

The correct use of flux.

Capillary joints have become a traditional and reliable part of installation practice to such an extent that normally they are expected to last the entire lifetime of the systems on which they are installed.

In order to achieve such longevity, skilled installers have learned that certain basic precautions need to be taken during assembly operations, including careful and sparing use of flux. Indeed when making capillary joints, care should be taken to prevent excess quantities of flux from running into the tube since fluxes are, of necessity, aggressive to the metals for which they are used, their purpose being to chemically clean the mating surfaces in order to effect sound bonding. Any small excess is normally destroyed by heat during the soldering operation or swept away by the initial ingress of water. However, additional amounts may cause continued corrosion until the active ingredients are used up or until perforation occurs.

Whilst fluxes are to some extent soluble in water, the solubility factor is dependent upon the amount of flux present. Thus, if a relatively small amount of flux remains following installation, the flux will be dissolved fairly quickly. However, if excessive amounts remain it may take months for the flux to dissolve. Indeed in some cases the flux may form a hard, water repellent skin or become coated with deposits which protect it from dissolution. It should also be borne in mind that problems due to the inappropriate use of flux can occur on both hot or cold water systems but generally occur less frequently on hot circuits where elevated temperatures increase their solubility.

What is the purpose of flushing?

To clear the pipe of:

- flux residue
- dirt
- site debris
- dirty water
- loose excess solder
- fillings

The use of excessive flux is warned against in British Standards such as BS6700⁽¹⁾ and BS5449⁽²⁾ which states in section 30.3 that "*some fluxes are more aggressive than others but all fluxes should be considered to be corrosive to some extent. Any excess flux should be wiped off the assembly before applying heat to melt the solder and any residue removed immediately the joint has cooled. The system should be cleared of any internal residues.*"

Thus all fluxes should be used sparingly and strictly in accordance with manufacturers instructions.

References

(1) BS 6700 : 1997, *British Standard Specification for Design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages.*

(2) BS5449:1990, "British Standard Specification for forced circulation hot water central heating systems for domestic premises".

The Institute of Plumbing cannot accept responsibility for any errors or omissions contained in this information.