

Corrosion Table

For Heat Exchangers

Water Additives	Concentration of Additives in mg/l	Reference to AISI 316 / 1.4401	Reference to Copper
Corrosion Table for Copper Brazed Heat Exchangers			
Aluminium (Al) dissolved	< 0,2	A	A
	> 0,2	A	B
Ammonia (NH ₃)	< 2	A	A
	2-20	A	B
	> 20	A	C
Chloride (Cl) *)	< 250	A	A
	> 250	B	B / C
Electrical conductivity	< 10 µS/cm	A	B
	10 - 500 µS/cm	A	A
	> 500 µS/cm	A	C
Iron (Fe) dissolved	< 0,2	A	A
	> 0,2	A	B
Free aggressive carbon acid (CO ₂)	< 5	A	A
	5 - 20	A	B
	> 20	A	C
Total hardness	4,0 - 8,5 °dH	A	A
Content of Glycol	< 20%	A	A
	20 - 50%	A	A
	> 50%	A	A
HCO ₃ ⁻ / SO ₄ ²⁻	< 1,0	A	B / C
	> 1,0	A	B
Hydrogene carbonate (HCO ₃ ⁻)	< 70	A	B
	70 - 300	A	A
	> 300	A	B / C
Mangan (Mn) dissolved	< 0,1	A	A
	> 0,1	A	B
Nitrate (NO ₃) dissolved	< 100	A	A
	> 100	A	B
pH-value	< 6	B	B
	6,0 - 7,5	A / B	B
	7,5 - 9,0	A	A
	> 9	A	B
Sulphates (SO ₄ ²⁻)	< 70	A	A
	70 - 300	A	B / C
	> 300	C	C
Sulphite SO ₃ free chlorine gas Cl ₂	< 1	A	A
	1 - 5	A	B
	> 5	A / B	B / C
Hydrogene sulphide (H ₂ S)	< 0,05	A	A
	> 0,05	A	B / C

A = Under normal conditions a long lifetime
 B = Corrosion risk
 C = Not suitable
 *) Max 60°C

Max. Chloride content (Cl) in ppm for	Max. water surface temperature					
	40°C	60°C	80°C	100°C	120°C	140°C
AISI 304 / 1.4301	70	35	15	10	5	-
AISI 316/ 1.4401	350	175	80	40	20	10
SMO 254	2.400	1.200	600	300	150	70
Titanium	180.00	90.000	45.000	20.000	10.000	6.000

Note: This table is not complete and is only meant as a guidance. Among other things distilled water/desalted water is not suitable for copper. The values stated may deviate, when e.g. softened or desalted water is added. Additives and temperature may influence the stated values. Consider interaction between the additives (without guarantee). See also Sondex Terms of Sales and Delivery - www.sondex.net.