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Available in 1 Liter, 20 liter pails and drums

## MS2® MOLTEN SOLDER SURFACTANT

### Eliminates Solder Dross

- Reduces solder usage up to 90% depending on production volume
- Environmentally friendly
- Available for lead-free and leaded processes

Unlike Old technology powders, oils, mechanical separators and even nitrogen blankets, MS2® molten solder surfactant (U.S. and foreign patents pending) doesn't just reduce or inhibit solder dross in wave soldering—it actually eliminates it.

By eliminating dross, MS2® molten solder surfactant allows manufacturers to reduce their solder usage by as much as 90%, depending on production volume, resulting in significant cost savings.

### Significantly Reduces Costs

MS2® greatly reduces assembly costs as it reduces solder usage up to 90%. The vast majority of solder is not applied to the electronic assembly; in fact it is lost to dross. For every liter of MS2® used you can expect to reduce your solder usage by 100 Lbs (45.4 Kg). With metal costs what they are, especially for lead free alloys the savings are significant.

### Enhances Performance

- Produce printed circuit board assemblies with fewer defects
- Better quality joints
- Less rework

Analyses conducted under high-volume conditions by large electronic manufacturers have demonstrated that MS2® enables these manufacturer to produce printed circuit board assemblies with fewer defects and improved quality solder joints, while eliminating dross and reducing the costs of solder, hazard materials handling and labor. Board defects in general are reduced, resulting in less rework and touch-up. Cross sectional analyses of connector, capacitor and other component leads have demonstrated excellent fillets, smooth soldered surfaces and complete penetration of the solder while using MS2®.

# MS2® MOLTEN SOLDER SURFACTANT

Dross is formed when molten solder comes into contact with oxygen. Dross consists of metal oxides plus otherwise good solder metal that is bound up with the oxides and is thus unavailable for soldering. This bound-up metal makes up as much as 90% of the total amount of dross, which in a typical wave solder machine can amount to as much as 3 lbs. or more per hour.



*Lead-free solder bath without MS2® molten solder surfactant, showing typical dross buildup*



*Lead-free solder bath with MS2® molten solder surfactant, showing no dross—only shiny solder*

MS2® molten solder surfactant is available for both lead-free and leaded processes. For lead free processes the MS2 LF series formulation is a nonvolatile, non hazardous, and ROHS and reach compliant liquid that is poured onto the surface of the solder bath. Approximately 200–300 ml is the average amount for an initial charge; a smaller amount of fresh product is usually added once or twice per shift.

When used in the dynamic mode, with MS2® always on the pot the MS2® molten solder surfactant does not mix with the metal but forms a thin floating layer that cov-

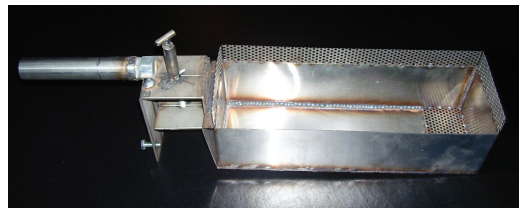
ers an area of the surface adjacent from the wave or fountain, which it does not disturb. There are no fumes or odor and no residue is deposited on boards or components.

When MS2® molten solder surfactant is added to the solder bath, it prevents dross from forming on the surface, and any dross generated by the exposed solder wave is immediately converted back into usable metal, so no dross accumulates.

Furthermore, MS2® molten solder surfactant keeps on removing metal oxides as solder is pumped through the system, cleansing and purifying the bath. The result is lower surface tension; enhanced wetting and fewer solder-related defects have also been observed.

As the layer of MS2® molten solder surfactant continues to convert dross back to metal, it will become thicker and more viscous, and can be easily removed with a supplied skimmer. The small volume of spent material can then be inexpensively shipped back to P. Kay Metal for recycling.

MS2® may also be used in a batch process. When used in conjunction with the new P. KAY Metal JH-1™ reclamation basket (patent pending) it can be used to reclaim virtually all dross back to useable solder on a periodic schedule or as needed. Using MS2® in this manor it becomes a batch reclamation method instead of being part of the soldering process.



**PK**  
M • E • T • A • L

*Manufacturer of Premium Solders & Soldering Chemicals*

No matter which method you choose to employ when using MS2® you will feel the effect in your competitiveness and your bottom line as you enjoy purchasing up to 90% less solder.

MS2 Molten Solder Surfactant is a product of MS2 Technologies, LLC

US and FOREIGN Patents pending