CASE STUDY

Aerospace
Reducing Consumption and Waste Machining Airframe Parts

HOCUT® 4260

The Challenge

A leading manufacturer of business jets in Canada was looking to replace a competitive coolant they had been using for over a decade. Poor performance of the competitive fluid required the system be dumped, cleaned and recharged twice per year. The customer turned to Quaker Houghton for a product that would:

- Reduce consumption
- Eliminate downtime and cost from shutdowns

The Solution

Quaker Houghton worked with the customer to understand their needs and recommended HOCUT® 4260. HOCUT® 4260 was chosen because it provides long sump life, long-term biostability and is particularly effective machining aluminum aerospace airframe structural components.

Initially, HOCUT® 4260 was run through a series of laboratory testing including corrosion testing on different alloys, sandwich corrosion testing on aluminum panels and titanium compatibility. This was followed by a field trial, where the customer immediately took notice of several improvements when switching from the incumbent product to HOCUT® 4260. There was a clear difference in the quality of parts and a distinct lack of sticky residue after switching to HOCUT® 4260. The following improvements were noticed in the trial stage:

- Cleaner and brighter Aluminum parts, no staining
- No sticky residues on tool holders
- No residues on machine walls and windows

Previously, the competitive coolant was replaced twice a year and all machines required cleaning. After using HOCUT® 4260 for a full year, they didn't have to replace, clean, or recharge any of their machines, central systems, or trenches for the first time in over 15 years. The emulsion has now been in use for 20 months, resulting in savings of at least $120,000 on coolant purchases. The customer also eliminated the disposal of 100,000 liters of used coolant per year which is a savings of approximately $30,000.

The Benefits

- Improved safety on gantries table - non-slip and less residues
- Operators no longer complain about a permanent odor on their clothing due to improved cleanliness
- No bacteria or fungus with over a year of use
- Product can be recycled from chips recovery
- Less maintenance and downtime required

Process and Equipment

PRODUCT TITLE	PRODUCT INFORMATION
Part	Airframe Parts
Material	Aluminum
Concentration	8 - 10 %
Operation	Milling
Machines	8 Makino MAG 1, 6 Makino MAG 3, 4 Makino 88, 9 gantries and

The Product

HOCUT® 4260 is boron-free and formaldehyde-free emulsion technology which provides very long sump-life. A special lubricity additive package gives enhanced machining performance and extends tool l ife compared to conventional products. HOCUT® 4260 is multi-metal compatible and is recommended for machining applications including high speed milling, drilling, turning and grinding on a wide range of materials including aerospace aluminum alloys, composites, ferrous alloys, high strength steels, titanium, Inconel and magnesium. Its non-staining and corrosion-free properties make HOCUT® 4260

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particularly effective machining aerospace airframe structural components in aluminum alloys, titanium and carbon-fiber composites.

HOCUT® 4260 is one of the most important aerospace industry metalworking fluids holding approvals for:

- Airbus AIPS 00-00-010: Approved for Elementary Parts & Stacks – Titanium, Aluminum, All Steels, Copper
- Boeing BAC 5008 cat. 5 & 6: Meets conformance requirements
- Bombardier BAMS 569-001: A, C & D
- Dassault: Approved
- Rolls Royce CSS 129 & 131
- SAFRAN Aircraft Engines: 455-201-0-00 & PR 6300 Ti, Nickel, Cobalt, low alloy steels, high/very high resistance steels, Stainless, Aluminum and Magnesium
- SAFRAN Landing Systems PCS 4002

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