

Water Quality Test Kit

universal test of system protection levels

SD 032 24-09-2020

Please check the reagent expiry date has not lapsed. Shake reagent before use. Rinse vessel before use.

The test kit is used for testing wet central heating systems.

For NEW systems at FIRST Treatment:

- 1 Fill the test vessel to the 10ml mark with MAINS water (B)
- 2 Add ONE drop of Universal Inhibitor Reagent – the solution should turn BLUE. If the solution remains clear or turns ORANGE/RED count the number of drops as 1.
Now move to step 4.
- 3 Continue to add reagent a drop at a time, mixing between each drop. Count the number of drops for the solution to turn ORANGE/RED (ignore BLUE/PURPLE intermediate colours)
- 4 REPEAT steps 1 to 3 with a sample of the SYSTEM water (A).
- 5 Deduct the number of drops of mains water from the number of drops of system water to give the DIFFERENCE or ALKALINITY NUMBER (A minus B).
- 6 Read from the TABLE OF INHIBITORS (over page) and if the DIFFERENCE is LESS THAN the MINIMUM ADD MORE inhibitor.
- 7 Record the brand of the product used and the number of drops for mains water, system water and alkalinity number in the BOILER LOGBOOK.

For OLD systems with EXISTING Treatment:

- 1 Fill the test vessel to the 10ml mark with SYSTEM water
- 2 Add ONE drop of Universal Inhibitor Reagent – the solution should turn BLUE. If the solution remains clear or turns ORANGE/RED count the number of drops as 1. Now move to step 4.
- 3 Continue to add reagent a drop at a time, mixing between each drop. Count the number of drops for the solution to turn ORANGE/RED (ignore BLUE/PURPLE intermediate colours).
- 4 Compare the previous number of drops recorded for SYSTEM WATER in the BOILER LOGBOOK
- 5 IF GREATER THAN OR EQUAL to the PREVIOUSLY RECORDED NUMBER, UPDATE the BOILER LOGBOOK including date of test. If LESS THAN previously reported, ADD MORE inhibitor, circulate the system and REPEAT steps 1 to 5.

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Warning

May be corrosive to metals.
Keep only in original container.
Absorb spillage to prevent material damage.



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About this test

This universal test was developed with the co-operation of the water treatment members of HHIC (Heating & Hotwater Industry Council) – the UK boiler manufacturers association. The corrosion protection given to a new system may decline over time or be diluted by top up of system water following maintenance that requires partial drain-down. Consumers and installers need an indication of when re-treatment is required.

A system check should be included as part of the annual boiler service so that each year the inhibitor level is checked and topped up if necessary. After 5 years there should be a top-up of inhibitor and at 10 yearly intervals the system should be cleaned, flushed and retreated with inhibitor, starting the whole process again.

Treated systems have higher ALKALINITY than untreated mains water at the same property. The alkalinity of the 'MAINS' water varies around the country, but the alkalinity that a corrosion inhibitor ADDS to the system remains consistent by brand. Its also necessary to establish that the inhibitor has been added at the correct dosage rate.

By way of example, lets say that the mains test gives an alkalinity of 5 drops (B) and the system test gives an alkalinity of 15 drops (A) then the alkalinity that the inhibitor has added to the system is A minus B = 10 drops.

Next, look at the TABLE OF INHIBITORS to see what level of drops would be expected from an optimally treated system with that specific brand of inhibitor.

If the difference is less than shown in the table it is necessary to add more inhibitor and retest until the result is equal to or greater than the minimum number in the table. Higher values are not detrimental and are preferable to underdosing.

For each subsequent year after the initial treatment, if the number of drops of system water has reduced, the inhibitor should be topped up and new values for A, B and A minus B should be established and recorded. To be clear, the purpose of the annual check is to look for a drop or decrease in alkalinity which can only indicate dilution of the inhibitor and that optimum treatment levels have been compromised.

The test, also known as a 'titration' should take no longer that 10 minutes to complete.

Table of Inhibitors

Brand	Optimum Concentration %	Minimum Alkalinity (number of drops) A minus B
Adey MC1	0.4	11
Altecnic iQ1	0.5	5
Caleffi C1 (at 150L) (at 100L)	0.333 0.5	5 8
Caleffi C1 FAST (at 150L) (at 100L)	0.266 0.4	5 8
Fernox F1	0.5	8
Sentinel X-100	1.0	5

* Manufacturers may record the Minimum Alkalinity Number of their product on the bottle label which supersedes the data in the table above.

DO NOT MIX INHIBITORS FROM DIFFERENT MANUFACTURERS

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