

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008

DateRun: 05/01/2008

Experimenters: Jason Marshall, Shweta Bansal

ClientType: Machining Company

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Coupon

Contaminants: Cutting/Tapping Fluids

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To evaluate selected products on second supplied cutting fluid using simulated cleaning process.

Experimental Procedure: Prewieghed coupons were coated with the supplied cutting fluid (WA wood, 57 F Cutting oil) using a handheld swab and weighed a second time to determine the amount of soil added.

The same six cleaners were put in a bowl and three coupons were dunked into the solution at a constant rate for 30 seconds of cleaning. The coupons were then put on a tray and when done and allowed to air dry. There was no rinse. The process was done to as closely replicate the process used on site as possible. Once dry, final weights were recorded, and efficiency calculated for each coupon cleaned.

Results: Only one product was moderately successful, removing just over 80% of the cutting fluid. Two products removed over 50% and two removed just under 50%. The table below lists the amount of soil added, the amount remaining and the efficiency for the coupons cleaned.

| Cleaner | Initial wt | Final wt | % Removed |
|----------------|------------|----------|-----------|
| Solsafe 245 | 0.3962 | 0.0724 | 81.730 |
| | 0.3874 | 0.0541 | 86.040 |
| | 0.4505 | 0.0771 | 82.890 |
| Metalnox M6310 | 0.3645 | 0.2270 | 37.720 |
| | 0.5897 | 0.3820 | 35.220 |
| | 0.6573 | 0.3098 | 52.870 |
| Ionox HC 2 | 0.4813 | 0.3536 | 26.530 |
| | 0.4012 | 0.3868 | 3.590 |
| | 0.5882 | 0.0813 | 86.180 |
| Soy Clear 1500 | 0.6034 | 0.2406 | 60.130 |
| | 0.6098 | 0.2130 | 65.070 |
| | 0.8293 | 0.2413 | 70.900 |
| Biodiesel | 0.4358 | 0.1980 | 54.570 |
| | 0.4878 | 0.1940 | 60.230 |
| | 0.4603 | 0.1615 | 64.910 |
| SC Supersolve | 0.5118 | 0.2864 | 44.04 |
| | 0.5555 | 0.2199 | 60.41 |
| | 0.4138 | 0.2423 | 41.45 |

Summary:

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|---------------------------|--------------------------------------|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | Aluminum | | | | |
| Contaminants: | Cutting/Tapping Fluids | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Bio Chem Systems | Solsafe 245 | 100 | 83.55 | <input checked="" type="checkbox"/> | |
| Kyzen Corporation | Metalnox M6310 (For Comparison Only) | 100 | 41.94 | <input type="checkbox"/> | |
| Kyzen Corporation | Ionox HC 2 | 100 | 38.77 | <input type="checkbox"/> | |
| AG Environmental Products | Soy Clear 1500 | 100 | 65.31 | <input checked="" type="checkbox"/> | |
| Newport Biodiesel | Biodiesel | 100 | 59.90 | <input type="checkbox"/> | |
| Gemtek Products | SC Supersolve Safety Solvent | 100 | 48.63 | <input type="checkbox"/> | |

Conclusion:

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Longer cleaning times should improve the efficiencies for many of the selected products. All six will be evaluated on the third supplied metal working fluid.