

STANDARD COOLING WATER QUALITY PARAMETERS

1 SCOPE

This guideline defines the guide values for the Cooling Water quality parameters considered for the Standard design of SIADMI Air Separation and LNG Units.

2 STANDARD DESIGN

2.1 SIADMI Standard design and material selection for equipment and piping considers a cooling water system with the following characteristics:


- Circuit type: **open** with evaporative tower(s)
- Concentration cycles: 2,5
- Make up: raw water
- pH: controlled

2.2 The quality parameters of water circulating in the system (process cooling water) shall be adjusted to respect the following parameters:

PARAMETERS	Guide Values	U.o.m.
pH	7,5 – 8,3	
Total hardness	< 800	ppm of CaCO ₃
Suspended solids	Nil	
Conductivity	< 2000	µS/cm
Aggressive CO ₂	Nil	
Iron	< 0,5	mg/L
Manganese	< 0,1	mg/L
Copper	< 0,1	mg/L
Total alkalinity	< 250	mg/L
Sulphate	< 500	mg/L
Chloride	< 70	mg/L
COD	< 15	mg/L
Bacteria	≤ 10 ³	CFU/mL
To avoid scaling, the required cooling water shall be not scaling, shall be free from sludge, suspended solids, biological agents and corrosive chemical pollutants.		

2.3 The water is treated, as a minimum, with the following products:

- Anti-scalant to buffer residual hardness.
- Anti-corrosion to prevent corrosion on different metals

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- Algaecide to limit bacterial growth and Legionella pneumophila.
- Optimal dosing and monitoring of sulfuric acid to ensure controlled pH.

2.4 The use of aluminium exchangers shall be avoided

3 CLOSED LOOP CIRCUITS

3.1 Closed loop cooling circuits water shall be treated with, as a minimum, with anti-corrosion to prevent corrosion on different metals.

3.2 Closed loop circuit **is not compatible with DCA and / or NWA** precooling units.