Improving Shop Efficiency with Coating Selection
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- Shops more particular about coatings and how they impact shop throughput.
- Shops are exploring alternatives to improve efficiency and productivity.
Improving Shop Efficiency with Coating Selection

- Lining capacity at shops is tight.

- Car Owners and Shippers need the use of their rail assets and don’t want them tied up in shops.

- Being told “No Room!” or “Take a Number” for work that slows production.
TAKE A NUMBER
“The most significant impact in reducing coating application costs and throughput times comes from tank car lining applications.”

From article in JCPL by Maria Betti from GATX
# Improving Shop Efficiency with Coating Selection

<table>
<thead>
<tr>
<th></th>
<th><strong>HIGH BAKE</strong></th>
<th><strong>LOW BAKE</strong></th>
<th><strong>NO BAKE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemically Resistant</td>
<td>![Checkmark]</td>
<td>![Checkmark]</td>
<td>![Checkmark]</td>
</tr>
<tr>
<td><strong>DFT MILS</strong></td>
<td>5 - 8</td>
<td>8 - 45</td>
<td>12-30</td>
</tr>
<tr>
<td><strong>COATS</strong></td>
<td>2 - 3</td>
<td>1 - 2</td>
<td>1</td>
</tr>
<tr>
<td><strong>DAYS</strong></td>
<td>3 - 5</td>
<td>2 - 3</td>
<td>1 - 2</td>
</tr>
<tr>
<td><strong>ADVANTAGES</strong></td>
<td>Resistant to Exceptional Range of Products</td>
<td>Resistant to a Broad Range of Products</td>
<td>Resistant to a Broad Range of Products</td>
</tr>
<tr>
<td></td>
<td>Air Cure Capable</td>
<td>Air Cure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Heat cure can increase cross link</td>
<td>Heat will reduce cure time.</td>
<td></td>
</tr>
<tr>
<td><strong>DISADVANTAGES</strong></td>
<td>Labor Intensive</td>
<td>Labor Intensive compared to no bake.</td>
<td>Short pot life.</td>
</tr>
<tr>
<td></td>
<td>Requires heat to cure.</td>
<td>May require final bake.</td>
<td></td>
</tr>
</tbody>
</table>
Choose an alternate coating type when possible and potentially cut paint shop throughput time up to 80% while reducing coating costs!

Win/Win!
Improving Shop Efficiency with Coating Selection

Low Bake & No Bake Coatings Cargo Compatibility

- Crude Oil
- Gasoline
- Palm Oil
- Methanol
- Soybean Oil
- Molasses
- Styrene Monomer
- Xylene
- Ethylene Dichloride
- Sunflower Oil
- Benzene
- Urea Ammonium Nitrate
- Acetone
- Ammonia Solutions, 28%
- Butyl Ether
- Caustic Soda, 50%
- EDC
- Fatty Acid
- Heptanoic Acid
- Methyl Ethyl Ketone
- Potassium Hydroxide, 50%
- Toluene
- Trichloroethylene
- VAM
High Bake Technology provides most versatility but at a cost. Check with your coating supplier to be sure your commodity is resistant and compatible with Low Bake or No Bake solutions.
WELCOME TO THE RACE
Improving Efficiency with Encapsulated Media Blasting

Presenter: Ed Zaharias
Removing High-Build Coatings
“75% of coating failures are the result of poor surface preparation”

“All coating systems will perform better on properly cleaned surfaces with a good surface profile”

SOURCE: NACE Coating Inspector Program (Level 1)
Proper Surface Preparation:

Cleanliness (Visual)

Decontamination (Invisible)

Profile (Measurable)

Microns / Mils

CHLORIDES & SULFATES
OIL RESIDUE
LEAD
ASBESTOS
PCBs
LOW-LEVEL RADIATION

PEAK
VALLEY
Abrasive Blasting Standard

SSPC: The Society for Protective Coatings

ABRASIVE SPECIFICATION NO. 4
Recyclable Encapsulated Abrasive Media
(In a compressible cellular matrix)

1. Scope
1.1 This standard provides requirements for selecting and evaluating abrasive media encapsulated in a compressible cellular matrix and used to blast insipient and other surfaces prior to the application of protective coatings. The standard also includes requirements for quality control of new and recycled media.

2. Description
2.1 ENCAPSULATED ABRASIVE MEDIA: Encapsulated abrasive media consists of natural or manufactured abrasive grains surrounded by a dry, compressible, open-cell material. These abrasive materials are used to reduce dust generation and resultant damage to adjacent surfaces when blast cleaning, and to “hold” the edges of steel coating during weld repair procedures of coatings on steel and other substrates. During welding processes, the media prevents the removal of base fluxes and debris, including paint, rust, mill scale, and other contaminants.

2.2 RECYCLED ABRASIVE WORKING MIX: The working mix develops during blast cleaning and recycling, and is composed of new and recycled encapsulated abrasive media.

2.3 DEFINITIONS
Qualification tests are tests that are performed to verify that the material meets the requirements of the standard.
Performance tests are tests that are performed to verify that the material performs as the material is likely to be used.

3. Void and slag abrasives
3.1 The substrate, as well as other substrates, is tested in the adhesive bonds to it shall be ignored, unless otherwise specified.

3.2 If there is conflict between the requirements of any of the listed references standards and this specification, the requirements of this specification shall prevail.

3.3 NPSI Standards:
AB 1: Void and Slag Abrasives
AB 3: Ferrous Metallic Abrasives

3.4 American Society for Testing and Materials (ASTM) Standards:
D 4417: Standard Test Method for Surface Profile of Blast Cleaned Steel
D 787A: Practice for Determining Voids in Abrasives

3.5 International Organization for Standardization (ISO) Standards:
ISO 156: General requirements for the compliance of testing and calibration accessories

4. Requirements for New Media
(Qualification Tests)
The abrasive manufacturer shall verify that new media meeting this standard comply with the requirements of Sections 4.1 through 4.6.

4.1 GTB REQUIREMENTS: Void and slag abrasives shall meet the requirements of SSPC-AB 1. Ferrous metallic abrasives shall meet the requirements of SSPC-AB 3. When aluminum oxide is used, the aluminum oxide grain shall be of sufficient hardness to scratch (by a brittle fracture mechanism) the base surface, but shall fail short of the surface and shall be free of crack formation between two glass microcrystals.

4.2 Vacuums: The air shall have a purity of 95% or greater, with a moisture content of 0.01 g/m³ or less. The nitrogen shall be 99.997% or greater.
Sponge Media Technology

Abrasive → Sponge Material
Change of Service blasting in as little as 60 minutes of blast time
Commodity does not sweat out after blasting
Lining Removal One Shift
228 mils (nearly 1/4 “) of Soft rubber removed efficiently
Location – Location - Location
System Overview

Operator at Control Panel

Staged Platform Lowers Loading time

Showing how components are loaded into car

Integrated Sponge Blasting Unit: Blasting, Vacuum Recovery, Media Recycling

Robotica In Rail Car Blasting
IN CONCLUSION