

Company name	Distributor company
Contact person	Snowy Coolman
Customer/plant	Logistic center
Customer sample ID	123
Our sample ID	210119:1

General information about Temper and Analysis

pH: pH is a measure of acidity in a liquid where a low pH means acidic and a high pH means that the liquid is basic. Absolutely neutral pH = 7. Most metals prefer an alkaline value. A pH of 8-9 is beneficial to most metals.

Water hardness: The hardness of water is a measure of the amount of calcium and magnesium in aqueous solution. Calcium and magnesium usually occur in all normal water. If the amount is too high, the water will be softened in water treatment plants. Calcium and magnesium may form deposits on metal surfaces which reduce heat transfer. In heat transfer fluids the amount should be low, therefore, deionized water is used in all Temper Technology products.

Dirt: Dirt and particles can appear for different reasons: Poor cleaned systems before charging, adding water with poor quality etc. Particles, and dirt in general, may deposit on shaft seals and at narrow passages.

Iron: Iron particles can cause erosion corrosion, especially copper is sensitive towards particles in the fluid. Iron may also catalyze further corrosion.

Copper, zinc and brass: Copper and zinc may occur when not dezincification resistant (DZR) brass is used. Particles from copper, zinc and brass may also deposit as described above.

Oxygen and gases: Gases in general may reduce pump capacity, reduce heat transfer, cause sealing problems, regulating problems and corrosion and erosion especially when oxygen is present. Oxygen is the main cause of corrosion. Suitable air-purgers, in the right places, helps keep oxygen levels down.

Analysis of heat transfer fluid etc.: Regularly check the fluid status according to the instructions either at site (test-kit for control of pH and freezing point of Temper is available from Temper Technology) or send a sample for analysis. To come to the right conclusions from the analysis results, it is important to include information about the plant that may be of importance for a proper conclusion of the analysis.

Operational disturbances

Air typically induces reduced capacity, excessive wear or leaks in the system, but can be addressed by continuous air-purging. If you are having problems with; corrosion, dilution, high gas content, leakages or other problems – always investigate the origin of the problems – otherwise there is a substantial risk that the problem reoccurs.

Inspections of components

Continuous monitoring and maintenance of the plant means that life expectancy increases when flaws or leaks are detected earlier. Regularly check the static pressure and components such as pumps; valves etc., so they are functioning properly and that there are no leakages. If leakage occurs it should always be promptly collected and then thoroughly rinsed with water, to avoid any external corrosion.

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Sample and system Information

Date of sampling: 210112
 Sample arrival: 210119
 System volume: 50 000 L
 Temper version: Temper-40
 Date of charging: 2002
 Date of refilling: 2019-xx-xx
 Volume of refilling: 2000 L

Requested analysis

Yes/No

pH: Yes
 Density: Yes
 Corrosion products: Yes
 Corrosion inhibitor level: Yes

Reason for analysis

Yes/No

Regular check-up: Yes
 Other, ...: No

If other, why:

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Analysis results

Parameter	Sample appearance	Normal
Colour	Colorless	Colorless/pale yellowish
Smell	Normal	Characteristic
Appearance	Clear	Clear

Parameter	Unit	Value	Nominal
pH @+20°C	-	8,6	8-9
Density @+20°C	kg/l	1,205	1,207
Freezing point	°C	-39	-40
Parameter	Unit	Value	Minimum
Corrosion inhibitors	%	97	> 70
Metal ions*	Unit	Value**	Nominal
Aluminium	ppm	< 1	< 1
Copper	ppm	< 1	< 1
Iron	ppm	2	< 1
Nickel	ppm	< 1	< 1
Lead	ppm	< 1	< 1
Zink	ppm	< 1	< 1
Hard water ions	Units	Value**	Nominal
Calcium	ppm	5	< 1
Magnesium	ppm	< 1	< 1

* Metal ions and hard water ions ICP / MS.

** Metal ions concentration marked "<" means below detection level.

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Conclusion

The samples colour and odour are normal.
The fluids pH and density (and with that the freezing point) shows normal values.
The concentration of corrosion inhibitors is OK.
There is a small amount of calcium that indicate dilution with tap water.
Concentrations of corrosion elements are low.

Recommended measures

Do not replenish with tapwater, only use fresh Temper fluid.
The fluid seems to be in good order.
No actions required.