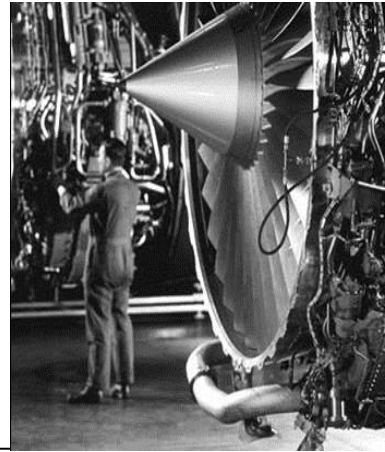


AEROSPACE MANUFACTURING (USA)

MACHINING OF EXOTIC METALS

Castrol Hysol® MB 50

ANNUAL SAVINGS: \$336,000



THE SITUATION

- Customer converted 40,000 gallon central system from competitor's synthetic coolant. Product usage benchmarked at 75 gallons daily, at an annual cost of \$343,200.
- Initial operation with Castrol Hysol MB50, semi-synthetic coolant, resulted in an unplanned increase in product usage. Estimated annualized usage of 29,900 gals would result in \$483,483 in cost.
- Central system employs a high-speed centrifuge for filtration. Centrifuge capacity is 25 GPM and operates continuously.
- Customer experiencing coolant concentration control issues, with presence of foam requiring frequent additions of defoamer.
- Usage of defoamer adds an estimated \$9,600 in annualized raw material costs.
- Customer leases centrifuge unit for \$6,500 per month.

THE SOLUTION

- Castrol surveyed central coolant system and identified the centrifuge unit as the primary source of fluid and anti-foam losses. Centrifuge was removed from operation and tank-side oil/water separation was improved to prevent fluid stripping.
- Castrol monitored coolant concentrate usage and optimized the central system's automated metering to keep concentration within specification (8 - 9 %).
- Central system return line flow rate was evaluated and return flume was engineered to reduce amount of turbulence imparted on central system settling tank volume.
- Machining operations on titanium, inconel, and Rene were monitored to ensure part quality and tool life remained unchanged.

THE RESULTS

Equipment Leasing Costs: Elimination of the centrifuge unit resulted in an **annualized savings of \$78,000.**

Coolant Costs: Current **Hysol MB 50** usage rate (using 2-3% dilution for make-up) results in 52% reduction in daily coolant usage. **Annualized savings of \$250,000.**

Additive Costs: Elimination of centrifuge keeps defoamer chemicals in solution, resulting in a decrease in additive usage for **\$8,000 in annualized savings.**

Operator Acceptance: The conversion to **Hysol MB50** resolved a critical EHS issue on the shop floor. Foul odors, due to bacteria were eliminated by the coolant's robust anti-microbial formulation. Reducing the usage rate of **Hysol MB50** reduced the potential for chemical irritation of skin, eyes, and respiratory system.

Inventory Control: The improved system performance, realized through the improved control of **Hysol MB 50**, has reduced the amount of inventory management and handling associated with supporting the central coolant system.