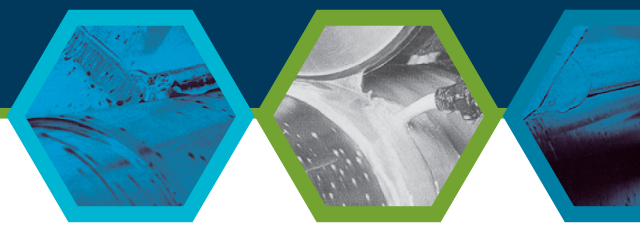
APPLICATION CASE STUDY #33



NuSOL® ALUMAX

METAL WORKING FLUID

CUSTOMER: OIL FIELD SERVICE COMPANY

PRODUCT

NuSol® Alumax is a non-chlorinated technology for the machining of non-ferrous metals and exotic alloys. NuSol® Alumax is formulated for all machining operations on all metals but is specifically designed to machine today's tougher non-ferrous and aluminum alloys. NuSol® Alumax is manufactured using a proprietary blending process that incorporates many unique characteristics into he product that will promote high productivity rates and minimal down-time for the end user.

NuSol® Alumax is formulated using a blend of unique preformed emulsions that possess a very small particle size and which demonstrate outstanding boundary lubrication. This small particle size provides a very durable and uniform lubricant film, enhanced wetting and coverage, a very clean running fluid, and exceptional hard water stability for enhanced machining performance on non-ferrous and aluminum alloys. NuSol® Alumax preformed emulsions are further complemented with the presence of a surfactant package, offering enhanced boundary lubrication and fluid detergency and cleanliness.

PROCESS AND EQUIPMENT

Industry/Market	Industrial
Product Type	Metal Working Fluid
Product Number	27023F0000
Machinery Involved	Mazak CNC Lathes, Mills
Description of Environment	N/A
Volume Used	660 gallons per year
Date of Use	March 2016 - Present
Documented Cost Savings	$47,150 per year

▷ DESCRIPTION OF PROBLEM

Customer was using a competitor's semi-synthetic (10% chlorinated MWF) and was having rancid odors issues, oily residues and was looking to improve tool life.

▷ SOLUTION

Example 1: Machining Super Duplex material (high nickel stainless steel) with an inserted cutting head in milling operation. The competitor's products consumed 6 inserts per part and cycle time was 2.66 hours per part. Total cost between machine time cost and insert cost for 120 parts was $49,750, machining time was 320 hours.

NuSol® Alumax installed and results were as follows: consumed 2 inserts per part (66% improvement) and decreased cycle time to 100 minutes (37.5% improvement). Total cost of 120 parts was $29,000 and machining time was 199 hours (37.8% improvement).

Total saving for job: $20,750 (41.7% improvement). Job could run more than 1 time per year for additional cost savings.

Example 2: Tool vending machine tracks tool cost for all machines in the shop. Since switching to NuSol® Alumax, total monthly tool cost have dropped from $9,000 to $6,800 per month. This is a $2,200 per month savings, or $26,400 estimated savings on top of the job above.

▷ CUSTOMER TESTIMONIAL

Customer said decision to make change a "no brainer". Besides the incredible cost saving due to tool life increase, better productivity, and lower consumption; the operator acceptance of NuSol® Alumax has been high because of the ease of maintenance, no odors, and no skin irritations.

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