

Equipment Solutions

Case Study:

Landing Gear Machining: The GREENLIGHT™ ANDON transforms plant economics

The Unique Challenge

One of the world's largest suppliers of landing gear for commercial, military and business aircraft and other advanced aerospace and defense products was looking to improve production cost while maintaining or improving product quality.

The primary machining operations at the plant were drilling, milling, turning and grinding titanium and other exotic alloys using Houghton's HOCUT® 795B. The plant's maintenance and facility manager wanted to reduce costs regarding water-based machining coolants. The grinding engineer believed if they could more tightly control the coolant concentration they would be able to extend coolant life and minimize overdosing the system with concentrate. With tight control, tool-life could be extended without slowing speed and higher tolerances might be achieved. If scrap could be reduced, they would realize \$15,000 annually in savings.

High coolant concentration results in excessive coolant concentrate consumption, foaming, and misting

Low coolant concentration results in poor tool-life, poor surface finish, and shortens coolant life due to increased potential for biological growth

The grinding engineer and maintenance manager had been working to control coolant concentration using control guidelines and trend reports based on traditional hand-held refractometer readings and routine supplier laboratory analysis. As the manufacturing facility had over 80 large fluid sumps, this was difficult to execute and required significant operator and engineer attention.



The Houghton Approach

To address cost and performance goals, Houghton recommended using the GREENLIGHT™ Andon Fluid Monitor, a self-contained measurement system which sets the new standard for automated continuous concentration monitoring of metalworking fluids. The plant trialed two units on two individual grinding systems with excellent results:



"The units installed are working well based on feedback from our grinding engineer. We are able to maintain the proper concentration for our machine tools (which is a customer specification) very easily with these units. We are reducing the use of the raw product which is proving to be a cost saving. We ordered more units to use on the remaining grinders due to the cost savings provided in that area and the ability to monitor the concentration daily."

- Maintenance and Facility Manager
Landing Gear Plant



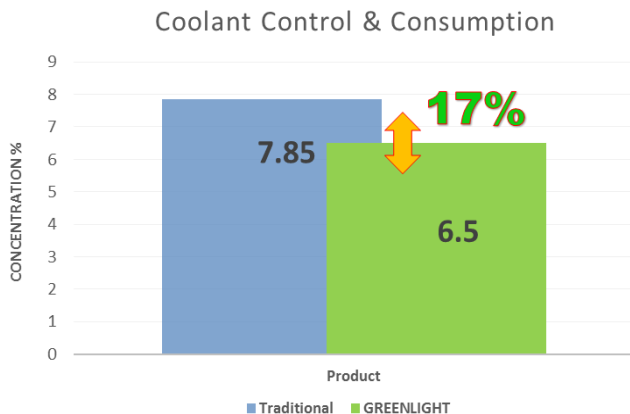
HOUGHTON®

Fluid Partnerships Making A World Of Difference

Results and Benefits

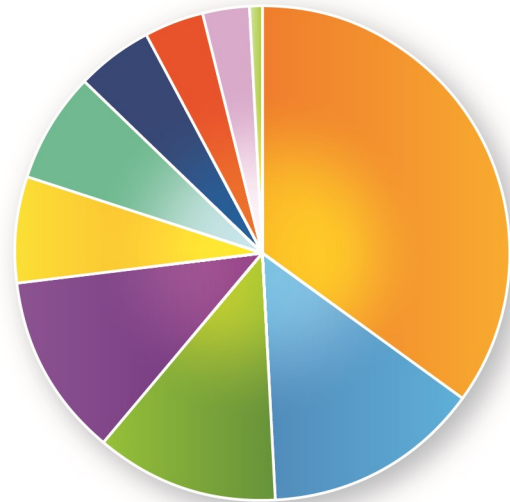
- Automated monitoring of multiple coolant sumps/ systems – 100% reliability in the control of coolant concentration
- On-going cost reduction:
 - Longer tool life
 - Less rework and scrap rates
 - 17% reduction in coolant concentration
 - Reduced coolant consumption
 - Extended coolant bath life resulting in reduced fill frequency
 - Reduction in sump side additives
 - Reduced maintenance and time
 - No foaming – eliminated need to add defoamer
- Quality improvement – improved surface finish
- Improved operator safety – eliminated misting, less handling of coolant

Additionally, tighter and more reliable fluid concentration monitoring achieved by deploying the **GREENLIGHT™** Andon Fluid Monitor enabled the plant to contribute to the company's green initiative by significantly reducing coolant waste.



RELIABLE, AUTOMATED CONCENTRATION MONITORING
CONTROL TARGETS TIGHTENED
OPERATIONAL QUALITY IMPROVEMENT AND COST SAVINGS

Houghton International Product Portfolio



- Metal Removal 35%
- Hydraulic Fluids 14%
- Steel Rolling 12%
- Metal Finishing 12%
- Non-Ferrous Rolling . . . 7%
- Heat Treatment 7%
- Metal Forming 5%
- Metal Protection 4%
- Metal Cleaning 3%
- Other 1%

Established Client Relationships

Houghton International has long-standing partnerships with over

20,000 Leading Global Customers

serving their metalworking fluids needs across a wide range of applications and diversified end-markets including **automotive, aerospace, fabricated metal goods, bearings, energy, non-ferrous and steel.**



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