

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2019
 DateRun: 08/06/2019
 Experimenters: Nicole Kebler, Julie Nguyen
 ClientType: Electroplating Company
 ProjectNumber: Project #1
 Substrates: Ceramics
 PartType: Part
 Contaminants: Lubricating/Lapping Oils, Oil
 Cleaning Methods: Immersion/Soak
 Analytical Methods: Visual
 Purpose: To evaluate aqueous cleaning products for machine oil removal from Barry Industries parts and determine the best recommended product.

Experimental Procedure: One pre-soiled ceramic part was used per cleaner. Dilutions and temperatures used for each cleaner were based on vendor recommendations. Coupons were immersed with a stir bar individually for 15 minutes with visual observations being recorded every five minutes. Cleaned coupons were rinsed in heated (95° F) tap water for five minutes and dried for five minutes with an air gun. All Barry Industries parts were photographed after cleaning (see Appendix A). A final cleanliness ranking was conducted comparing to clean parts provided by Barry Industries.

Overall Cleanliness Rating Table

Score	Description
1	Total removal of contaminant. No residue.
2	Partial removal of contaminant. Some residue remaining.
3	Minimal removal of contaminant. Substantial amount of residue remaining.

Results: Visual Observations

Ceramic

Cleaner	5 Mins	10 Mins	15 Mins	Rinse
1	- bubbles forming at top of dilution - oil appearance on surface	- soil still remaining on edges	- dilution is clear - thin rim of bubbles - some particles still floating	- dilution is clear - minimal bubbles - no color change
2	- small bubbles forming	- particles floating in dilution	- dilution is clear - thin rim of bubbles - some particles still floating	- dilution is clear - minimal bubbles - no color change

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3	- small bubbles floating	- bubbles swirling	- clear thin rim of bubbles	- dilution is clear - minimal bubbles - no color change
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Overall Cleanliness Ranking

Cleaner	Ranking
1	1
2	1
3	1

Summary:

Substrates:	Ceramics				
Contaminants:	Lubricating/Lapping Oils, Oil				
Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Brulin Corporation	Aquavantage 1400	5%		<input checked="" type="checkbox"/>	
Hubbard Hall Inc	Emerald HD2	15%		<input checked="" type="checkbox"/>	
International Products Corporation	Micro 90 Conc.	2%		<input checked="" type="checkbox"/>	

Conclusion:

For the ceramic substrate, all chemistries evaluated were effective.