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THE BEST OF ALL WORLDS

As a corrosion inhibitor and biostatic agent, boric acid has been a highly effective and cost efficient constituent of metalworking fluids for many years. It is also a substance that is now on the 'substances of very high concern' list. So naturally there has been regulation- and customer-driven movement away from fluids containing this product. Alternative technology doesn't come cheap though. Indeed, as well as being more expensive, the majority of boron- and formaldehyde donor biocide – free products are not as stable against bacterial growth as their forerunners.

Master Chemical Europe is one coolant developer however that has achieved good and even superior performance from its boron and formaldehyde donor biocide-free alternatives. Yes they are more costly than the company's standard products but they have proven to provide an even longer sump life and this helps counterbalance their higher purchase price.

As a company that serves Europe, Master Chemical confirms considerable disparity in its markets. Although all coolant usage is governed by EU Directives, some countries are influenced to a greater extent than others by local regulation.

"Spain and Italy are good examples," explained Master Chemical's Technical Director, Peter Blenkinsop. "Water containing high amounts of boron is known to have a detrimental effect on citrus crops so naturally countries which grow these fruits have historically been more focused on the adoption of boron-free metalworking fluids. In these markets it is also often more cost effective to choose a more expensive boron-free product rather than meet the higher disposal cost of the standard product."

He continued: "In the UK and other EU countries we have demand for both fluids with and without boron. And this is where Master Chemical scores highly. As we have our own R&D chemists and development facilities we are able to formulate products to suit the needs of individual markets. Our commitment to R&D allows us to meet everyone's needs."

So although the take up for boron-free products in the UK may not be as high as in other countries at present, there is no doubt that larger manufacturers will ultimately fall in line with the wider European trend. Subcontractors will then follow suit. "And when they do, Master Chemical will be ready," Peter Blenkinsop added. "By that time we will have had many years experience of fine-tuning our boron-free products."



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Strange but true

A bizarre fact about the development of the 'greener' boron-free fluids is that it is much more difficult to achieve a formulation that doesn't require a hazard label. This is because of the boron and free amine balance. "Boron is a good buffer and soaks up a lot of amines which are also added to the fluid to inhibit corrosion and stabilise bacteria. As a result the product contains little free amine." explained Peter Blenkinsop.

"By minimising the boron content, a higher free amine content can render the fluid hazardous so it really is quite a fine line," he continued. "We have invested a lot of R&D time in identifying the optimum combination of constituents that achieves the attributes we seek from a boron-free product without exceeding threshold levels."

Shifting sands

Other problems facing metalworking fluid developers are tighter documentation and changing standards. Material Safety Data Sheets (MSDS now known as SDS) now require the developer to provide a lot more constituent information than ever before, a move that can compromise the security of intellectual property. Furthermore, in 2015 when the Globally Harmonised System (GLS) comes into force, the current thresholds for irritancy, harmfulness and toxicity will reduce.

"We have to be mindful of re-classification all the time," explained Master Chemical's R&D Chemist, Gary Charlton. "In the last few months the classifications of several substances have been changed and this involves a great deal of re-formulation work to maintain our product's hazard-free label status." And with the GLS coming into force in 2015 the speed of reclassification is only set to increase.

Master Chemical Europe understandably attaches a great deal of importance to its ability to ride this tide of change through its high investment in R&D. Peter Blenkinsop concluded: "We are unique in our ability to produce whatever the customer wants whether it be driven by EU Directive, local regulation or industry trend.

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About Master Chemical Corporation: Master Chemical Corporation was founded on November 13, 1951. Since then, working closely with the worldwide metalworking community, Master Chemical Corporation has developed and marketed a full line of specialty cutting and grinding fluids, cutting oils, concentrated washing and cleaning compounds, and rust preventives all under the TRIM® brand trademark. These products are both environmentally sound and when used in conjunction with Master Chemical's XYBEX® Coolant Recycling and Filtration Systems, are the most durable and stable products available anywhere today. Master Chemical has always been committed to the safety of the people who use our products, the protection of our planet, the environment we live in, and the overall impact on our customers' profitability. Master Chemical serves customers globally. For further information please contact a local distributor near you <http://www.2trim.us/distributors.php>, call us at (44) + (0) 1449 726800, or visit our website at www.masterchemical.com

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