

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1997  
DateRun: 08/12/1997  
Experimenters: Jason Marshall, Prashant Trivedi  
ClientType: Machining Company  
ProjectNumber: Project #1  
Substrates: Steel  
PartType: Coupon  
Contaminants: Lubricating/Lapping Oils, Metal fines  
Cleaning Methods: Low Pressure Spray  
Analytical Methods: Visual  
Purpose: Cleaning in ultrasonics and in Miele parts washer.

Experimental Procedure: Two cleaners were selected from Trial #1 for use in cleaning. Five percent solution were made in beakers for use in the 40kHz ultrasonic unit and in the Miele parts washer. The solutions were heated to 130 F using each instrument. Two parts were cleaned in the ultrasonic and three were cleaned in the parts washer for five minutes. After the cleaning, the parts were rinsed in tap water for thirty seconds at 120 F. Finally, the parts were then dried for one minute per side under an infrared heat lamp.  
SUBSTRATE MATERIAL: 1010 cold rolled steel  
CONTAMINANTS: metal chips & Coolube 2210 (Triglycerol & propylene glycol esters of C8 & C10 acid)

Results: After the cleaning processes were completed, the sample parts were inspected visually for cleanliness. The parts cleaned in the ultrasonic and the parts washer appeared to be clean. After inspection the parts were packaged up to be sent to the clients. Upon closer examination, the parts appeared to be rusting. Therefore, it was decided not to send the parts back just yet. Further experimentation will be required to determine how to prevent the rusting of the parts.

Summary:

|                      |                      |                                       |                    |                                     |                      |
|----------------------|----------------------|---------------------------------------|--------------------|-------------------------------------|----------------------|
| <b>Substrates:</b>   |                      | Steel                                 |                    |                                     |                      |
| <b>Contaminants:</b> |                      | Lubricating/Lapping Oils, Metal fines |                    |                                     |                      |
| <b>Company Name:</b> | <b>Product Name:</b> | <b>Conc.:</b>                         | <b>Efficiency:</b> | <b>Effective:</b>                   | <b>Observations:</b> |
| Ardrox Inc           | 6333                 | 5                                     |                    | <input checked="" type="checkbox"/> |                      |
| Calgon Corporation   | AK 6215              | 5                                     |                    | <input checked="" type="checkbox"/> |                      |

Conclusion: Both cleaning processes and chemistries cleaned the parts very well. The only draw back was rusting. All of the parts appeared to be rusting after being allowed to sit for about an hour. The next step in testing will be to eliminate the rusting. This can be done through the use of additives or through re-examining the rinsing and drying processes.