“Frosting on the Cake”
Taking your Coating System from “Good to Great”

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CCATC-Paint Expo 2015
A Singular Goal: Delight the Customer

• **Quality of Cured Film** > Aesthetic & Film Performance in Service

• **Total Cost of Process** > Understood and Documented

• **Flexibility of Processing** > Multi-Colors & Product Configuration

• **Adequate Capacity** > Now and in the Future (Size & Speed)

• **Process Stability & Sustainability** > Oversight and Investment

• **Supplier Support Mandatory** > Audits, Training, Info., Parts

• **Efficiency** > The Reflection of a Robust & Optimized System
Presentation Focus:

• Best Practices, Techniques and Tools

• Management of Multiple Sub-Processes > Cleaning, Coating, Curing, Conveying

• Failure Mode Potential Fully Appreciated >
  – 150 + Failure Modes
  – Sustainability is the True Test of a “Fix”
  – No “solution/strategy” will be effective without an “Owner”
Cleaning Function

1. Know Your Soils > TDS for all lubes. Right to Know.

2. Soil Load > Sampling, Coating Weight & Stage Life Tracking


4. Ultimate Water Quality (Rinse Stages Critical-RO)

5. Nozzle Inspection & Aging Oversight (Fan Patterns)

6. Energy Management > Temps. & Motors (VFD’s)
Routine Washer Cleaning
Nozzle & Pattern Monitoring
Coating Function

1. “Know” your Powder > TDS, MSDS, Lot Cert. per Lot, Particle size Distribution (Virgin). Special Applications?


3. Monitor all Wear Components > Venturis, Fans, Hoses, Gun Barrels (Ceramic options, Hose material, etc.)

4. Appropriate Cleaning Practices > Ultrasonic Cleaner!

5. “Legitimate” Application Practices Only > “4 V’s”, Gun to Part distance, Dwell time discipline. Speed!
### Powder Documentation

**Result Analysis Report**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Name:</td>
<td>Batch #3478 DW 100% w/o off</td>
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<tr>
<td>SOP Name:</td>
<td></td>
</tr>
<tr>
<td>Measured by:</td>
<td></td>
</tr>
<tr>
<td>Measured:</td>
<td>Wednesday, May 16, 2007 9:00:29 AM</td>
</tr>
<tr>
<td>Analysed:</td>
<td>Wednesday, May 16, 2007 9:00:30 AM</td>
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<tr>
<td>Particle Name:</td>
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<td>Particle Size:</td>
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<td>Dispersant Name:</td>
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<tr>
<td>Accessory Name:</td>
<td>Hydro 2000S (A)</td>
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<td>Result units:</td>
<td>Volume</td>
</tr>
<tr>
<td>d(0.1):</td>
<td>7.086 um</td>
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<tr>
<td>d(0.5):</td>
<td>29.949 um</td>
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<tr>
<td>d(0.9):</td>
<td>70.287 um</td>
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</tbody>
</table>

**Particle Size Distribution**

- **Volume (%)**
  - 0.01: 0.5%
  - 0.1: 2.8%
  - 1: 13.3%
  - 100: 2.0%
  - 1000: 5.0%
  - 3000: 15.0%

- **Particle Size (μm)**
  - Batch #3478 DW 100% w/o off, Wednesday, May 16, 2007 9:00:25 AM

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**Graphs and Data**

- Particle size distribution graph showing the size distribution of the particles.
- Additional data tables are present but not fully transcribed due to the image resolution.

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*Image Credit: CCAI Paint Expo. 2015* "Frosting on the Cake"
Curing Function

1. Benchmark Oven Routinely via Thermograph or Datapaq > Multiple Substrate Types/Gauges.

2. “Quiet Zone” > Ductwork Access & Baffles.

3. Review Cleanliness of Oven Internally & on cured product. **Microscope!** Cleaning Schedule.

4. IR Bump Strategies > Clean Oven, Shortened Cure, Reduced Cross-Contamination Potential

5. Cure commonality > Parts and Powder Formulations.
Oven Benchmarking
Oven Cleaning
Oven Cleanliness
Conveying Function

1. “Religious” cleaning schedule for all paint hooks, fixtures and load bars. (Chem. vs. Heat)

2. Hook designs that support a “great” ground. “V’s”

3. Scheduled conveyor cleaning; Chain, Rail, Drives.


5. Adequate Quantity of Hooks to support “rotation”.

Conveyor & Load Bar Cleanliness
More “Frosting”

1. Water Evacuation Tools> Water spot targets via air blow-off, vacuums, air cannons, air knives.

2. Keep your Conveyor dry> Shrouds & Air Knives.


4. Invest in QA Tools: Coating thickness, gloss meter, Datapaq, microscope, impact tester, mandrel bend.
Questions?