

**Innovative cutting fluids and neutral cleaners from Henkel bring major improvements in metal cutting operations**

## **Balsam for parts, tools and employees**

**Improvements in the productivity of metal cutting and processing operations are not just achieved with new tools and machines. The role of modern industrial chemicals should not be underestimated. Their ability to contribute to significant improvements in performance and to process optimization is demonstrated by systems from Henkel: the Multan range of water-miscible cutting fluids, which use patented emulsifier systems and the P3-neutracare® 3000 range of cleaning products. The cutting fluids have good skin compatibility, and therefore promote occupational health.**

In the metalworking sector, investment decisions usually concern hardware. Nevertheless, even the most efficient machine tool is dependent on the quality of the cutting fluids. These fluids ensure that metal cutting operations run smoothly. The state of the art in water-miscible cutting fluids is represented by the Multan range from Henkel, with the newly launched top product Multan 97-40 for aluminum cutting operations. The formulation is semi-synthetic, comprising both mineral and vegetable oils. The products are boron-free and contain no phosphorus-, sulfur- or chlorine-containing additives. A patented emulsifier concept is responsible for its excellent tribological performance and bacteriological stability.

### **No more build-up edges**

Numerous plants use Multan as their product of choice on account of its excellent rinsing properties, outstanding lubrication and the longer tool life. Build-up edges in the mass-production facility of an automotive manufacturer disappeared completely after Multan was introduced. Form tolerance and roughness measurements carried out at the French research institute Cetim confirm the excellent quality of the surface finish of the workpieces and the minimal tool wear when Multan cutting fluids are used. Another advantage is the much lower consumption relative to conventional products; the fill concentration is only about 5 percent, and the top-up concentration no more than 2 percent. In plants with central supply systems the service life of the

emulsion can be more than two years, which considerably reduces the costs of consumption, maintenance and disposal. Multan cutting fluids have also proven their superiority in respect of occupational health. The products have certainly benefited from the fact that the Henkel Group has a Cosmetics Business Sector and carries out basic research in this field. The absence of problematic ingredients and the low application concentrations contribute to the excellent skin compatibility of Multan products. The new Multan 97-40 is no longer subject to a labeling obligation and already satisfies the stricter provisions of the EU Biocide Directive 98/8EC, which will not become effective until September 2006.

### **Finely harmonized products**

Henkel recently launched its P3-neutraceutical<sup>®</sup> 3000 range for the cleaning and degreasing process downstream of the metal cutting operations. This is a completely new generation of aqueous neutral cleaners,. The single-component product concept eliminates the replenishment of additives that was previously necessary with demulsifying neutral cleaning products based on cationic surfactants (QAC). This simplifies bath management and enables the bath service life to be extended considerably, as was demonstrated in a pilot project carried out in the parts production line of a major automotive manufacturing plant. The cationic surfactants were previously spent after just one week, due to the carry-over of large quantities of processing oils into the cleaning system. Continuous replenishment of additives was unavoidable if the required service life was to be maintained and foam formation avoided. In contrast, the new product can be used for weeks without any problems and needs only minimal replenishment. The excellent demulsifying action of the P3-neutraceutical<sup>®</sup> 3000 range is also evident with regard to the carry-over of finely dispersed cutting fluid emulsions. The oil separation functions outstandingly and is also achieved more quickly than with conventional products. This is a clear illustration of Henkel's firm grasp of all of the processes involved in metal cutting operations, enabling it to offer ideally harmonized products. This has a positive effect on the productivity and cost efficiency of the total production process.

### **Technical brochure “Cutting fluids and skin protection” for industrial users**

Dermatological research findings on cutting fluids and occupational health are documented in detail in a brochure produced by Henkel and Herwe, a manufacturer of skin protection products. The brochure presents a general treatment of the subject together with practical tips on how to implement skin protection measures on the shop floor. Henkel sends the brochure free of charge to interested companies in the metal processing sector.

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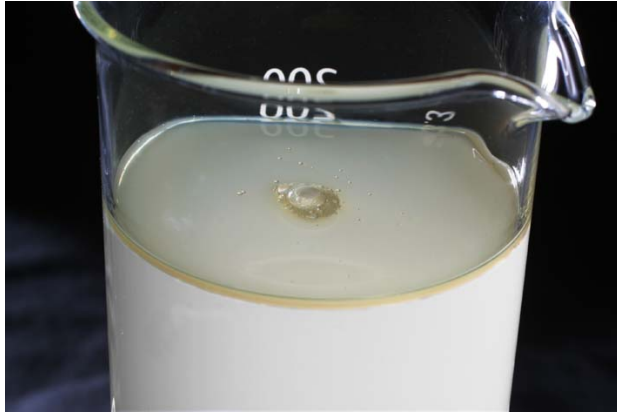
#### Photos and captions:

##### *1) Motif: Cutting fluid in use*



Economical metal cutting: The high-performance cutting fluid Multan 97-40 offers outstanding production quality, low tool wear and minimal consumption. Photo: Henkel

##### *2) Motif: Oil separation with P3-neutrare® 3000*



Efficient oil separation: The patented formulation of the P3-neutraceutical® 3000 range of neutral cleaners optimizes industrial cleaning processes downstream of metal cutting operations. Photo: Henkel

August 2005