Vitronics Soltec

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Fluxing problems due to clogging fluxes

Introduction

Some fluxes with a high solid content or fluxes based on a resin emulsion in water may create specific fluxing problems during spray fluxing or dropjet fluxing. In fact such fluxes are unsuitable to be used in such application systems. For some flux applications diluting the flux can be a viable option, so that such a flux still can be applied with the common equipment.

Fluxes with a high solid content

Fluxes with a solid content > 5% might create excessive contamination on the fluxer head. This contamination can affect the good functioning of the fluxer. The nozzle orifice might be partly clogged by solid flux particles, or the particles "grow" on the nozzle surface where they affect the shape of the sprayed flux cone. Each flux will contain activators. These are dissolved in the flux solvent. If the solvent evaporates the activator crystals will remain. Also when the flux is cooled down too far these crystals will separate from the solvent.
During spraying the direct vicinity of the nozzle orifice cools down rather fast. As a result flux particles that are bouncing back on the nozzle cap will freeze. As a result of this process flux residues can build up around the nozzle orifice creating the effects just mentioned.

Emulsion based fluxes

Fluxes that are based on a resin emulsion in water are not suitable to be used in a dropjet fluxer. These fluxes have a "milky" appearance and they contain embedded resin particles. These "capsulated" resin particles might during use (partly) clog the small dropjet nozzle, giving a poor-fluxing performance.
The damaging of the embedded particles may cause the clogging by the moving valve piston of the dropjet fluxer during fluxing. Now the free resin coming from the "capsule" will react with the water and flake out as insoluble "solid" particle.

Since these fluxes are due to their composition potential nozzle blockades they can not be used in any dropjet fluxer with a small orifice like those used in common dropjet fluxers.
Also when these fluxes are used in a fluxing system driven by a gear pump, e.g. as may be used for sprayfluxing systems, they will become unsuitable since they will start to clog the system. The running pump gears will damage the "capsules" bringing the resin straight in contact with the water where it starts to flake out since resin is not soluble in water. In fact these resin particles are mainly responsible for the clogging.

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