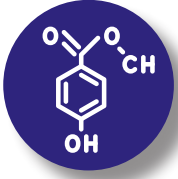


The ADEY® Engineers water test kit provides rapid on-site analysis of critical parameters that can affect the longevity and efficiency of the heating system.

The test kit is supplied with all the required equipment and reagents to determine chloride, copper, iron, pH, total hardness and level of ADEY MC1+™ Protector.



## CHLORIDE

High levels of chloride, significantly above the mains water reading, are indicative of flux contamination. These can sometimes be associated with high level of copper. High chloride levels within hydronic heating systems can lead to pitting corrosion which can cause component failure.

### Procedure

- ✓ Fill sample tube with water to the 5ml indicator mark.
- ✓ Add 2 drops of chloride reagent 1 and swirl to mix.
- ✓ Add chloride reagent 2 dropwise, until the color changes to yellow.
- ✓ Add chloride reagent 3 dropwise, counting the number of drops, until the color changes from yellow to violet.
- ✓ Multiply the number of drops of reagent 3 by 10 to calculate the chloride concentration in ppm.

**Number of drops of reagent 3 X 10 = chloride concentration (ppm)**

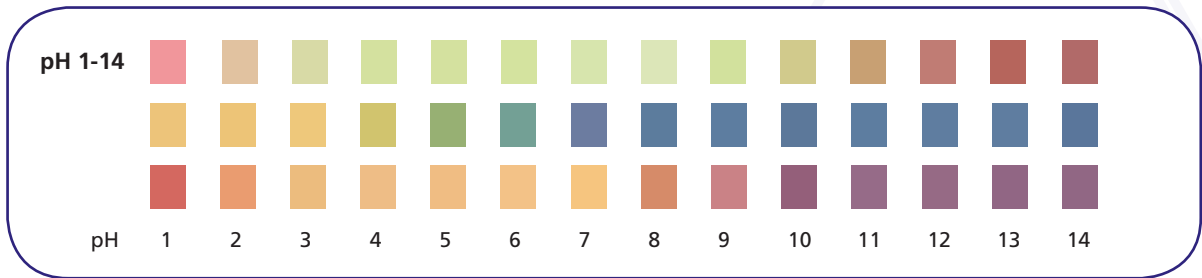


## pH

pH is a measure of acidity or alkalinity. Corrosion of metals is accelerated in acidic conditions where the pH is less than 6.5. The lower the pH number the greater the acidity and rate of corrosion. pH can reduce if acidic fluxes are not flushed out thoroughly. Aluminium can also corrode in alkaline conditions where the pH is greater than 8.5.

### Procedure

Dip the test strip into a small sample of the system water for 3 seconds, remove and shake off any excess. Allow 10 seconds for the color to develop and compare the color below to determine the pH of the sample.



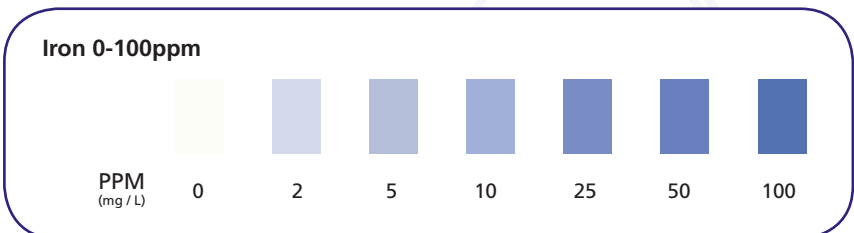
## IRON

Iron oxides generally have low solubility in water. Dissolved iron present in the hydronic heating system's water can indicate a corrosion issue. Black iron oxide particles present as magnetite, are a sign that corrosion has already occurred and cleaning is required using ADEY MC3+™ followed by an ADEY MagnaCleanse® to remove this contamination, as this can lead to fouling of components and reduction in efficiency.

After carrying out a cleaning program using ADEY MC3+, an iron test can be used to ensure that the system has been sufficiently cleaned and flushed before addition of ADEY MC1+. Elevated levels of dissolved iron, greater than 10ppm, can indicate that chemical cleaner has not been flushed out sufficiently or corrosion is occurring.

### Procedure

Dip the test strip into a small sample of the system water for 3 seconds, remove and shake off any excess. Allow 10 seconds for the color to develop and compare the color below to determine the level of iron present.





## COPPER

Copper levels of 5ppm or greater in the system water indicate copper corrosion and could lead to localised corrosion and pin-holing of aluminium and steel, due to copper plating out on these surfaces.

### Procedure

Dip the test strip into a small sample of the system water for 3 seconds, remove and shake off any excess. Allow 10 seconds for the color to develop and compare the color below to determine the level of copper present.

### Copper 0-5ppm

PPM  
(mg / L)



## TOTAL HARDNESS

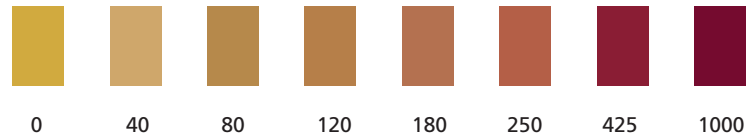
Water hardness is based on the amount of calcium and magnesium salts that are dissolved in the water. Hard water which has greater than 200ppm CaCO<sub>3</sub> results in limescale deposition in heat exchanger surfaces. Hard water areas are recommended to be treated with ADEY MC1+ to reduce limescale issues. Soft water has less than 100ppm CaCO<sub>3</sub> and is generally more corrosive than hard water.

### Procedure

Dip the test strip into a small sample of the system water for 3 seconds, remove and shake off any excess. Allow 10 seconds for the color to develop and compare the color below to determine the level of hardness of the water.

### Hardness 0-1000ppm

PPM  
(mg / L)



## ADEY MC1+ PROTECTOR QUICK TEST

The MC1+ Quick test is used to measure the concentration of ADEY MC1+ in a heating system, to ensure it has been treated adequately. The concentration can be determined quickly and easily using the ADEY MC1+ Quick test strip.

Note: Ensure that ADEY MC1+ Protector has been adequately circulated and mixed before testing. This may take up to 30 minutes.

### Procedure

Dip the test strip into a small sample of the system water for 3 seconds, shake off any excess. Allow 10 seconds for the colour to develop and compare the colour on the side of the pot to determine the level of ADEY MC1+ Protector.

### ADEY Protector



## INTERPRETATION OF ANALYSIS

Test	Result	Interpretation	Recommendation
Chloride	High chloride	Flux residues in system.	Clean with ADEY MC3+. Flush and treat with ADEY MC1+.
Copper	High copper >5ppm	Copper corrosion possibly due to flux residues.	Clean system using ADEY MC3+. Flush and treat with ADEY MC1+.
Iron	High iron in system water >10ppm	If untreated then indication that system is corroding.	Clean with ADEY MC3+. Flush and treat with ADEY MC1+.
pH	less than 6.5	Acidic conditions, possibly from excess flux residues.	Clean with ADEY MC3+. Flush and treat with ADEY MC1+.
	greater than 8.5	Alkaline conditions.	If aluminium present in system, drain and flush. Refill and treat with ADEY MC1+.
Total Hardness	Mains water harder than 200ppm	Scaling of heat exchanger surfaces can occur.	Treat with ADEY MC1+ for scale control.
ADEY Protector	Inhibitor less than minimum level	Under dosed or leak has occurred.	Check for leaks and re-dose with ADEY MC1+.



**WARNING:** Cancer and Reproductive Harm [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)