Basics of using water-based coolants for machine cutting

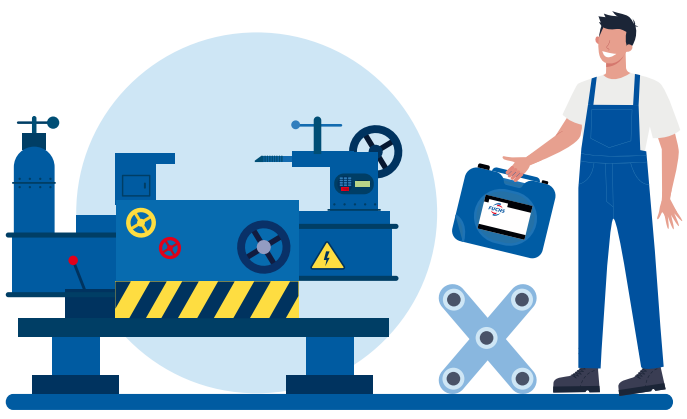
LUBRICANTS. TECHNOLOGY. PEOPLE. FUCHS

01

First fill

- Pour a fresh coolant solution of the recommended concentration into an empty machine tool tank*.
  *if the system is not new, it must be previously washed and sanitized
- If you have to prepare the coolant solution without an automatic mixer:
  pre-mix the coolant solution in a container and only then pour the mixture into the tank.

  Never mix a fresh solution directly in the machine tool tank.
- **When preparing the coolant solution, always add coolant concentrate to water, never the other way around!**



- The prepared mixture should be of the concentration that is stated in the in the product information sheet or recommended by the coolant supplier's representative - specific to the operations being performed.
- **Such coolant solution concentration is called the "initial concentration".**

02

Coolant top-ups during machining

- The loss of coolant from the tank happens mainly due to evaporation of water, therefore the concentration of top-ups must be correspondingly lower than the initial concentration.
- Top-up solution concentration usually amounts to **about 1/3-1/2 of the initial concentration.**

NEVER TOP-UP WITH "JUST WATER"!

When making a mixture, always add the coolant concentrate to water, never the other way around!

03

Coolant level in tank

- Add fresh coolant solution successively in such a way that the amount in the tank is constantly at a level close to the maximum.
- Evaporation of water from the coolant solution has such effect that the less coolant there is in the tank, the higher its concentration. Such spikes of concentration are never beneficial for the properties of the coolant nor for the operators (irritation, itching, sensitization).

04

Coolant maintenance

Keep the coolant solution concentration in the system within the recommended ranges at a constant level.
This will help extend the coolant's operating time.

Never allow objects such as cigarette butts, leftover tea, coffee or juices to fall into the machine tool feeder, the chip container or the coolant tank. You risk microbiological contamination of the coolant.

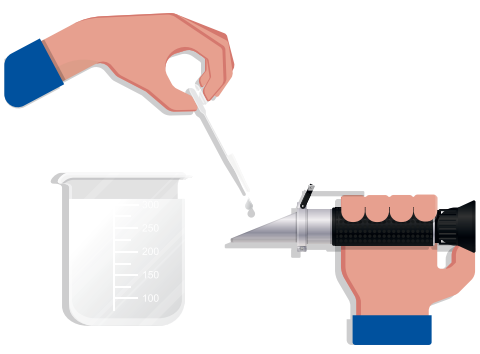
Make sure that filtration systems are clean and efficient at all times. Proper filtration has a major positive effect on solution stability.

React to any changes in the properties of coolant solution - the appearance of unpleasant odors, deposits, fungi, mold, etc.

05

Measurement of coolant concentration in the system

- The concentration is measured with an optical refractometer, using the multiplier provided in the information sheet.
- To ensure that the measurement is reliable, always take the measurement with a uniformly high level of coolant in the tank.



Want to learn more? Scan the QR code or check us out at www.fuchs.com

FUCHS professionals will be happy to advise and provide training on the use of machining fluids for your company's employees.