

Usage of KSS-Kombi-Test

profluid

Sample

Aqueous metal working fluids

Sampling

Take a sample at a position, where the fluid is perfectly mixed.

Samples, which are not tested immediately, should be stored below room temperature until measurement.



Procedure

Take a stick, close the tube, and insert the stick into the MWF for ~1 second. Immediately shake off the liquid excess, and wait 60 seconds before evaluation. For comparison with the printed color scale, hold it parallel to the left side of the label. The nitrite patch at the end of the stick should be aligned with the respective field on the tube. However avoid holding the stick upwards with the nitrite field in highest position, so keep the "closed" tube horizontal, or slightly with the top downwards. The reagent of the nitrite patch is partially water soluble, and will start running down the stick, obscuring the color of the pH indicator field.

Evaluation:

Match the color on each field with its corresponding color scale printed on the tube, and read the value. Personal with red-green color recognition debility are often unable to use these sticks.

Caution!

After taking out a stick, always close the tube with the delivered cap. It contains a nonhazardous humidity adsorbent. Continuous infiltration of humidity into the tube will degrade the indicator fields. Store below 86°F. The sticks are not hazardous, but contact with children should be avoided. The intended use is restricted to water miscible metal working fluids.

KSS is the German abbreviation of Metal Working Fluid - MWF.

Nitrit (NO₂)

Concentrations of Nitrite in MWF ≥ 20 mg/l indicate mutagenic and cancerous risk factors due to possible formation of N-Nitrosamines. Check it every week. If levels > 20 mg/l are found, contact your MWF-supplier. Some MWFs are inhibited against nitrosamine formation up to 80 mg nitrite/l. Sources for nitrite formation are: Bacterial degradation of nitrate in process water, spillage from tempering baths, general microbial activity, diesel exhaust.

Water Hardness (dH° - mMol/l Ca²⁺)

Soft foam may appear at low levels of Calcium (Ca²⁺ < 1 mMol/l). High Calcium (Ca²⁺ > 5 mMol/l) may lead to scaling, enhances corrosion and promotes microbial growth. The resulting foam is often rather "hard". Emulsions may even break. A regular check is recommended. We strongly recommend to replenish your system with water from reverse osmosis blended to ~ 1 mMol/l Ca²⁺.

pH

MWFs should only be operated in the pH- and concentration-range recommended by the manufacturer. An increase enhances the risk of skin irritation. Lowered pH is an indicator for loss of stability, corrosion protection and microbial degradation. The latter can lead to stinking. Deviations therefore have to be corrected. Otherwise the exchange of the MWF is recommended. A weekly check is reasonable. Sometimes constituents of the MWF obscure color of the pH-indicator. To avoid misinterpretations first check the pH of a freshly prepared sample of MWF with the KSS-Kombi-Test, and compare the reading with the data sheet, or better control it with a calibrated pH-meter. If large deviations occur, you can still use the test stick, however the reference value of the MWF for routine control should be adopted. Relevant for daily work shop live is only the degradation of pH. Usually a decrease of 0,2 to 0,3 pH units is normal, a larger decrease is a trouble indicator.