

Technical Bulletin

Installation Advice: Water Treatment for Aluminium Commercial Boilers

Advice for Designers and installers

This Technical Bulletin is intended to be read in conjunction with the operators log **Water Quality – heat sources made of aluminium materials 6720876796(2017/06)UK/IE** and provides additional advice, specifically for the UK and Eire.

In 2017 the ICOM Water Treatment and Conditioning of Commercial Heating Systems Guide, was released. This document was the result of cross industry collaboration to provide practical guidance for system designers and installers, in the absence of a specific British Standard for water treatment in commercial heating systems.

This TB covers commercial products with aluminium heat exchangers, such as the GB162, GB312, GB402 and Condens 7000 F and aligns water treatment requirements with the ICOM water treatment guide.

Water Treatment

The ICOM guide gives practical advice for flushing and cleaning of commercial heating systems prior to treatment, in line with BSRIA BG29 and BG50. This should be carried out before commencing any water treatment.

For water treatment, the ICOM guide essentially sets out two possible routes for commercial heating systems containing aluminium materials. These are De-mineralised Water or Chemical based water treatment (inhibitors).

De-mineralised water is in common use in many European countries and its application is covered in **Water Quality – heat sources made of aluminium materials 6720876796(2017/06) UK/IE** as well as the ICOM guide. BS EN 12828 references the German VDI2035, which in turn refers to De-mineralised water treatment. However, De-mineralised water treatment is uncommon in UK/IE heating systems and for this reason, its application remains with the above guidance documents.

Chemical based water treatment – guidance for Bosch products containing aluminium (UK/IE only).

For chemical based water treatments, it is essential that the inhibitor manufacturer's guidance is followed. The manufacturer must confirm that the inhibitor is suitable for all materials used in the commercial heating system. This applies in particular to the material of the boiler, e.g. Aluminium and ferrous materials. In particular, inhibitors containing Nitrite are **not suitable** for use in systems containing aluminium.

Inhibitor products which have obtained Build Cert NSF CIAS, may be suitable, but it remains the manufacturer's responsibility to prove suitability of their product for commercial heating systems containing aluminium.

The application of inhibitors must be carried out in accordance with the inhibitor manufacturers and ICOM guidance.

Chemical based water treatment – initial fill and top up

Filling commercial heating systems must be done via a method suitable for the appropriate fluid category in accordance with the Water Supply (Water Fittings) Regulations 1999.

It is essential that the guidance contained within the operators log **Water Quality – heat sources made of aluminium materials 6720876796(2017/06)UK/IE** is followed in regard to initial system fill volume. The above document sets out the method to calculate the maximum volume of untreated water that is permissible. The maximum untreated water volume must not be exceeded and to facilitate this a dedicated water meter for the filling method must be provided. The volume of water used must be recorded in the operator's log.

For systems using chemical inhibitors the initial system fill water and any top up water, should be treated in line with the inhibitor manufacturer's guidance. The inhibitor manufacturers correct dosage rate, must be checked. For practical purposes, a dosing pot incorporated into the heating system at a point where flow can be assured, will assist maintenance of the correct inhibitor dosage rate.

Under no circumstances must fill water taken from a Base Exchange water softener be used in heating systems containing aluminium.

Chemical based water treatment – maintenance

Heating system water should be regularly inspected in line with ICOM and the chemical manufacturer's guidance, by means of sampling and recording.

For water treatment using chemical based inhibitors, the pH of the system water must be maintained within a range specified by the inhibitor manufacturer's guidelines to ensure systems containing aluminium are properly protected.

The ICOM Water Treatment and Conditioning of Commercial Heating Systems Guide can be downloaded in PDF format, free of charge, from the ICOM website at <http://icom.org.uk>

The operator's log **Water Quality – heat sources made of aluminium materials 6720876796(2017/06) UK/IE** is provided with all floor standing boilers. A copy can be obtained from Bosch Thermotechnology Ltd on request.

Whilst it is always our intention to fully assist, it is essential to recognise that all information given by the company in response to an enquiry of any nature is provided in good faith and based upon the information provided with the enquiry. We recommend that advice should always be checked with your installer or contract partner. Consequently, the company cannot be held responsible for any liability relating to the use or repetition of such information or part thereof. In addition, whilst making every reasonable effort to monitor the performance and quality of our supply, installation and service network, we do not accept responsibility for the workmanship or operation of any third party company that the company may have promoted either in conversation, e-mail, or other communication. Similarly, the views and opinions expressed in communication with individuals within the company may not reflect that of the business as a whole.

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