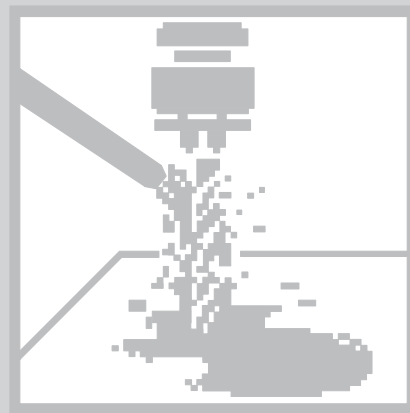


General care
and maintenance
for cooling
lubricants (CL)



GB

cooling lubricants

Notes on water-soluble cooling lubricants (CL)

CL requirements

- The cooling lubricant being used must meet the requirements stipulated by TRGS 611.
- No corrosion of seals, elastomers and machine paintwork.
- Corrosion protection for use in accordance with regulations.
- Good filtering and separation capabilities.
- Minimal formation of foam, rapid degassing.
- Optimised capabilities for separating lubricating and leakage oil.
- Resistant against bacteria and fungus.
- Free of aggressive and harmful additives.

Application

- Observe safety data sheet for the cooling lubricant!
- Apply in accordance with regulations from the coolant manufacturer. The mixing water should be of drinking-water quality. When refilling and topping up the cooling lubricant, always fill via a dosing and mixing device.
- Supervise handling of cooling lubricants for employees, e.g. see trade association regulations BGR143.

Care and monitoring

- Check condition of the CL at the intervals specified in the CL test schedule.
- Synthetic cooling lubricants do not usually provide effective corrosion protection.



Check that the synthetic CL has good corrosion prevention qualities to prevent damage to the CL unit. (Pre-specified concentration! Low levels of salt! Sufficient corrosion prevention inhibitors!).

- Hydraulic oils in machine tools must not be deterging (water-resistant).
- Do not introduce any chemicals, waste material, colour or impurities into the cooling lubricant.
- Avoid adding foreign oils. Remove oil floating on the surface.
- Keep the temperature of the CL as far below 25°C as possible.
- Keep CL moving constantly (cyclic circulation, also recommended when machine not in operation).
- Check CL regularly and add preserving agent later if necessary.
- Drain used cooling lubricants from the unit immediately and dispose of! Danger to people, the environment and the unit! Clean the unit thoroughly using mechanical means.
- Keep work areas as dry as possible (e.g. eliminate puddles of fluid under floor gratings).

Environmental protection, water pollution prevention

- Observe local regulations (VAwS) for handling water-polluting materials when operating, decommissioning or disassembling the unit or parts thereof!

Cleaning the coolant reservoirs

- Cleaning intervals depend to a large extent on type of processing, material, coolant and operating hours, which is why a generally applicable cleaning intervals cannot be specified. As a guide value, a cleaning interval of about 6 months is recommended.

Cooling lubricant maintenance plan

Parameter to be monitored	Interval	Test methods	Measures / Instructions
1 General check (perceivable changes)	Daily	Poor appearance, bad smell, oil does not emulsify (floats on surface) Deposits in the system and on workpieces (e.g. sediment, adhesive, gel formations)	Pinpoint and eliminate causes (organic impurities, cigarette butts, etc.); Separate oil, circulate or ventilate CL; check filters. Check concentration content Prevent foreign substances from entering. Optimise cleaning procedure Replace KSS, treat unit with system cleaner before replacing
2 Temperature Specified value: < 25° C	Daily	Thermometer	Increase CL volume, cool CL.
3 pH-value Specified value: 8.5-9.5 pH Deviations only on consultation with Knoll	Weekly	Check pH-value with pH test paper or electrometrically in accordance with DIN 51369	In the event of a pH-value decrease > 0.5 compared to specified value: —> check the concentration, add concentrate if necessary. If the concentration is correct, it can be assumed that the pH-value is falling because of high bacteria levels —> add stabilisers. If the pH-value falls below 8 —> clean unit and fill with fresh emulsion.
4 Nitrate content in water used Specified value: < 25 mg/l as far as is possible maximum 50 mg/l	When refilling and topping up	Test stick / analysis by water plant	Use water from public water supply or mix in demineralised water or water with a low nitrate content.
5 Nitrite content Specified value: max. 20 mg/l	Weekly	Test stick method or in accordance with DIN 38405 Part 10	If 20 mg/l is exceeded: replace CL in full or in part or use suitable tested inhibiting additives or measure nitrosamine levels (NDELA ^{**}) in the CL and in the air: If > 5 mg/kg NDELA ^{**} in CL —> replace CL, clean CL circuit and disinfect, pinpoint nitrite source.

Cooling lubricant maintenance plan

Parameter to be monitored	Interval	Test methods	Measures / Instructions
6 Concentration Specified value: as per manufacturer specifications	Weekly	Manual refractometer or express laboratory available from manufacturer	Add concentrate and water. Excessive concentrations have an irritant effect and can cause skin diseases. Note: Synthetic cooling lubricants do not usually provide effective corrosion protection. Important: Check that synthetic CL has good corrosion prevention qualities to prevent damage to the CL unit. (Pre-specified concentration! Low levels of salt! Sufficient corrosion prevention inhibitors!)
7 Germ count* Specified value: as low as possible (limit values not specified)	Weekly	Test strips (dip slide)	A status description of the CL with regard to microbic levels should be based on known parameters (perceivable chan- ges, decrease of pH-value, concentration, nitrite content).
8 Conductivity* Specified value: no sharp increase compared with the previous measurements	Fortnightly	Conductivity measuring device	Sharp increases in conductivity indicate an increase in conductive minerals and thus a deterioration of the CL quality. Conductivity measurements are temperature-dependent.



The measurements as per **nos. 2-6** are specified in accordance with TRGS 611 (technical regulations for dangerous materials 611). The measured results must be documented.

* = The measurements as per nos. 7 and 8 are used to supplement the status profile of the CL.

*1= N-nitrosodiethanolamine

Source of the specified limit values: TRGS 611

Different country-specific or regional requirements and laws must be taken into consideration.

KNOLL

.It works

Knoll Maschinenbau GmbH

Schwarzachstr. 20

D-88348 Bad Saulgau

Tel. +49 (0)7581/2008-0

Fax +49 (0)7581/2008-140

info.itworks@knoll-mb.de

www.knoll-mb.de