



Your Lead-Free
Process Partner



Temperatures are RISING
and TIME is running out



JULY 2006



1st July 2006. The day that the RoHS (Restriction of Hazardous Substances) directive goes into effect.

If you're active in electronics manufacturing, you know it's the day that lead-containing solder will be banned from most electronic products manufactured and sold in Europe. You know too that the legislation may be specific to Europe, but its effects are global, and soon it will be flanked by similar regulations in other regions. Wherever you are in the world, you know that 1st July 2006 is a date not to be ignored. It's the day that lead-free becomes an obligation.

The challenges of moving to lead-free solders are significant: the new higher temperature solder alloys behave differently, so processes have to change. The task is to make a quality lead-free connection without damaging the substrate and without negatively impacting throughput. This is not straightforward. However, with time and with the right partner, the switch to lead-free materials, processes and procedures can be achieved.

OK International is ideally positioned to be your lead-free process partner. We are helping our customers the world over with the equipment, process knowledge, training and support they need to succeed in a lead-free world.

Our Lead-Free Laboratory is staffed with a number of hands-on process experts, available to work closely with you to resolve any application problems associated with hand soldering and rework.

Whether you're already on the way to lead-free or have yet to make a start, we can help you too. Time is running out and the pressure to comply is heating up. Contact us. The time to act is now.



YOUR LEAD-FREE PARTNER

Electronics industry groups and associations around the world have spent years evaluating the lead-free alternatives to conventional solders and their impact on manufacturing processes.

Consensus centres around tin-silver-copper alloys, which reflow at 217°C and require processing temperatures as high as 260°C. These are well above temperatures used for tin-lead solders, and uncomfortably close to the maximum temperatures that components and PCBs can withstand.

But that's not all; an electronic assembly can be exposed to as many as five heat cycles as part of a typical manufacturing process. Thus, sensitive components and the PCB must not only survive exposure to increased heat, but they must also sustain the cumulative effects of several heat cycles and still provide long-term reliability.

The risks are greater, the process window is tighter, yet the industry needs repeatable results like never before...

...you need a partner that understands the challenges you face.

At OK International we fully understand the process challenges of lead-free. By working closely with component, materials and reflow oven manufacturers, and by sharing knowledge with industry associations around the globe, we've refined our processes and developed innovative technologies. Our products in the key areas of hand soldering, rework, fume extraction and material deposition are all designed for optimum lead-free performance.

Partner with OK International and you can be sure of a lead-free process that is second to none in terms of quality, reliability, repeatability and profitability.



LEAD-FREE SOLDERING

The considerable challenges of hand soldering, desoldering and reworking lead-free solders are well researched. Narrow processing windows, coupled with the risks of damaging delicate components and PCBs with excess heat, as well as wide Delta Ts across PCBs and components, mean that precision and control in heat management are critical. Especially as these operations are generally performed at the end of a line, where the value of the PCB is at its highest.

SmartHeat®

That's where OK International's powerful SmartHeat® technology comes in. Incorporated into the OK International range as standard, SmartHeat® takes the guesswork out of heat management by sensing precisely the amount of heat energy needed at the pad and providing this instantaneously. There is none of the temperature "overshoot" that is so typical of standard handheld tools, whose tip temperatures are constantly on the move. In this way, with no need for operator intervention or calibration, SmartHeat® automatically keeps temperatures and Delta Ts down, eliminating the risk of heat damage to components and boards, while ensuring reliable lead-free joints in a repeatable process.

By widening the process window, SmartHeat® reduces operating costs while delivering higher yields and productivity. What's more, process control is in-built and there's no need for operators to change settings and no time wasted with recalibration.

Combined with OK International's innovative Precision Tip Selection programme, SmartHeat® delivers the most precise process control available, making it a must for any lead-free manufacturing line.

Hassle-Free Quality

The perfect, compact soldering system for repetitive manual assembly and touch-up, the PS-800 Soldering System combines the advantages of SmartHeat® with the system quality and innovative design of OK International irons. With a minimal cost of ownership, this is a reliable, hassle-free production tool.



LEAD-FREE REWORK

Versatility and Precision in One Compact System



The MFR Series - Multi Function Rework System allows even the most complex electronics assemblies to be easily soldered, desoldered and reworked. By using a single power unit and a comprehensive array of tools, interchangeable heater tips and tip cartridges, the MFR Series sets a new standard for flexibility, capability, reliability and value. All of the tools are extremely easy to assemble and use, and thanks to SmartHeat®, they are ideal for use with lead-free materials.

Versatility and Control in Lead-Free Rework

The HCT-900 Hand-Held Hot-Air Convection Tool offers a low cost, versatile soldering/desoldering solution for a wide variety of production and rework applications. Compact and robust, its closed-loop feedback circuit allows the target temperature to be maintained regardless of changes in airflow volume. This makes it ideal for the removal and replacement of thermally demanding lead-free components as small as 0201s, and as large as 304 pin QFPs.

Repeatable Lead-Free Array Package Rework

When it comes to reworking array packages, lead-free underscores the need for a thermally repeatable, accurate rework system. The APR-5000 Series Array Package Rework Systems are perfect for all lead-free applications. The systems' single moving reflow/placement head design ensures a consistent, tight Delta T across the PCB and the component. Lead-free profiles can be quickly developed via the systems' five thermocouples. Closed-loop, computer controls and intuitive software help operators maintain the ideal process from start to finish. Customers are already achieving a repeatable process window of $\pm 5^{\circ}\text{C}$ on their lead-free PCBs.



LEAD-FREE ENVIRONMENTS

Protection from Lead-Free Colophony



The weaker wetting forces, higher oxidation rates and higher temperatures associated with lead-free solders demand stronger, more aggressive, more concentrated fluxes. However, these emit denser, more toxic and potentially more harmful fumes and gases which degrade air quality in and around the bench-top.

This, in turn, creates the demand for a new generation of powerful, yet portable and economical fume extraction systems. OK International has developed such a range of efficient and cost-effective products, designed to protect your operators from lead-free related fumes and gases.

All of our single, dual and multiple user high-pressure bench-top systems feature pre-filters, extraordinarily efficient HEPA filters and chemically treated gas filters. The pre and HEPA filters can even be changed independently to maximise the working life of each filter and lower the total cost of ownership.

OK International's fume extraction systems help to increase operator productivity, reduce staff absenteeism and turnover, and give a greater control over corporate healthcare costs.

Precise Lead-Free Fluid Dispensing

The reduced wetting characteristics of lead-free alloys demand accurate process control in material deposition and may also increase the need to clean or conformally coat assemblies after soldering.

OK International's fluid dispensing systems bring speed, precision and economy to the dispensing process.



GLOBAL LEAD-FREE

Japan is already well ahead of any world region in adopting alternatives to conventional lead-bearing solders in its electronic products. Through voluntary programmes or legislation, China, South Korea and California are all planning to reduce or ban lead in electronics, and several states in the USA are apparently considering similar moves.

The RoHS directive may be European, but the move to lead-free is global.

You need a global partner, one that understands your industry's issues at a world-wide level. A partner that can invest valuable resources in R&D to deliver world-class lead-free manufacturing solutions through a global support infrastructure. Your partner must have all this, yet be local enough to understand your culture and your regional marketplace, and be able to tune its offering and support to your specific local requirements.

OK International draws on decades of design, manufacturing and application experience from different sectors, and matches its standard-setting products with world-class support at a local level for all your lead-free processing needs.

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