



Dear Board Level contact at Water Companies, Scotland, Northern Ireland, Wales and England.

Suitability of metallic materials for use in contact with drinking water

Materials used in consumers' plumbing systems which come into contact with drinking water can leach undesirable substances into the water they convey. Recent research¹, jointly funded by the water industry and DWI, has identified that metallic fittings can be a major source of elevated metal ion concentrations in drinking water. In particular this research showed a link between some brass fittings and lead in drinking water.

BS 6920 is used to assess the effects of non-metallic materials on drinking water and for many years WRAS has administered a scheme on behalf of water undertakers to assess and approve fittings and materials for use in contact with water. This controls metal leaching from non-metallic fittings but there is no corresponding testing standard for leaching of metal from metallic fittings.

In 2002 BSI published a "Draft for Development" standard (DD256 Assessment of the potential for metallic materials to affect adversely the quality of water intended for human consumption) research² has shown that this standard is not suitable for the testing and approval of metallic fittings as it is not representative of real use.

European research³ has shown that metals leaching rates can increase over the first few months after installation of new metallic fittings. Subsequently to this BS EN 15664 (Influence of metallic materials on water intended for human consumption. Dynamic rig test for assessment of metal release) was published in 2008. This method is carried out once on a representative sample of the metallic alloy over six to twelve months to determine the long term leaching characteristics.

The 4MS Group (an initiative between the UK, France, the Netherlands and Germany to harmonise drinking water material requirements) has set performance criteria using EN 15664. The criteria do not eliminate all leaching from metallic materials but show that the long term leaching is unlikely to cause an exceedance of the PCV for the metals used in the alloy.

A list of acceptable alloys, the “Common Composition List”, is now available via 4MS website (<https://www.umweltbundesamt.de/en/topics/water/drinking-water/distributing-drinking-water/approval-harmonization-4ms-initiative>). These alloys can be used in the manufacture of fittings without further testing of their long term leaching. The 4MS Common Composition List of low leaching metallic alloys is now available (see <https://www.umweltbundesamt.de/en/topics/water/drinking-water/distributing-drinking-water/approval-harmonization-4ms-initiative>).

The UK Drinking Water Regulators’ Group has reviewed the 4MS Group procedures for adding alloys to the Common Composition List and considers that use of alloys on this list would, in the long term, improve compliance and reduce the risks to consumers from metals leaching from metallic fittings.

As suitable alloys have now been identified that would reduce the risk of lead failures due to water fittings, companies can better discharge their regulatory duties by providing advice to use fittings made from alloys on the 4MS Common Composition List.

The UK Regulators recommend that the water companies (with the cooperation of WRAS) actively promote the use of metallic fittings that are made from alloys on the 4MS Common Composition List of low leaching metallic alloys.

Whilst we see significant long term benefits in this approach we would welcome the thoughts of the industry on any practical difficulties in implementation. Please submit any comments or questions regarding this approach to the appropriate regulator – DWI in England and Wales, DWI NI in Northern Ireland and DWQR in Scotland.

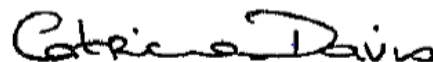
Yours sincerely,



England and Wales



Scotland



Northern Ireland

CC: Sean Hogan, Chair, WRAS

1. *Brass fittings – a source of lead and nickel in drinking water*, UKWIR Report Refs No. 14/DW/04/14, 15/DW/04/16, 15/DW/04/17, 16/DW/04/19, UKWIR, 2014 to 2016.
2. *Reliability of test methods for metallic products*. DETR Report DWI 6090, 2002.
(http://www.dwi.gov.uk/research/completed-research/reports/DWI70_2_151_testmethods.pdf)
3. *4MS Approach for Metallic Materials*, T Rapp, Materials and Products in Contact with Drinking Water 19th & 20th May 2015, Brussels, 2015.
(https://www.kupferinstitut.de/fileadmin/user_upload/kupferinstitut.de/de/Documents/techUnterstuetzung/4MS/2015/08_-_4MS_approach_for_metallic_materials_-_Rapp.pdf)