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1 Water quality

1.1 Requirements and water-care for cooling systems (chillers) and temperature control units

Depending on the unit to be cooled or heat-balanced, certain requirements have to be met by the cooling water regarding its quality. In order to protect all parts of the unit against corrosion and scales, SINGLE Temperiertechnik GmbH recommends **as a matter of principle to treat the water with a suitable cleaning agent**, e.g. ST-DOS H-390 (anticorrosive as well as non-ferrous metal protector and hardness stabilizer). In addition, depending on the materials installed, the temperatures and the type of process, the following water quality data have to be met

As a rule the following data apply:

HYDROLOGICAL DATA	MAX	UNIT
PH-value	7,5 – 9	-
Conductivity	< 150	mS/m
Total hardness	< 15	°dH
Carbonate hardness	< 4	°dH
Carbonate hardness in case of stabilization of hardness	< 15	°dH
Chlorid Cl	<100	mg/l
Sulphate-So4	< 150	mg/l
Ammonium NH4	< 1	mg/l
Iron Fe	< 0,2	mg/l
Manganese	< 0,1	mg/l
free from solids		

Furthermore the following applies:

1. Systems with stainless steel (e.g. V2A or V4A)

Chlorid Cl	Temp. < 50 °C	max. 100	mg/l
Chlorid Cl	Temp. 50 up to 90 °C	max. 50	mg/l
Chlorid Cl	Temp. > 90 °C	max. 30	mg/l

2. Temperatures below 5°C
   When employing chillers at temperatures below + 5°C, an anti-freeze medium with corrosion inhibitor must be added, e.g. ST-DOS F-190.

3. Temperatures over 90°C
   In case the water is heated to over 90°C, we recommend the use of a water softener. For suitable water softening systems please feel free to ask SINGLE Temperiertechnik GmbH or http://www.schweitzer-chemie.de .

4. Temperatures over 120°C
   At water temperatures over 120°C glycol may not be used.

If the recommended water qualities are not met, the components of the unit will be damaged due to corrosion and scales. SINGLE Temperiertechnik GmbH will not accept any liability for any such damages.