

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008
 DateRun: 06/17/2008
 Experimenters: Jason Marshall
 ClientType: Electro-Optical Devices
 ProjectNumber: Project #1
 Substrates: Paper
 PartType: Part
 Contaminants: None
 Cleaning Methods: Immersion/Soak
 Analytical Methods: Visual

Purpose: To evaluate compatibility of cleaning products with paper backing material

Experimental Procedure: The top three products from the previous follow up trial and one product selected for onsite piloting were applied to a 3" x3" square of supplied paper backing used in the manufacturing process. The cleaning products were allowed to remain on the surface overnight (18 hours). Afterward, the squares were observed to determine if there was any visual damage to the material and if there was any cleaning product residue.

Results: The previously selected product DS 144 and the Clorox Green Works Glass cleaner both had little to no residue remaining after sitting overnight. All four products did not cause damage to the paper backing. Observations are listed in the table.

| Cleaner | Observations |
|-------------|---|
| DS 144 | Only slight film |
| | No visible sign of cleaner |
| | No damage to surface |
| BioGold 3 | Visual film on surface |
| | Slippery |
| | No damage to surface |
| Soy Strong | Some film remaining but less than BioGold 3 |
| | Some visual sign of cleaner |
| | No damage to surface |
| Green Works | Only slight film |
| | No visible sign of cleaner |
| | No damage to surface |

Summary:

| Substrates: | Paper | | | | |
|--------------------------|---------------------------------------|--------|-------------|-------------------------------------|---------------|
| Contaminants: | None | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Dysol | DS 144S Wipe Solvent | 100 | | <input checked="" type="checkbox"/> | Rank 1 |
| Vertec BioSolvents | VertecBio Gold 3 | 100 | | <input checked="" type="checkbox"/> | Rank 4 |
| Spartan Chemical Company | Soy Strong | 100 | | <input checked="" type="checkbox"/> | Rank 2 |
| Clorox Company | Green Works Glass and Surface Cleaner | 100 | | <input checked="" type="checkbox"/> | Rank 1 |

Conclusion: The amount of residue left behind could easily be eliminated during a normal cleaning process using a wiping action. The three products from the follow up testing will be evaluated on the EVA material.