

# STRUB Spindelfluid XLI

Corrosion protection fluid for spindle cooling systems

Art. No. 30719



## Description

Strub Spindelfluid XLI is a low-toxic, environmentally friendly inhibitor concentrate.

## Application

Based on patented aliphatic acid technology, Strub Spindelfluid XLI provides long-life corrosion protection in aqueous solutions for all engine metals, including aluminium, iron, copper and solder alloys.

Mixing ratio : 7 Vol.% in tap water.

The concentration should be periodically checked by refractometer (% Brix).

Refractometer reading  $\times 2.9 =$  % vol effective concentration.

By not expected change Strub Systemcleaner (ask for TDB) should be added with 2% into the system minimum 24 hours before changing.

## Features and Benefits

- ✓ Extended & superior corrosion protection
- ✓ Superior technology
- ✓ Excellent protection
- ✓ Reliability
- ✓ Improved hard water stability
- ✓ Save time and money
- ✓ Environmentally friendly

## Chemical and physical properties

CORROSION PROTECTION							
Modified ASTM D1384 glassware corrosion tests - 300 ppm chloride							
	Gewichtsverlust in mg/Coupon*						
	Brass	Cooper	Solder	Steel	Cast Iron	Aluminium	AlMn
ASTM D3306 (max)	10	10	30	10	10	30	/
5 % Strub Spindelfluid XLI	0.6	0.6	4.5	0.0	0.7	9.8	4.8

technical parameter	Strub Spindelfluid XLI	Method
Inhibitor content	33 % w/w	
Water content	67 % w/w	ASTM D1123
Nitrite, amine, phosphate, borate, silicate	nil	
Colour	colourless	
Density at 20°C	1.055 typ.	ASTM D1122
pH	9.4 typ.	ASTM D1287
Cloud point	- 15 °C typ.	
Storage stability	3 years	

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	5 % dilution	method
pH	8.1 typ.	ASTM D1287
Foaming properties at 25°C	10 ml typ.	ASTM D1881
↳ brea time	1 sec. typ.	
Effect on non-metals	no effect	GME 60 255
Hard water stability	no precipitate	VW PV 1426

## Corrosion test during aging with Strub test parameters

To emphasize the corrosion protection offered by **Strub Spindelfluid XLI**, the aging test is conducted under more severe conditions compared to those commonly used in the industry.

Test conditions	Typical Industry	Strub Spindelfluid XLI
Test duration	169 h	504 h
Fluid content	5.0 l	6.0 l
Pressure	1.5 bar	2.5 bar
Flow	3.0 l/min	3.5 l/min
Heat input	5500 W	5000 W
Temperature in heating vessel	95°C	115°C
Temperature in cooling vessel	75°C	95°C
Concentration of coolant in water	40 vol. %	20 vol. %

## Weight loss in g/m<sup>2</sup> (using Strub test parameters) <sup>1</sup>

	Al <sup>2</sup>	AlMn	Cast Iron	Steel	Cu	CuZn	Solder CB
<b>Reference Coolant</b> <sup>3</sup>							
after initial cleaning	82.10	64.02	-2.19	-1.68	3.62	2.90	21.45
after final cleaning	125.01	94.33	-0.36	0.11	4.99	5.66	25.83
<b>Strub Spindelfluid XLI</b>							
after initial cleaning	23.91	27.05	0.52	0.36	1.03	1.13	0.27
after final cleaning	60.16	63.15	0.69	0.40	1.46	1.76	0.52

## Modified MTU High Temperature corrosion test (2000 W)

	Weight loss in mg/coupon <sup>1</sup>		
	Cast Iron	Aluminium	
		Al <sup>2</sup>	AlMgSi1
test duration 116 hrs			
<b>5 % Spindelfluid XLI in deionized water</b>			
hot coupon	-1.3	9.3	1.8
<b>5% Spindelfluid XLI in FVV-water</b>			
hot coupon	-9.0	-16.4	40.7

1. Weight loss AFTER chemical cleaning acc. to (shortened) MTU procedure. Weight gain is indicated by a - sign.
2. Aluminium SAE 329.
3. Reference coolant is conventional, high quality, ethylene glycol- and silicate-based coolant.

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**Dilution range:** % 6.0 / 10.0

**Temperature:** 60°C

Dilution (%)	7 %	8 %	10 %
Density (kg/m <sup>3</sup> )	983.42	987.92	989.17
Kin. viscosity (mm <sup>2</sup> /s)	0.515	0.52	0.54
Spec. heat (kJ/kg.K)	4.17	4.17	4.17
Thermal conductivity (W/mK)	0.6382	0.6348	0.6316
Vapor pressure (Pa)	19851.51	19891.51	19891.51
Electr. conductivity (µS/cm)	6245.13	6866.97	8368.31
Prandtl number	3.37	3.40	3.52

## SEALS COMPATIBILITY

◆ Nitril rubber	(NBR)
◆ Hydrogenated nitril rubber	(H-NBR)
◆ Acrylate rubber	(ACM)
◆ Silicon rubber	(MVQ)
◆ Fluorated rubber, e.g. Viton from DuPont	(FPM)
◆ Ethylene-propylene-diene-rubber	(EPDM)
◆ Butyl rubber	(IIR)
◆ Natural rubber	(NR)
◆ Styrolbutadiene rubber	(SBR)
◆ Polychlorinated butadiene- elastomers, e.g. neoprene from DuPont	(CR)
◆ Polytetrafluorethylene, e.g. teflon from Hostafion	(PTFE)
◆ Polyethylene, low density and high density	(LDPE und HDPE)
◆ Polypropylene	(PP)
◆ Polyvinylchloride, soft and hard type	(PVC)
◆ Polyamide	(PA)
◆ Polyester resin	(UP)
◆ Elastogran 1100	(PUR-Ether)

## Transportation

ADR/SDR: not dangerous goods

## Disposal

LVA VeVA / EAK: 12 01 09

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