Microbial contamination in metalworking fluids

Easicult Combi

Easicult® – dedicated to quality

Fluid systems that contain water or emulsions can become highly contaminated with harmful bacteria. Bacterial contamination of cutting fluids and associated machinery and pipelines should be monitored and controlled. Direct method of measuring bacterial contamination should be used in conjunction with other quality checks, e.g. fluid concentration and pH. Aidian's Easicult dipslides are a simple and economical way of checking microbial contamination.

Use Easicult Combi to optimize the biocide concentration in cutting fluids.

Fluid management

The risk assessment should cover how bacterial contamination of fluids is to be monitored. Factors to be taken into account include the system history, contamination risk, and fluid characteristics. For many systems and containers, weekly checks with dipslides are highly recommendable. The risk assessment may vary this period if the continuing control of bacterial contamination can be demonstrated.

Easicult dipslide, a plastic carrier coated with a microbial culture medium, is dipped into the liquid to be tested. It is then incubated to allow microbial growth and the resulting colonies are estimated by comparing to a model chart to indicate the level of bacterial contamination. Results are expressed in terms of colony-forming units per millilitre (CFU/ml) of fluid.

From value to action

The following value indicate what can be regarded as good, reasonable and poor standards of fluid management, and what action should be taken:

$< 10^3$ CFU/ml – Good control. No further action is required.

10^3–10^6 CFU/ml – Reasonable control. Review control measures to ensure levels of bacteria remain under control. Risk assessment should specify action to be taken. Biocides and cleaning may be indicated.

$> 10^6$ CFU/ml – Poor control. Immediate action should be taken in line with risk assessment. Normally at very high levels draining and cleaning should take place.

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