for the production of stable oil in water emulsions
- Application emulsions (II) → Particularly suitable for emulsifying silicone oils in water
- Application emulsions (III) → Uniform, strong wetting of surfaces with the emulsion
- Application of paints / varnishes → Levelling for uniform water-based coatings without surface defects

KORASILON® Additiv PS 6:

- Suitable for use in both solvent-based and aqueous formulations
- Textile application → Wetting of fibers by treatment agents and improved penetration into the fiber
- Application of defoamers → Improvement of the knockdown effect, ventilation and product stability
- Automotive application → Improvement of the gloss and lubricating properties of the formulations
- Application of paints / varnishes (I) → Levelling for uniform coatings without surface defects
- Application of paints / varnishes (II) → Resistance to abrasion and soiling, slight defoaming

KORASILON® Additiv PS 7:

- Particularly suitable for use in aqueous and alcoholic formulations
- Textile application → Wetting of fibers by treatment agents and increased lubrication
- Use of paper → Improvement of the defoaming effect of brown plastic defoamers
- Automotive application → Enhancement of gloss and improvement of compatibility with aqueous systems
- Use of release agents → Formation of even and thin release films
- Application of surface treatment → Improved distribution of the treatment agent on the surface

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KORASILON® Additiv PS 8:

- Particularly suitable for use in aqueous and alcoholic formulations
- Reduced active content for particularly easy incorporation and rapid distribution in the system
- Good price / performance ratio for relatively simple applications
- Automotive application → Enhancement of the gloss and lubricating properties of the formulations
- Use of release agents → Formation of even and thin release films
- Application of surface treatment → Improved distribution of the treatment agent on the surface

KORASILON® Additiv PS 9 N:

- Particularly easy and broad use due to good compatibility and low viscosity
- Reduced active content leads to easy dosage even at small quantities of addition
- Application of paints / varnishes (I) → Polyether-modification reduces the risk of lacquer defects
- Application of paints / varnishes (II) → Improvement of resistance against abrasion and soiling
- Application of paints / varnishes (III) → Levelling for uniform coatings without surface defects
- Application of paints / varnishes (IV) → reactive terminating-groups allow targeted reactions with other raw materials

KORASILON® Additiv PS 10:

- Specially modified polyethersiloxanes with highly branched structure
- Copolymer with polyethersiloxane- and MQ-silicone resin functionality for unique properties
- Improved hydrolysis resistance compared to standard polyethersiloxanes
- Application in acidic/alkaline media → Levelling on different surfaces
- Application in paper-, textiles-, metal-treatment → higher resistance and stability

Storage

KORASILON® Additives PS (unformulated/undiluted types with an active content of 100 %) have a shelf life of **36 months** after date of manufacturing when correctly stored in its original unopened container at storage temperatures between **+10 °C** and **+40 °C**.

Storage beyond to the indicated period does not automatically mean that the product is unusable. However, an inspection of the property values necessary for the intended use is essential due to quality assurance reasons.

Further information on product safety and handling is given in the Material Safety Data Sheet.

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*Informative properties not intended to be used as product specification

Kurt Obermeier GmbH, Berghäuser Str. 70, D-57319 Bad Berleburg
Tel.: +49 (0) 2751/524-0, Fax.: +49 (0) 2751/5041, email: info@obermeier.de / www.obermeier.de