



Proper maintenance of
water-miscible metalworking fluids
during production stops.

Blaser Swissslube
Customer Service



Overview of recommendations to keep water-miscible metalworking fluids healthy during production stops

Concentration

Keep the concentration at minimum 8%. This will ensure sufficient pH buffer for stability.

pH value

Make sure the pH remains within the recommended range.

Circulation

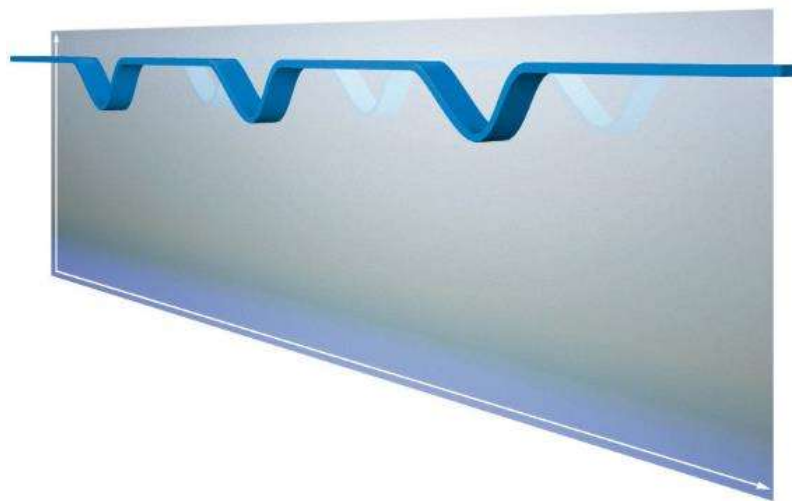
Plan for daily circulation of emulsion in tank for minimum 30 minutes.

Skimmer

Keep the skimmer running during stand still. If you don't have a skimmer, periodically remove tramp oil manually.

Chip conveyor

Run the chip conveyors daily – before starting circulation – to remove the sedimented chips/microchips which settle at the bottom of the tank.



Equipment for coolant monitoring

Required equipment for checking the vital parameters of your water-miscible metalworking fluid:

Concentration check with refractometer



pH check with pH strips



Hardness check with hardness strips (optional)



Nitrite strips for Germany



Check concentration

Why testing concentration?

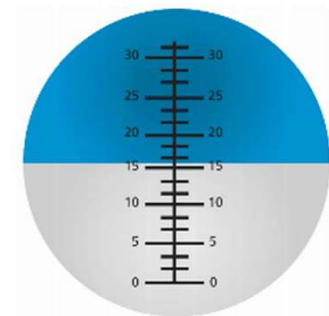
For long-term stability of the emulsion, the correct concentration is key.

The concentration tells us whether sufficient stabilizer, pH booster and other components are present.



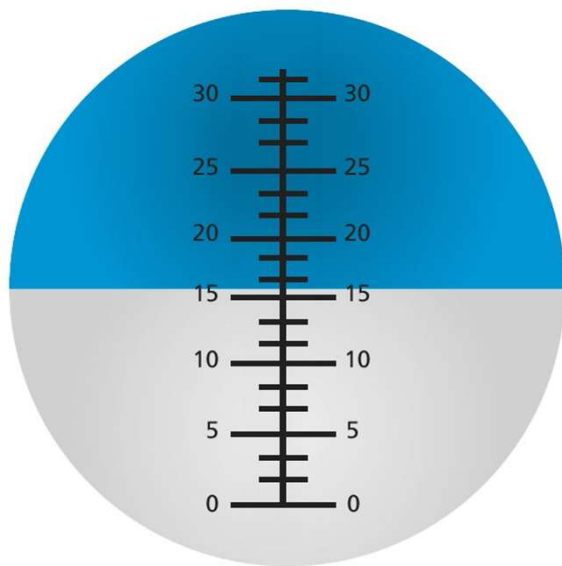
How to measure

- 1) Calibrate the refractometer with water. The reading must be 0.
- 2) Apply a drop of emulsion to the refractometer.
- 3) Read the line in the refractometer.
- 4) Multiply the reading by the product-specific factor.
- 5) Record the value on the monitoring sheet.
- 6) Rinse and clean the refractometer.

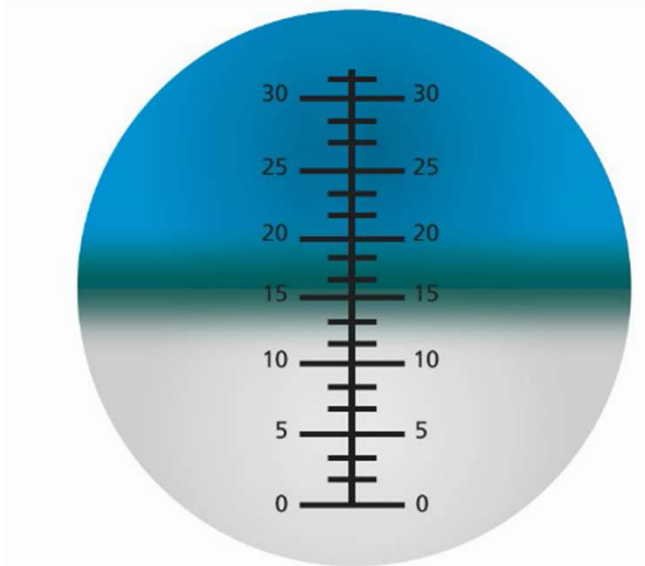


Contamination can influence refractometer reading

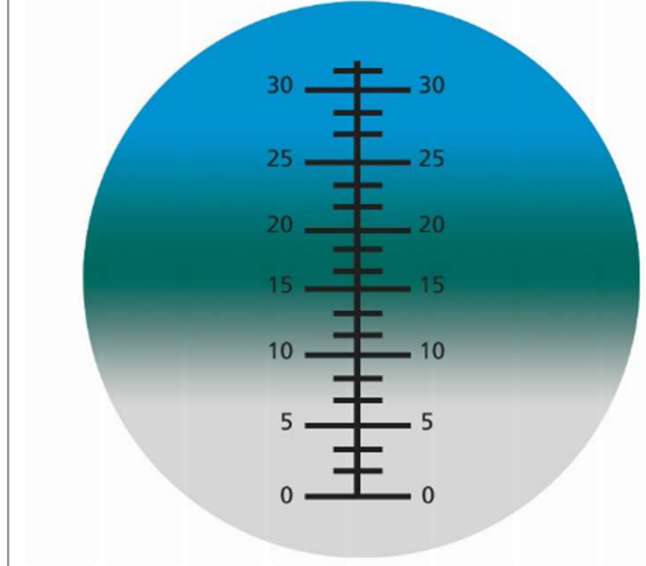
Emulsion contaminated with tramp oil shows a diffuse reading.
A properly mixed, fresh emulsion shows a sharp line.



Fresh and clean emulsion



Contaminated emulsion



Highly contaminated
or **unstable** emulsion

Check pH value

Why testing pH value?

The pH tells us how “healthy” an emulsion is. Low pH is a first sign for a reduced quality of the emulsion.

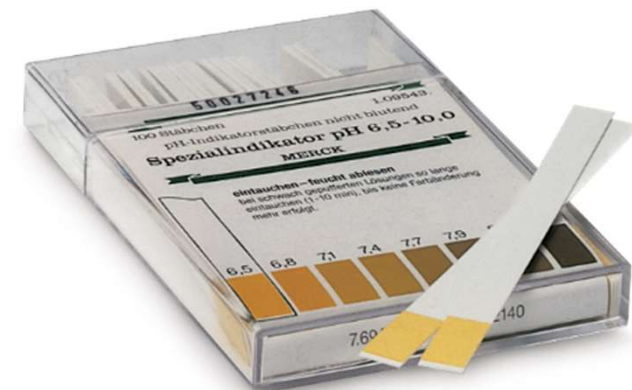
What is the normal pH range for an emulsion?

The pH of used emulsions is between 8.7 and 9.4 for most Blaser coolants.

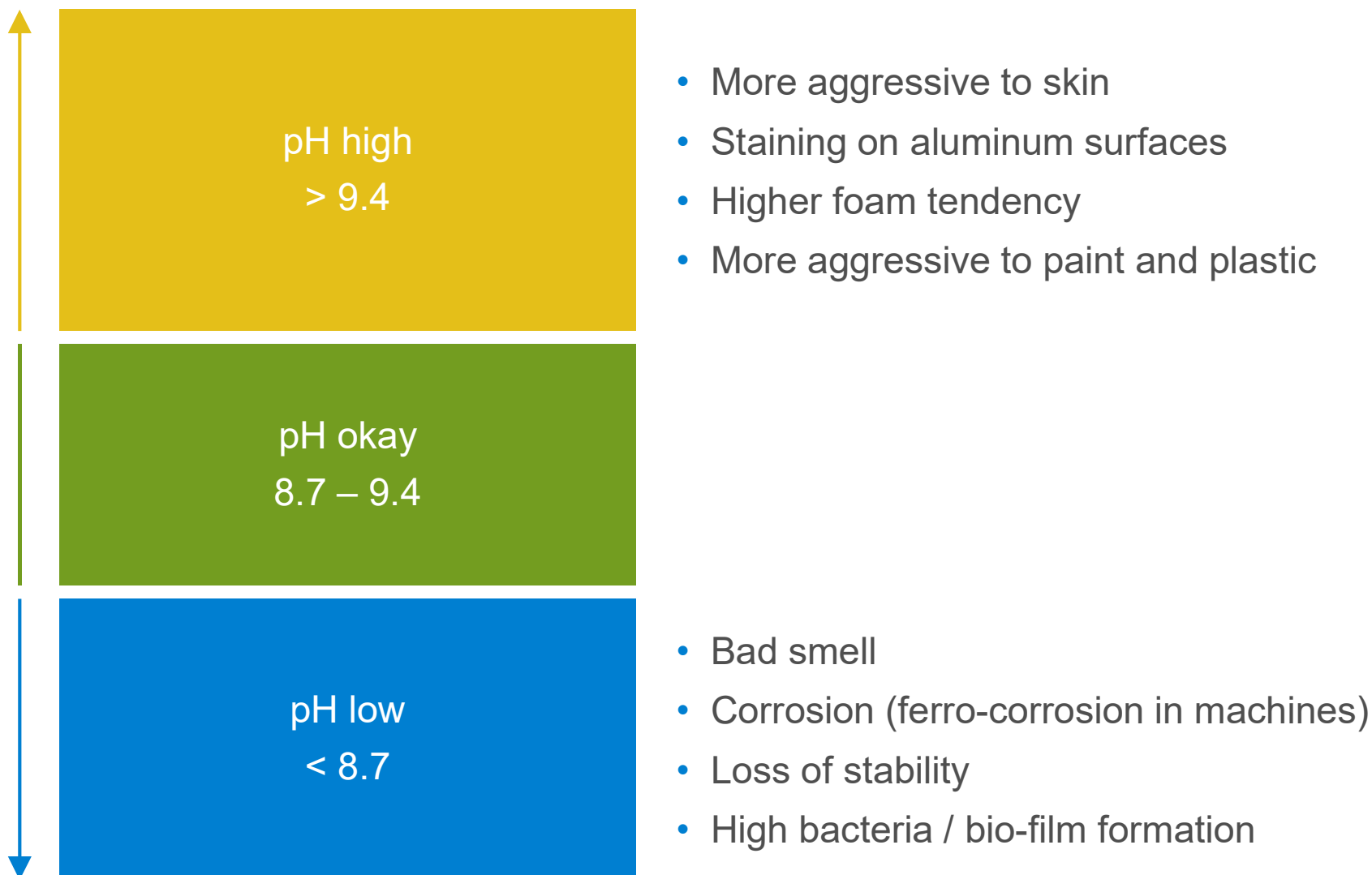
How to measure

- 1) Dip the pH strip into the clean emulsion.
- 2) Compare the color with the color scale on the box.
- 3) Record the value on the monitoring sheet.

(See also instructions on the box)



Consequences of pH that is too high or too low



Check smell and appearance

The smell should remain neutral. A bad smell is often a sign that the emulsion is off balance.

Bad smell may also occur if the emulsion has been stagnant for a while. In this case a 30 min. circulation may help.

The appearance gives you good information about the stability of the emulsion.

- A consistent appearance is a good sign for a stable emulsion.
- Visual changes in color or the formation of a floating layer must be considered as a first sign of an unstable emulsion.

Record changes on the monitoring sheet.

Additional/optional checks

Emulsion hardness

In some systems it may be helpful to check the hardness level.

The correct hardness level ensures good foam control and prevents the emulsion from splitting (in case the hardness accumulates too fast).



How to measure

- 1) Dip the hardness strip into the emulsion (remove any floating layer if necessary).
- 2) Wait for 1 minute and compare the reading with the color scale on the box.

Nitrite (Germany only)

In Germany it is requested to check the Nitrite level (TRGS 611).

Check Nitrite with the Nitrite strips and record on the monitoring sheet.



Record measurements in monitoring sheet

It is strongly recommended to record measurements

In case of issues, the monitoring sheet can be exchanged and discussed with your Blaser specialist.

Important: When pH or concentration drops, contact your Blaser representative.

Cutting Fluid Monitoring													Product					System/Machine:								
													Art. No.					Filling date:								
Date	Concentration %												pH value									Smell		Appearance		
	3	4	5	6	7	8	9	10	11	12	13	8.0	8.2	8.4	8.6	8.8	9.0	9.2	9.4	9.6	9.8	okay	bad	okay	not okay	

Example sheet
Green range varies depending on product.

Frequency of monitoring

The frequency depends on the size of the sump. Big central systems need a higher monitoring frequency than stand-alone tanks.

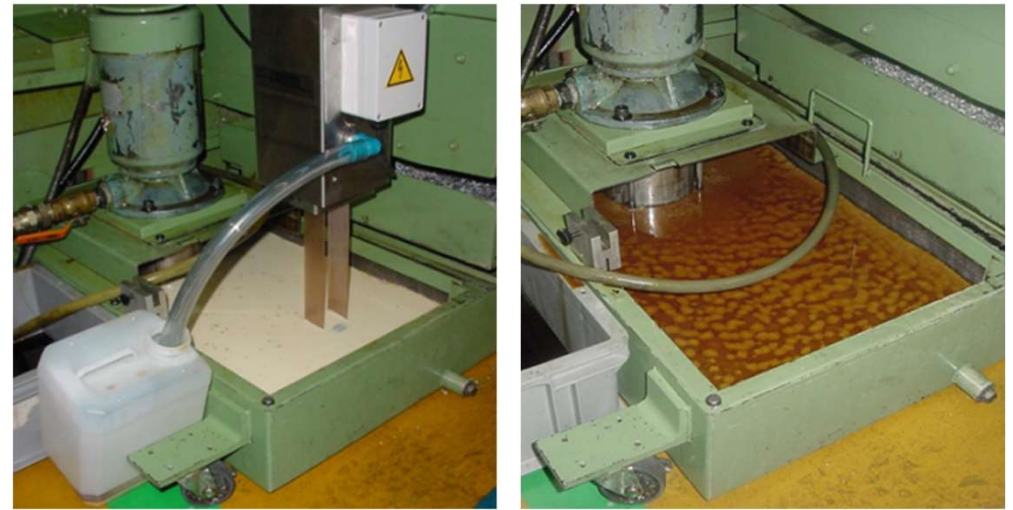
Parameter	Central systems	Machines with stand-alone tanks
Concentration	daily	weekly
pH value	daily	weekly
Smell and appearance	daily	daily (when producing)
Nitrite (Germany only)	weekly	weekly

Remove tramp oil

Floating tramp oil on the coolant surface may lead to anaerobic conditions in the tank.

Especially when the coolant is not circulating, tramp oil may slowly float to the surface.

Keep the skimmer running during stand still. If you don't have a skimmer, periodically remove tramp oil manually.



With and without skimmer

Remove chips and microchips

Chips and microchips sediment at the bottom of the tank, especially when the coolant is not circulating.

This creates anaerobic conditions and sometimes even galvanic corrosion (chips are made of different metal than the tank).

Removing the sediments from the bottom of the tank may keep long-term stability and prevent bad smell.



No waste in the metalworking fluid

Keep the coolant tank clean. Contaminated fluids may lose stability and quality.



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