# CLEANING LABORATORY EVALUATION SUMMARY

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|---|---|
| SCL #: | 1995 |
| DateRun: | 09/11/1995 |
| Experimenters: | Donald Garlotta, Jay Jankauskas |
| ClientType: | Metal Wire Manufacturer |
| ProjectNumber: | Project #1 |
| Substrates: | Alloys, Aluminum, Steel |
| PartType: | Part |
| Contaminants: | None |
| Cleaning Methods: | Immersion/Soak |
| Analytical Methods: | Gravimetric, Visual |
| Purpose: | The purpose of this experiment is to perform a corrosion test on Metal Wire Manufacturer's parts. |
| Experimental Procedure: | Six cleaners that were successful in the cleaning trial for Metal Wire Manufacturer were used. Four solvent cleaned wires were weighed and then placed in each beaker of cleaning solution. The beakers of solution were kept at a temperature of 150 F and no agitation was applied. The wires remained in the cleaning solutions for 6 hours. They were then rinsed in a tap water bath (150 F) for two minutes and then dried in a convection oven. After drying the parts were cooled down and then weighed and visually inspected. |

Results:

MacDermid ND-17

| sample # | mass before cleaning (g) | mass after cleaning (g) | Percent Weight Loss |
|---|---|---|---|
| 1 | 0.8020 | 0.8027 | -0.09% |
| 2 | 0.8261 | 0.8264 | -0.04% |
| 3 | 0.8099 | 0.8100 | -0.01% |
| 4 | 0.8269 | 0.8269 | 0.00% |
| | | | -0.03% |

CSI Release

| sample # | mass before cleaning (g) | mass after cleaning (g) | Percent Weight Loss |
|---|---|---|---|
| 5 | 0.8080 | 0.8080 | 0.00% |
| 6 | 8074 | 0.8074 | 0.00% |
| 7 | 0.8068 | 0.8069 | -0.01% |
| 8 | 0.8236 | 0.8236 | 0.00% |
| | | | -0.00% |

Calgon Corp. Geo-Guard 2215

| sample # | mass before cleaning (g) | mass after cleaning (g) | Percent Weight Loss |
|---|---|---|---|
| 9 | 0.8241 | 0.8244 | -0.04% |
| 10 | 0.8090 | 0.8090 | 0.00% |
| 11 | 0.8249 | 0.8249 | 0.00% |
| 12 | 0.8088 | 0.8090 | -0.02% |
| | | | -0.02% |

Brulin Corporation 815 GD

| sample # | mass before cleaning (g) | mass after cleaning (g) | Percent Weight Loss |
|---|---|---|---|
| 13 | 0.8084 | 0.8084 | 0.00% |
| 14 | 0.8074 | 0.8075 | -0.01% |
| 15 | 0.8026 | 0.8028 | -0.02% |
| 16 | 0.8260 | 0.8261 | -0.01% |
| | | | -0.01% |

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WR Grace Daraclean 283

| sample # | mass before cleaning (g) | mass after cleaning (g) | Percent Weight Loss |
|---|---|---|---|
| 17 | 0.8085 | 0.8086 | -0.01% |
| 18 | 0.8093 | 0.8093 | 0.00% |
| 19 | 0.8020 | 0.8021 | -0.01% |
| 20 | 0.8072 | 0.8074 | -0.02% |
| | | | -0.01% |

Oakite Products Inc. Inproclean #3800

| sample # | mass before cleaning (g) | mass after cleaning (g) | Percent Weight Loss |
|---|---|---|---|
| 21 | 0.8088 | 0.8086 | 0.02% |
| 22 | 0.8062 | 0.8058 | 0.05% |
| 23 | 0.8097 | 0.8095 | 0.02% |
| 24 | 0.8075 | 0.8074 | 0.01% |
| | | | 0.03% |

Summary:

| **Substrates:** | Alloys, Aluminum, Steel |
|---|---|
| **Contaminants:** | None |

| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
|---|---|---|---|---|---|
| MacDermid Industrial Products | ND 17 | 10 | 0.00 | ☐ | |
| Cleaning Systems | Release | 10 | 0.00 | ☑ | |
| Calgon Corporation | Geo Guard 2215 | 10 | 0.00 | ☑ | |
| Brulin Corporation | Formula 815 GD | 10 | 0.00 | ☑ | |
| Magnaflux | Daraclean 283 | 10 | 0.00 | ☑ | |
| Oakite Products | Inproclean 3800 | 10 | 0.00 | ☑ | |

Conclusion:

Due to the relative error of the electronic balance used (0.05%) all cleaners fell within an acceptable weight loss range. The ND-17 was noticed to form an insoluble blue gel at high temperatures (above 130 F). Adverse effects of this gel is not known but since there were five other cleaners that performed as well if not better, the ND-17 shouldn't be considered. An FTIR spectrum was taken of this blue substance and from the absorptions, the substance appears to be Dipropylene Glycol Methyl Ether.