

EXHAUSTION PROCESS
THREAD LUBRICANTS

SILWA®

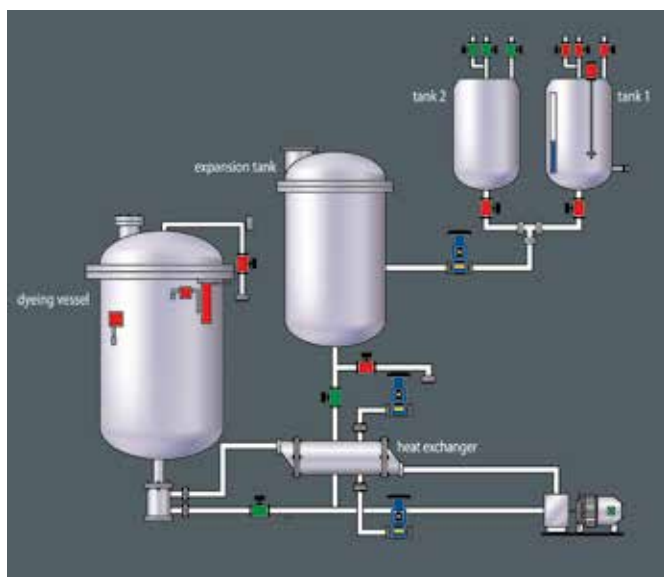
www.graf-chemicals.com

SILWA® EXHAUSTION Lubricants –

the perfect solution for finishing your sewing threads and embroidery yarns

Silwa® lubricants are highly effective processing agents which are designed for the lubrication of sewing threads and embroidery yarns.

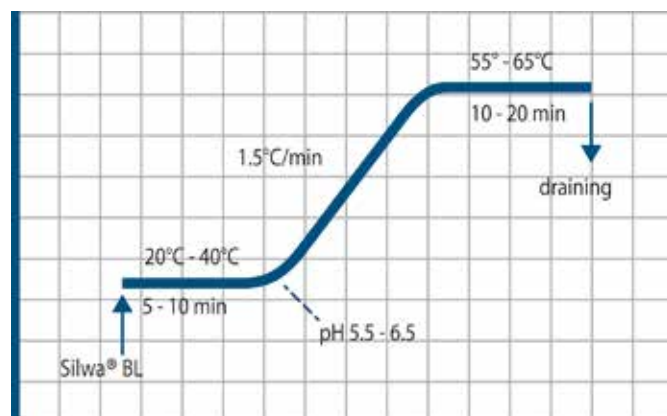
Silwa® high quality lubricants are a very cost effective solution because they provide a wide range of functions.



Benefits:

- starting temperature up to 40°C
- 55°C – 65°C clear exhaustion
- very short, low-cost application process
- no special pH buffer necessary
- minimal shade change
- excellent antistatic and friction properties, no stick slip effect
- even lubricant distribution over outside - middle - inside of the bobbins
- provide excellent sewability, with outstanding heat protection for your thread
- produce high performance sewing thread
- produce high quality embroidery yarn
- easy to handle in production
- conform to Öko-Tex-Standard 100

Exhaustion process SILWA® BL



Convincing advantages for thread manufacturers and garment makers



Silwa® lubricants - are sophisticated formulations for sewing threads and embroidery yarns based on high quality silicone oils, paraffin wax, softeners and special additives. In combination with our in-house developed emulsifier systems and our specialised production method you are assured the latest, state of the art technology.

	SILWA® BL	SILWA® TEX	SILWA® TS	SILWA® TSR	SILWA® D2	SILWA® DRH	SILWA® NSP-CA	SILWA® EM-CV
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PRODUCT SPECIFICATIONS

Chemical characteristics	water based dispersion of silicones, waxes, softeners, additives and emulsifiers with antistatic properties	water based dispersion of high molecular silicones, waxes, softeners, additives and emulsifiers with antistatic properties	water based dispersion of silicones, waxes, softeners, additives and emulsifiers with antistatic properties	water based dispersion of silicones, waxes, softeners, additives and emulsifiers with antistatic properties	dispersion of special paraffin waxes and emulsifier of antistatic character	water based emulsion of silicones, special softeners and emulsifiers with antistatic properties	compound of fatty acid esters and special additives with antistatic properties	water based dispersion of silicones, waxes, softener, additives and emulsifiers with antistatic properties
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PRODUCT PROPERTIES

Appearance	milky liquid	milky liquid	milky liquid	milky liquid	white, milky viscous emulsion	white, milky emulsion	yellow clear liquid	beige milky liquid
Ionic-state	cationic	cationic	cationic	cationic	cationic	cationic	anionic	cationic
Suitable for	all types of sewing threads and embroidery yarns	all types of sewing threads, preferably for PES filament sewing threads	all types of sewing threads and embroidery yarns	all types of sewing threads and embroidery yarns	cotton sewing threads and yarns	synthetic knitting and weaving yarns, preferably for PES and PA yarns	synthetic knitting and weaving yarns, especially for the automotive industry	PES and Rayon embroidery yarns
Benefits	<ul style="list-style-type: none"> provides excellent friction / stick - slip values and heat protection during sewing easy and cost saving application process GOTS approval 	<ul style="list-style-type: none"> provides extreme heat protection during sewing due to high molecular silicone oil exhibits excellent and very low friction and stick-slip values 	<ul style="list-style-type: none"> provides excellent friction values and heat protection during sewing 	<ul style="list-style-type: none"> provides very low friction values exhibits good sewability 	<ul style="list-style-type: none"> provides excellent friction and sewability exhibits soft handle 	<ul style="list-style-type: none"> dyebath application ALL-IN-ONE exhibits excellent gliding and antistatic properties 	<ul style="list-style-type: none"> silicone and paraffin free lubricant, i.e. for automotive industry dyebath application ALL-IN-ONE exhibits excellent gliding and antistatic properties GOTS approval 	<ul style="list-style-type: none"> exhibits soft handle provides excellent gliding properties due to low and constant friction values excellent lustre effect

Simply contact the Graf sales / Technical service team.

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Why not try Graf's lubrication and laboratory testing service!

Your benefits!

- competence and long-term experience in application technology
- intensive research and development in the field of chemical products
- creative innovations
- responsibility for environmental protection and safety
- competent service for all your needs
- we are close to you and your business



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SPECIALITIES

THREAD LUBRICANTS

SILWA[®]

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SILWA® SPECIALITIES

– the perfect solution for finishing your technical threads, sewing threads and embroidery yarns



Silwa® specialities are highly effective processing agents which are designed for technical threads, sewing threads and embroidery yarns and can be used with different application techniques.

Silwa® specialities are a very effective solution because they provide a wide range of functions.

	SILWA® BOND FIL	SILWA® BOND 1019	SILWA® BOND CO	SILWA® GT 1006	SILWA® WR 305 N	SILWA® HYBRID CONC.
PRODUCT PROPERTIES						
Function	water based bonding agent for filament threads	water based bonding agent for filament threads and technical threads	water based bonding and glacing agent for Cotton and PES/CO threads	water repellent agent and lubricant for sewing threads, based on C6 technology	PFC free water repellent agent and lubricant for sewing threads	PFC free water repellent agent for sewing threads
Chemical characteristics	water based formulation of different polymers	water based formulation of different polymers	silicones, waxes, special polymers and additives	water-based dispersion of fluorocarbon resins, silicones, waxes and antistatic emulsifiers	fluoro free hybrid polymer, water-based dispersion, silicones, waxes and antistatic emulsifiers	water-based fluoro free dispersion of different copolymers
PRODUCT SPECIFICATIONS						
Appearance	white, milky liquid	white, milky liquid	white, milky liquid	milky liquid	milky liquid	milky liquid
Ionic-state	anionic	anionic	slightly cationic	cationic	--	--
pH-value	6	6	5	4	4	8
Viscosity mPas (at 20°C)	< 100	< 100	< 1,000 < 2,500	<100	< 100	< 80
Application	bonding machine	bonding machine	bonding machine with brushes	graf Single Lub cold applicator or cold lick roll system	graf Single Lub cold applicator or cold lick roll system	graf Single Lub cold applicator or cold lick roll system
Suitable for	the bonding of PES and PA filament threads and technical threads	the bonding of PES and PA filament threads and technical threads	Cotton and PES/CO core threads	all kind of threads	all kind of threads	all kind of threads
Benefits	<ul style="list-style-type: none"> environmentally friendly easily dilutable with water easy to handle provides a soft handle 	<ul style="list-style-type: none"> environmentally friendly easily dilutable with water easy to handle provides a soft and dry handle 	<ul style="list-style-type: none"> produces a smooth, glossy surface no hairiness exhibits good friction and sewability 	<ul style="list-style-type: none"> provides the thread with excellent water repellent effects exhibits good friction and sewability 	<ul style="list-style-type: none"> provides the thread with excellent water repellent effects exhibits good friction and sewability 	<ul style="list-style-type: none"> provides the bonded thread with water repellent effects easily dilutable with water easy to handle

SILWA® – SPECIALITY PRODUCTS

Functions:

- water repellent effect in combination with excellent sewability, ALL-IN ONE
- FDA approval + Food contact status Germany
- excellent antistatic properties
- constant low friction values and best stick-slip properties
- excellent sewability, with outstanding heat protection
- excellent seam construction
- environmentally friendly water based bonding agent
- bonding effect in combination with water repellent effect
- reduce hairy fibre surface, produce a smooth and glossy surface
- waxed thread surface for individual effects and functions



Silwa® specialities are sophisticated formulations for sewing threads and embroidery yarns based on high quality silicone oils, paraffin wax, softeners and special functional chemicals. In combination with our in-house developed emulsifier systems and our specialised production method you are assured the latest, state of the art technology.

	TEX-LUB NSP	SILWA® WAX KL-G	SILWA® WAX SB-C	SILWA® KL 30	SILWA® TL 100 FDA	SILWA® NSP-CA FDA
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PRODUCT PROPERTIES

Function	coining and warp oil for threads and yarns; silicon free sewing thread lubricant	paraffin wax finish	paraffin wax finish	special waterbased paraffin wax emulsion to provide a sticky surface	Food contact status FDA, Germany and USA	Food contact status FDA and USA / Silicon and paraffin wax free finish für sewing threads
Chemical characteristics	water free compound of fatty acid esters and special additives	ductile microcrystalline waxes, solid	ductile microcrystalline waxes, solid	special waterbased emulsion of microcrystalline paraffin waxes	water-free formulation of special silicones, waxes and additives with antistatic properties	compound of fatty acid esters and special additives with antistatic properties

PRODUCT SPECIFICATIONS

Appearance	yellow, clear liquid	white solid, sticky	slightly yellowish solid	white milky, liquid	milky white oil	yellow clear liquid
Ionic-state	anionic	--	--	--	non ionic state	anionic
pH-value	--	--	--	--	--	--
Viscosity mPas (at 20°C)	< 50	10 - 15 (100° C)	10 - 16 (100°C)	< 200	< 1000	< 50
Application	graf Single Lub cold applicator or cold lick roll system	waxing machine	waxing machine	waxing machine or at winding machines with the appropriate application system	during winding with graf application system or cold lick roll system	during winding with graf application system or cold lick roll system
Suitable for	the finishing of undyed and dyed yarns and threads	all kind of threads	all kind of threads	all kind of threads, specially for cocoons and underthread bobbins	all types of threads and embroidery yarns	all types of threads and embroidery yarns
Benefits	<ul style="list-style-type: none"> • provides excellent antistatic properties • exhibits good friction • biodegradable • can easily removed from the yarn by rinsing with cold water 	<ul style="list-style-type: none"> • produces a sticky, soft surface • penetration 40 - 45 mm • FDA approval 	<ul style="list-style-type: none"> • produces a soft surface • penetration 25 - 45 mm • FDA approval 	<ul style="list-style-type: none"> • produces a slightly, sticky surface 	<ul style="list-style-type: none"> • exhibits very good friction values and sewability • provides good anti-static properties • FDA, Germany and EU food contact status 	<ul style="list-style-type: none"> • silicone and paraffin wax free lubricant, i. e. for automotive industry • exhibits good friction and anti-static properties • FDA and EU food contact status • GOTS approval

The data presented in this brochure are in accordance with the present state of our knowledge and shall inform about our products and their possibilities of application. The recommendations do 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 products for a particular purpose.

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Your benefits!

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- intensive research and development in the field of chemical products
- creative innovations
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WET WAXING AND SOFTENING LUBRICANTS
FOR KNITTING AND WEAVING YEARNS

SILWA®

www.graf-chemicals.com

SILWA®

wet waxing and softening lubricants –
the perfect solution for finishing your knitting and weaving yarns

Silwa® wet waxing and softening lubricants are highly effective processing agents which are designed for the lubrication and smoothing of knitting and weaving yarns using the exhaustion method.

Compared to the commonly used softener / hard wax process, Silwa® wet waxing and softening lubricants are a very cost effective solutions because they provide a wide range of functions.



Benefits:

- high smoothness and excellent gliding properties
- constantly low friction coefficient, fibre/metal and fibre/fibre
- for all types of yarns and their blends
- extremely short, low-cost application process
- even lubricant distribution over outside – middle – inside of the bobbin
- improved quality compared to hard wax process
- significant reduction of fibre fly during knitting
- excellent antistatic properties
- no influence on colour fastness
- enables optimal knitting and weaving even at extreme speeds
- constant yarn tension and reduced fibre fly guarantees a higher productivity and quality



CONVINCING ADVANTAGES in the dye house and the knitting/ weaving factory

Silwa® wet waxing and softening lubricants are solvent-free emulsions based on high quality waxes and paraffins. In combination with our in-house developed emulsifier systems and our specialised production method you are assured the latest, state of the art technology.

	SILWA® SFR	SILWA® SPF	SILWA® PEW	SILWA® HWK	SILWA® DRH
Chemical characteristics	paraffin wax emulsion and emulsifiers with antistatic properties	water based emulsion of paraffin wax, softeners and emulsifiers with antistatic properties	water based emulsion of paraffin wax, polyethylene and emulsifiers with antistatic properties	water based emulsion of paraffin wax, hydrophilic softeners and emulsifiers with antistatic properties	water based emulsion of silicones, special softeners and emulsifiers with antistatic properties
Appearance	white milky liquid	beige milky liquid	beige milky liquid	beige milky liquid	white, milky emulsion
Ionic-state	cationic	cationic	cationic	cationic	cationic
Suitable for	all common yarn types, preferably for PES fibers and their blends	all common yarn types and their blends	all common yarn types, preferably for cellulose fibers and their blends	all common yarn types and their blends	synthetic knitting and weaving yarns, preferably for PES and PA yarns
Benefits	<ul style="list-style-type: none"> highly concentrated provides excellent gliding / processing properties excellent exhaustion behaviour on synthetic yarns thermostable can be washed off easily suitable for dyed and white yarn GOTS approval 	<ul style="list-style-type: none"> provides good gliding / processing properties imparts good softness and smoothness can be washed off easily suitable for dyed and white yarn 	<ul style="list-style-type: none"> provides excellent gliding / processing properties with very low fiber/fiber and fiber/metal friction achieves good softness highly effective with excellent antistatic properties GOTS approval 	<ul style="list-style-type: none"> provides good gliding / processing properties imparts high surface smoothness and softness excellent exhaustion behaviour on synthetic yarns gives hydrophilic effect with excellent antistatic properties 	<ul style="list-style-type: none"> dye bath application ALL-IN-ONE exhibits excellent gliding and antistatic properties

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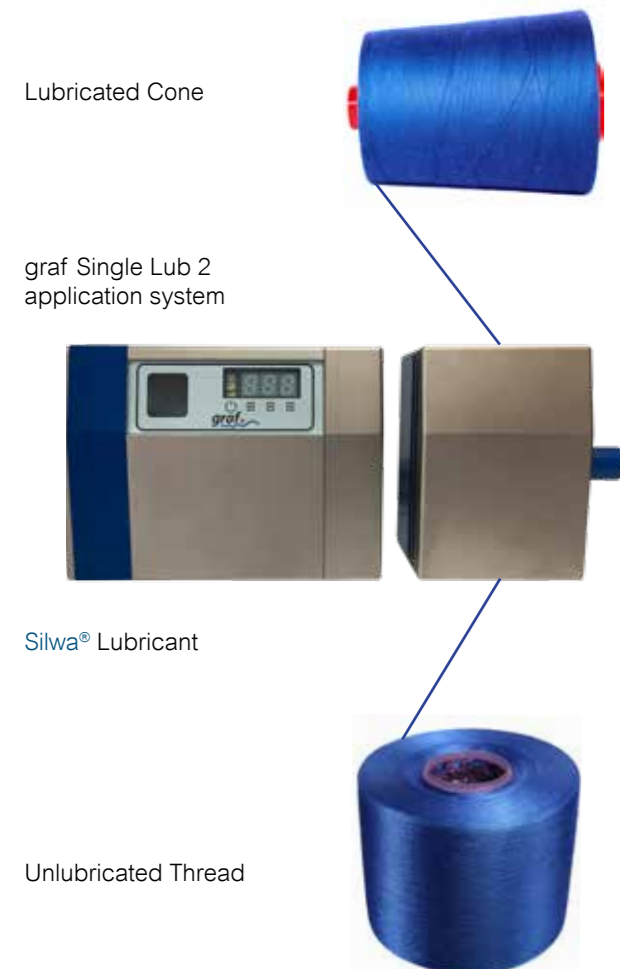


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GRAF APPLICATION SYSTEM

The state of the art technology for thread lubrication.
Precise thread lubrication guarantees constant yarn tension and an excellent seam finish.



Important features and advantages

- high precision dosing system for absolutely precise application of lubricants on any thread during the winding process
- adjustable lubricant pick-up from 0.5% to 20% depending on the type of thread
- highest reliability due to the permanent operation of the Fluid Motion Control
- System, which stops the spindle in the case of failure
- slotted applicators for quick and easy yarn insertion
- optimised for use on high-speed finishing and pre-winding machines
- minimum contamination of the winding machine, even at high winding speeds
- almost adaptable to any winding machine, independent of brand or type
- minimum maintenance requirements
- greatest flexibility due to its small size

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WINDING PROCESS LUBRICATION
GRAF APPLICATION SYSTEM
COLD LICK ROLL SYSTEM
THREAD LUBRICANTS

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SILWA® LUBRICANTS

The perfect solution for finishing your sewing thread and embroidery yarn

Silwa® lubricants are highly effective processing agents which are designed for the lubrication of sewing threads and embroidery yarns and can be used with all application techniques. Silwa® high quality lubricants are a very cost effective solution because they provide a wide range of functions.

Application method:

- graf Sinle Lub 2 application system
- cold lick roll system
- application during final winding or rewinding process



Silwa® lubricants are sophisticated formulations for sewing threads and embroidery yarns based on high quality silicone oils, paraffin wax, softeners and special additives. In combination with our in-house developed emulsifier systems and our specialised production method you are assured the latest, state of the art technology.

Benefits:

- highly stable lubricants, based on special silicone oils, paraffin wax and additives with antistatic properties
- sophisticated Silwa® lubricants are available 100% active, water free; highly concentrated or as water based emulsions
- guarantee constant low friction values and best stick slip properties
- provide excellent sewability, with outstanding heat protection for your thread
- no separation, thickening or change in viscosity
- easy to handle in production
- cost effective compared to pure silicone oils
- very fine and homogenous dispersion
- minimal shade change
- excellent antistatic properties
- produce high performance sewing thread and embroidery yarn
- productive, efficient sewing operations
- excellent seam construction
- conform to Öko-Text Standard 100
- with FDA/EU approval available



	SILWA® CMS 100	SILWA® SL 195	SILWA® GFR	SILWA® 7 AH	SILWA® SL 1000	SILWA® TL 100
Chemical characteristics	water-free formulation of high molecular silicones, hydrocarbons and additives	high concentrated formulation of silicones, waxes and additives, contains only about 5 - 8 % water	water-free formulation of silicones and additives	water-free formulation of silicones, waxes and additives	high concentrated formulation of high molecular silicones, waxes and additives, contains only about 5 - 8 % water	water-free formulation of silicones, waxes and additives with antistatic properties
Appearance	clear to slightly opaque liquid	milky white	clear, liquid	milky white	milky white	milky white
graf application system		■	■	■	■	■
cold lick roll system	■	■	■	■	■	■
suitable for	all types of sewing threads and embroidery yarns, preferably for text. PES or PA	all types of sewing threads and embroidery yarns	all types of sewing threads and embroidery yarns	all types of sewing threads and embroidery yarns	all types of sewing threads and embroidery yarns	all types of sewing threads and embroidery yarns
FDA approval	■	■	■	■		
Benefits	<ul style="list-style-type: none"> • causes no product abrasion or deposits at the needle • exhibits good friction and heat protection properties due to high molecular silicone oil 	<ul style="list-style-type: none"> • exhibits very good friction values and sewability • very cost effective lubricant • provides excellent antistatic properties • GOTS approved 	<ul style="list-style-type: none"> • causes no product abrasion or deposits at the needle • exhibits good friction values and sewability 	<ul style="list-style-type: none"> • exhibits good friction values and sewability 	<ul style="list-style-type: none"> • exhibits very good friction values and excellent sewability • provides excellent antistatic properties • GOTS approved 	<ul style="list-style-type: none"> • exhibits very good friction values and sewability • provides good antistatic properties • GOTS approved

	SILWA® TL 2000	SILWA® TL 3000	SILWA® 145 KS	SILWA® HR	SILWA® NSP-CA	SILWA® NSP-CA FDA	
Chemical characteristics	water-free formulation of high molecular silicones, waxes and additives with antistatic properties	water-free formulation of high molecular silicones, waxes and additives with antistatic properties	water-free formulation of very high molecular silicones, waxes and additives	hot melt, water-free formulation of silicones, waxes and additives	compound of fatty acid esters and special additives with antistatic properties	compound of fatty acid esters and special additives with antistatic properties	
Appearance	milky white	milky white	milky white	white paste	yellow clear liquid	yellow clear liquid	
graf application system	■	■	■		■	■	
cold lick roll system				hot lick roll system	■	■	
suitable for	all types of sewing threads	all types of sewing threads	all types of sewing threads	all types of sewing threads	all types of sewing threads and embroidery yarns	all types of sewing threads and embroidery yarns	
FDA approval	■	■	■	■		■	
Benefits	<ul style="list-style-type: none"> • exhibits excellent friction values and heat protection properties during sewing due to high molecular silicone oil • exhibits excellent antistatic properties • GOTS approved 	<ul style="list-style-type: none"> • exhibits excellent friction values and heat protection properties during sewing due to high molecular silicone oil • exhibits excellent antistatic properties • GOTS approved 	<ul style="list-style-type: none"> • provides extreme heat protection and excellent friction values during sewing due to high molecular silicone oil • exhibits excellent antistatic properties 	<ul style="list-style-type: none"> • exhibits excellent friction values and heat protection properties during sewing 	<ul style="list-style-type: none"> • silicone and paraffin free lubricant, i.e. for automotive industry • exhibits good friction and antistatic properties 	<ul style="list-style-type: none"> • silicone and paraffin free lubricant, i.e. for automotive industry • for the food industry approved • exhibits good friction and antistatic properties • GOTS approved 	<ul style="list-style-type: none"> • provides extreme heat protection during sewing and very low friction / stick-slip values • exhibits soft handle

	SILWA® TL 100 FDA	SILWA® 1809	SILWA® APY	SILWA® SL 350	SILWA® EMB 100	SILWA® HLP	
Chemical characteristics	water-free formulation of silicones, waxes and additives with antistatic properties	water-free formulation of silicones, waxes and additives with antistatic properties	water-free formulation of silicones, waxes and special additives to protect the thread against phenolic yellowing	water-free formulation of silicones, waxes and additives with antistatic properties	water-free formulation of silicones, waxes and additives with antistatic properties	water-free formulation of silicones, waxes and additives	
Appearance	milky white	milky white	milky white	milky white	milky white	milky white	
graf application system	■	■	■	■	■	■	
cold lick roll system	■	■	■	■	■		
suitable for	all types of sewing threads and embroidery yarns	all types of sewing threads and embroidery yarns	all types of sewing threads and embroidery yarns	all types of sewing threads and embroidery yarns	Polyester and Rayon embroidery yarns, all types of sewing threads	all types of sewing threads	
FDA approval	■					■	
Benefits	<ul style="list-style-type: none"> • exhibits very good friction values and sewability • provides good antistatic properties 	<ul style="list-style-type: none"> • exhibits very good friction values and sewability • provides good antistatic properties • GOTS approved 	<ul style="list-style-type: none"> • prevents phenolic yellowing • exhibits very good friction values and sewability 	<ul style="list-style-type: none"> • exhibits very good friction values and sewability • provides good antistatic properties 	<ul style="list-style-type: none"> • provides excellent running properties due to low, constant friction values • exhibits excellent antistatic properties 	<ul style="list-style-type: none"> • exhibits very good friction values and sewability • GOTS approved 	

	SILWA® S280	SILWA® F500	SILWA® UFP 50	SILWA® EMB 45
Chemical characteristics	water based dispersion of high molecular silicones, waxes, softeners, additives and emulsifiers with antistatic properties	water based dispersion of high molecular silicones, waxes, softeners, additives and emulsifiers with antistatic properties	water based dispersion of silicones, waxes, softeners, additives and emulsifiers with antistatic properties	water based dispersion of silicones, waxes, softeners, additives and emulsifiers with antistatic properties
Appearance	white milky liquid	white milky liquid	white milky liquid	white milky liquid
Ionic-state	cationic	cationic	nonionic, slightly cationic	nonionic, slightly cationic
Solid matter (%)	50	50	47	45
pH-value	4.0 - 4.5	4.0 - 4.5	6.0	4.0 - 5.0
graf application system	■	■	■	■
cold lick roll system	■	■	■	■
suitable for	all types of sewing threads, preferably for PES filament sewing threads	all types of sewing threads and embroidery yarns, preferable for filament sewing threads	all types of sewing threads	PES and Rayon embroidery yarns
Benefits	<ul style="list-style-type: none"> • provides extreme heat protection during sewing and very low friction / stick-slip values • exhibits soft handle 	<ul style="list-style-type: none"> • provides extreme heat protection during sewing and excellent friction / stick-slip values • exhibits soft handle 	<ul style="list-style-type: none"> • provides very good friction values and heat protection during sewing 	<ul style="list-style-type: none"> • provides excellent running properties due to low, constant friction values • exhibits excellent antistatic properties • gives outstanding performance on Rayon and PES embroidery yarns