Improving Shop Efficiency with Coating Selection

Don Gill, Hempel Presenter

Improving Shop Efficiency with Coating Selection

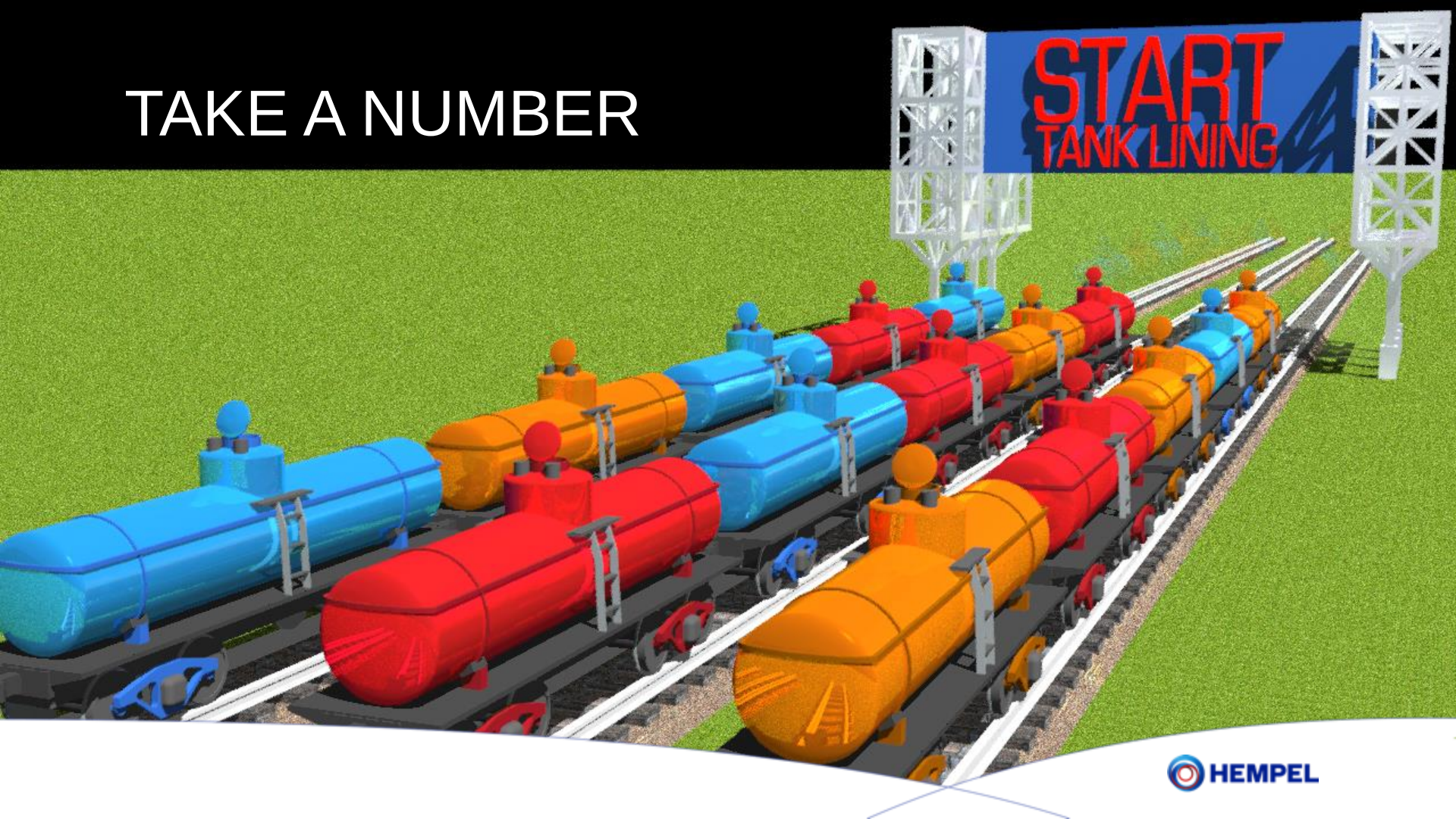
- Shops more particular about coatings and how they impact shop throughput.

- 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



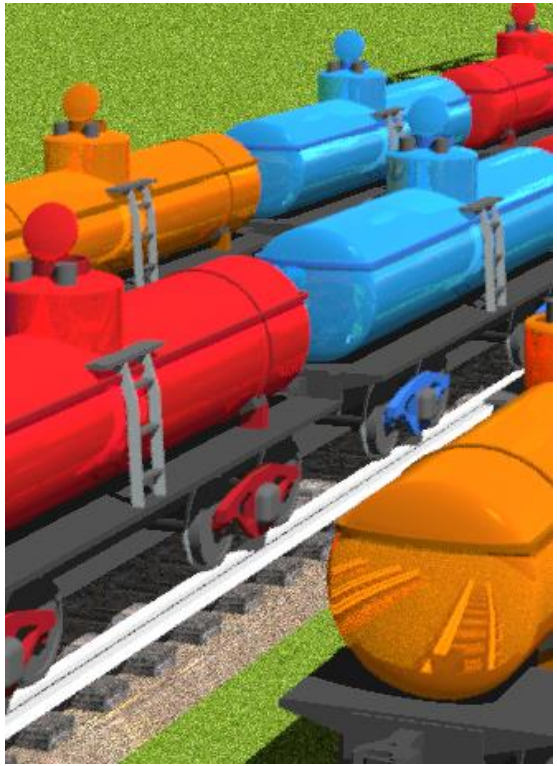
Improving Shop Efficiency with Coating Selection

"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

	HIGH BAKE	LOW BAKE	NO BAKE
Chemically Resistant	✓	✓	✓
DFT MILS	5 - 8	8 - 45	12-30
COATS	2 - 3	1 - 2	1
DAYS	3 - 5	2 - 3	1 - 2
ADVANTAGES	Resistant to Exceptional Range of Products	Resistant to a Broad Range of Products	Resistant to a Broad Range of Products
		Air Cure Capable	Air Cure
		Heat cure can increase cross link	Heat will reduce cure time.
DISADVANTAGES	Labor Intensive	Labor Intensive compared to no bake.	Short pot life.
	Requires heat to cure.	May require final bake.	
	Final cure required, tank temp 375ºF to 400ºF		
	VOC		



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Improving Shop Efficiency with Coating Selection

Choose an alternate coating type

when possible and potentially cut

paint shop throughput time up to 80%

while reducing coating costs!

High Bake

Low Bake

No Bake

Win/Win!

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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

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Improving Shop Efficiency with Coating Selection

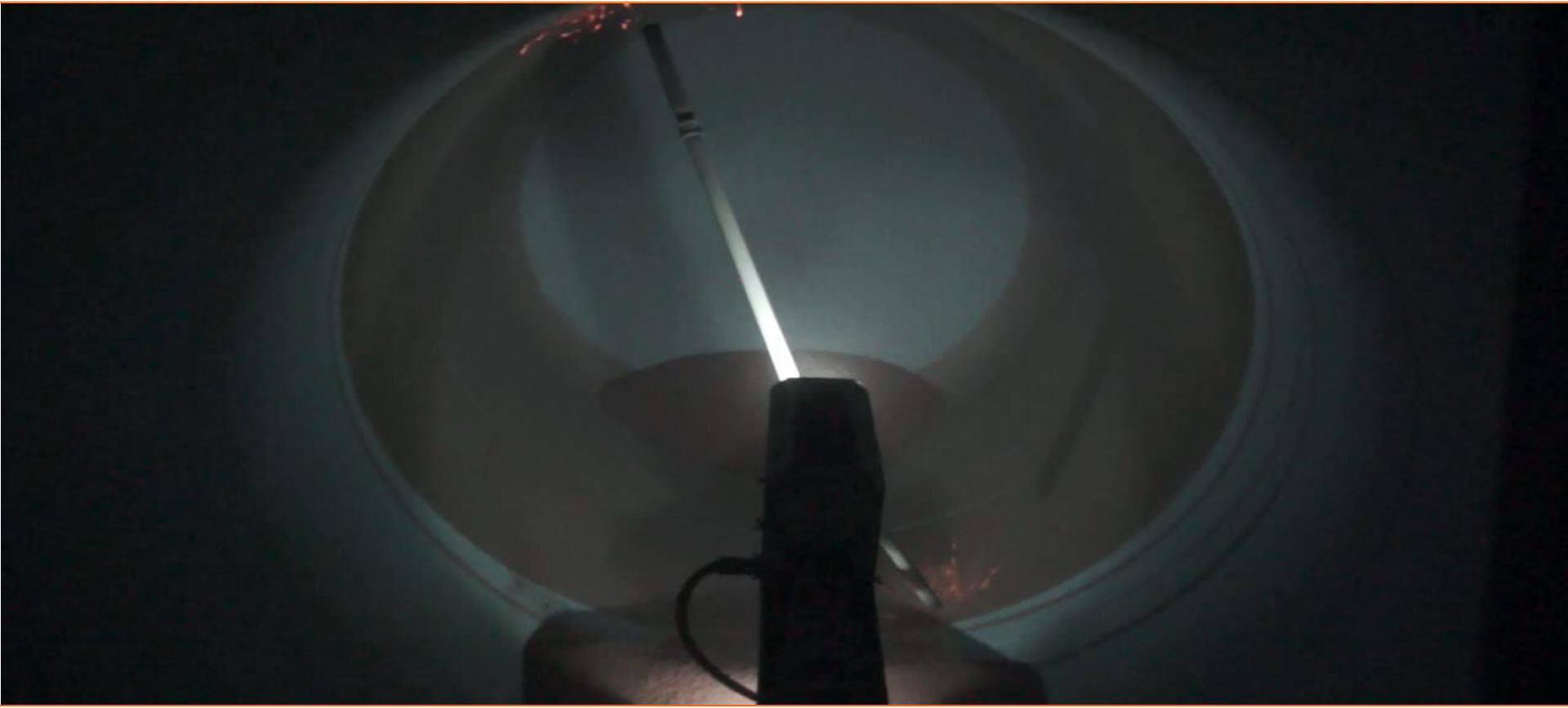
High Bake Technology provides most versatility but at a cost. Check with your coating supplier to be sure your commodity is resistant and compatible with Low Bake or No Bake solutions.

WELCOME TO THE RACE

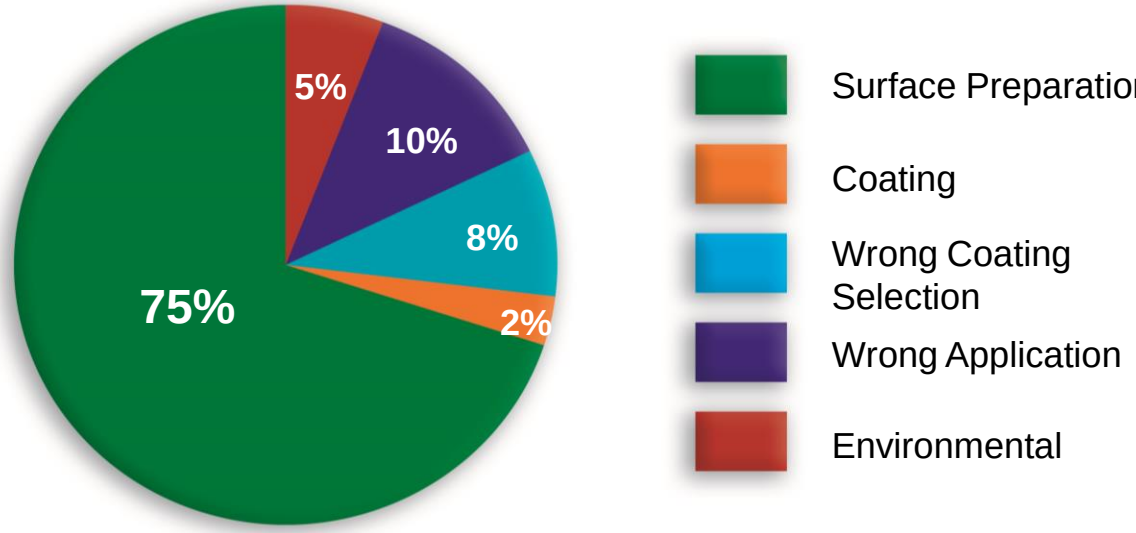
Improving Efficiency with Encapsulated Media Blasting

Presenter: Ed Zaharias

Removing High-Build Coatings



Why Do Coatings Fail?



"75% of coating failures are the result of poor surface preparation"

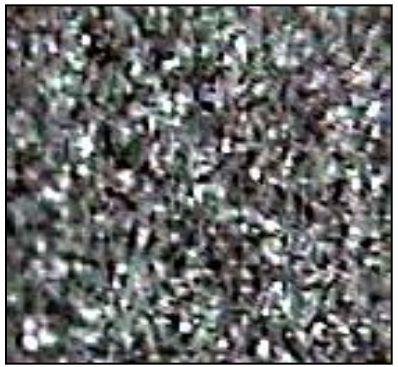
"All coating systems will perform better on properly cleaned surfaces with a good surface profile"

SOURCE: NACE Coating Inspector Program (Level 1)

Proper Surface Preparation:

Cleanliness (Visual)

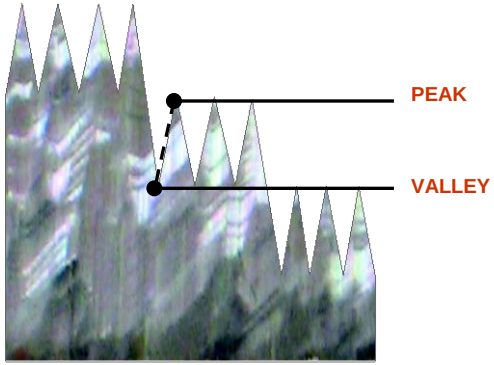
Microns / Mils



Decontamination (Invisible)

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

Profile (Measurable)



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 non-uniform cellular matrix used to blast clean steel 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 consist of natural or manufactured abrasive grains surrounded by a dry, compressible, open-cell material. These abrasives are used to reduce dust generation and ricochet damage to adjacent surfaces when blast cleaning, and to "feather" the edges of intact coating during spot repair procedures of coatings on steel and other substrates. During the recycling process, the media is cleaned to remove abrasive fines 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 run to qualify that a material meets the requirements of the standard.

Conformance tests are tests that are performed to verify that the material being submitted has the same properties as the material that initially qualified.

Quality control tests are field tests that are performed to verify that the material complies with specified requirements immediately prior to use.

3. Referenced Standards

3.1 The latest issue, revision, or amendment of the referenced standards in effect on the date of invitation to bid shall govern, unless otherwise specified.

3.2 If there is a conflict between the requirements of any of the cited referenced standards and this specification, the requirements of this specification shall prevail.

3.3 SSPC Standards:

AB 1	Mineral and Slag Abrasives
AB 3	Ferrous Metallic Abrasives

3.4 American Society for Testing and Materials (ASTM) Standards:[1]

D 4940	Standard Test Method for Conductimetric Analysis of Water Soluble Ionic Contamination of Blasting Abrasives
*** D 4417**	Standard Test Method for Field Measurement of Surface Profile of Blast Cleaned Steel
D 7393	Practice for Indicating Oil in Abrasives

3.5 International Organization for Standardization (ISO) Standard:[2]

17025	General requirements for the competence of testing and calibration laboratories

4. Requirements for New Media (Qualification Tests)

The abrasive manufacturer shall certify that new media meeting this standard complies with the requirements of Sections 4.1 through 4.5.

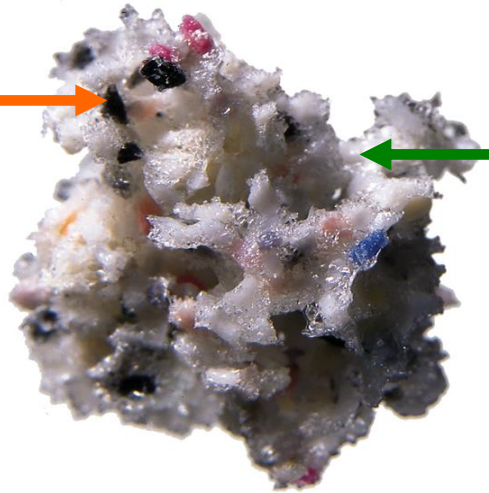
4.1 GRIT REQUIREMENTS: Mineral and slag abrasives shall meet the requirements of SSPC-AB 1, Ferrous metallic abrasives shall meet the requirements of SSPC-AB 3. When aluminum oxide is used, the aluminum oxide grain shall be of sufficient hardness to scratch glass when tested by placing some of the abrasive material between two glass microscope slides and, while applying pressure, moving one slide over the other in a reciprocating motion. The glass slide shall be examined

[1] ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959. For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.

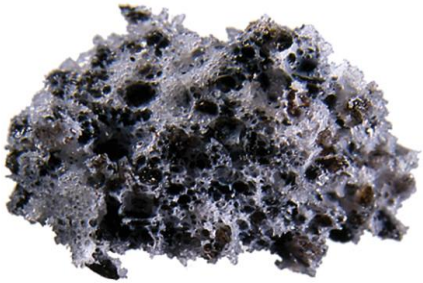
[2] International Organization for Standardization (ISO),1, ch. de la Voie-Creuse, Case postale 56, CH-1211 Geneva 20, Switzerland <http://www.iso.org>

Sponge Media Technology

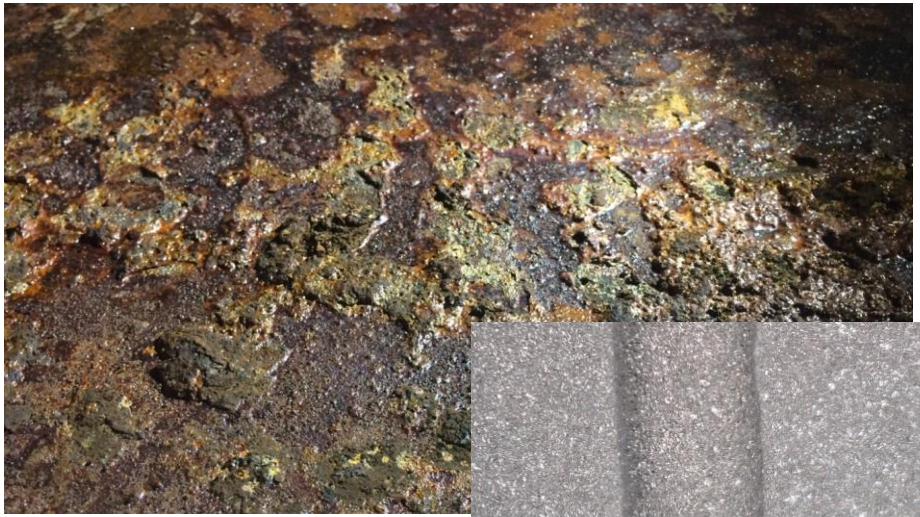
Abrasive



Sponge Material

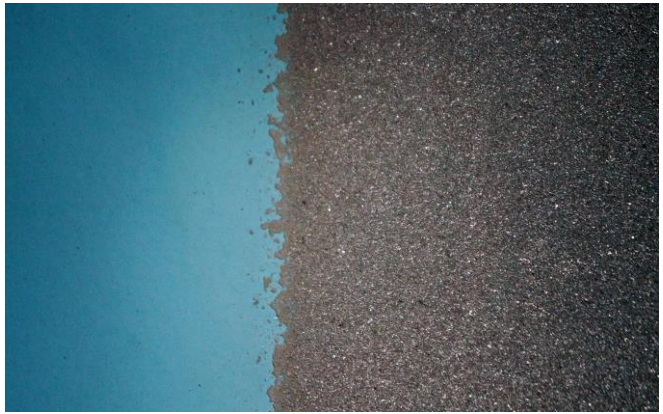


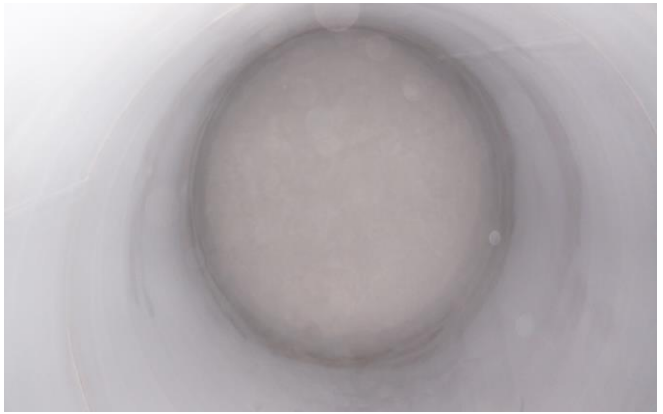
Change of Service blasting in as little as 60 minutes of blast time



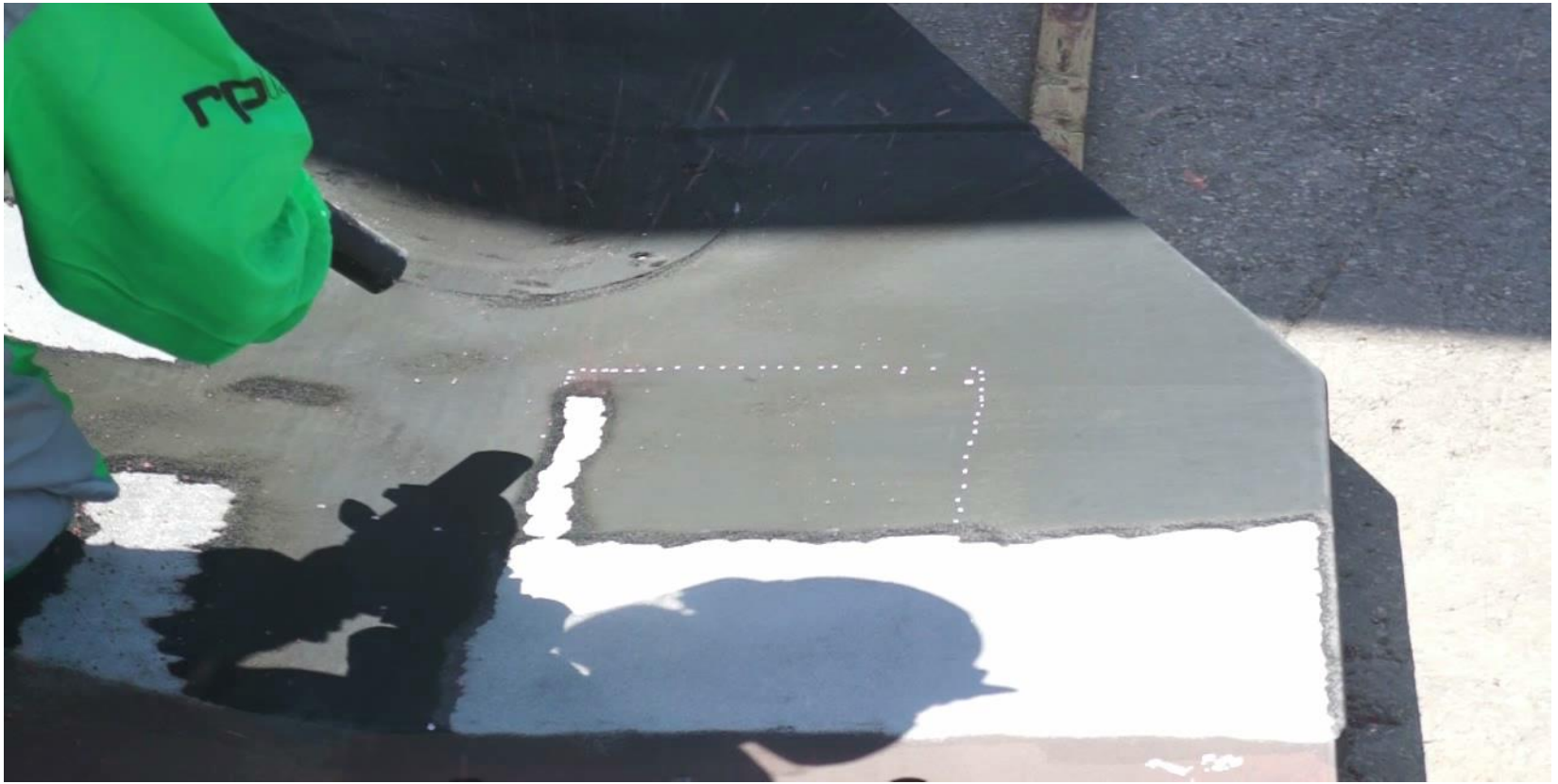
Commodity does not sweat out after blasting

Lining Removal One Shift





228 mils (nearly 1/4 “) of Soft rubber removed efficiently



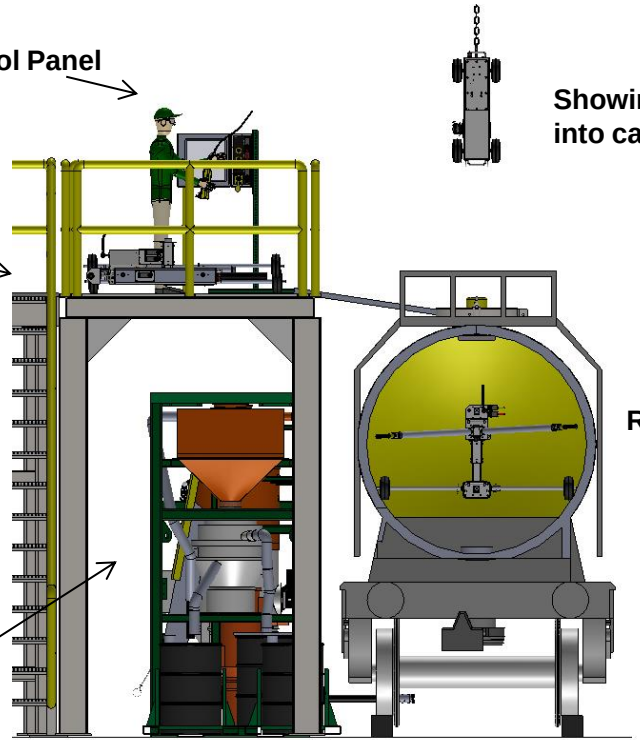
Location – Location - Location

System Overview

Operator at Control Panel

Staged Platform Lowers Loading time

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



Showing how components are loaded into car

Robotica In Rail Car Blasting

IN CONCLUSION