



2024 PAPA Technical Meetings

PTC Materials – Materials Lab Update

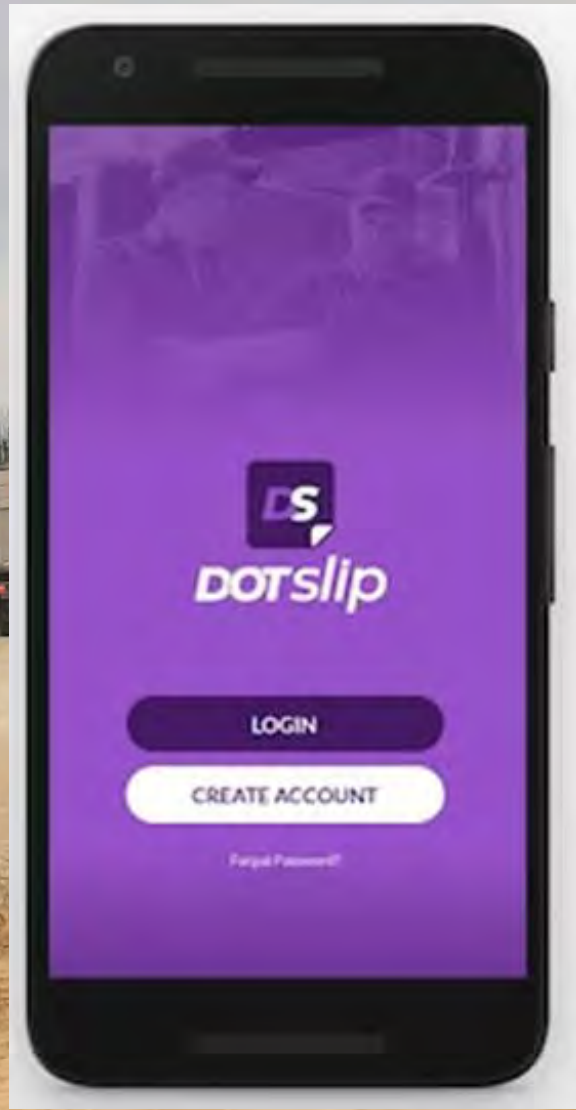
Chris Forry & Brian Paroda

Agenda

- **Electronic Ticketing**
- **Anti-Strip Update**



HAULHUB
TECHNOLOGIES



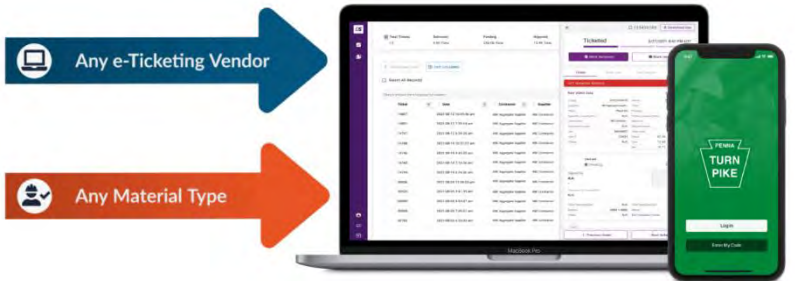
PA Turnpike Commission Electronic Ticketing

THE PTC JOURNEY TO ELECTRONIC TICKETING

- **FHWA DIRECTIVE**
- **PENN DOT ADOPTION OF E-TICKETING**
- **PTC RESEARCH INTO ADOPTION OF E-TICKETING VENDOR**
- **PARTNERING WITH **HAUL HUB** TO ESTABLISH AN E-TICKETING PORTAL FOR PTC USE**
- **E-TICKETING IS **MANDATORY FOR PTC 2024** CONSTRUCTION SEASON (JANUARY 1, 2024)**

1

The PA Turnpike Portal will connect in real-time any asphalt, concrete or aggregate producer, regardless of ticketing vendor.



2



Solutions - Technologies - Products - Resources - About - REQUEST DEMO

The standard operating platform for e-Construction.

Built to align Transportation Agencies, Industry Partners and Federal Aid Program requirements.

Connect all of your Agency's projects to thousands of plants, contractors, software vendors and equipment manufacturers (OEMs).

Request a Demo

The leading digital construction delivery platform for Transportation Agencies & Authorities nationwide.

3

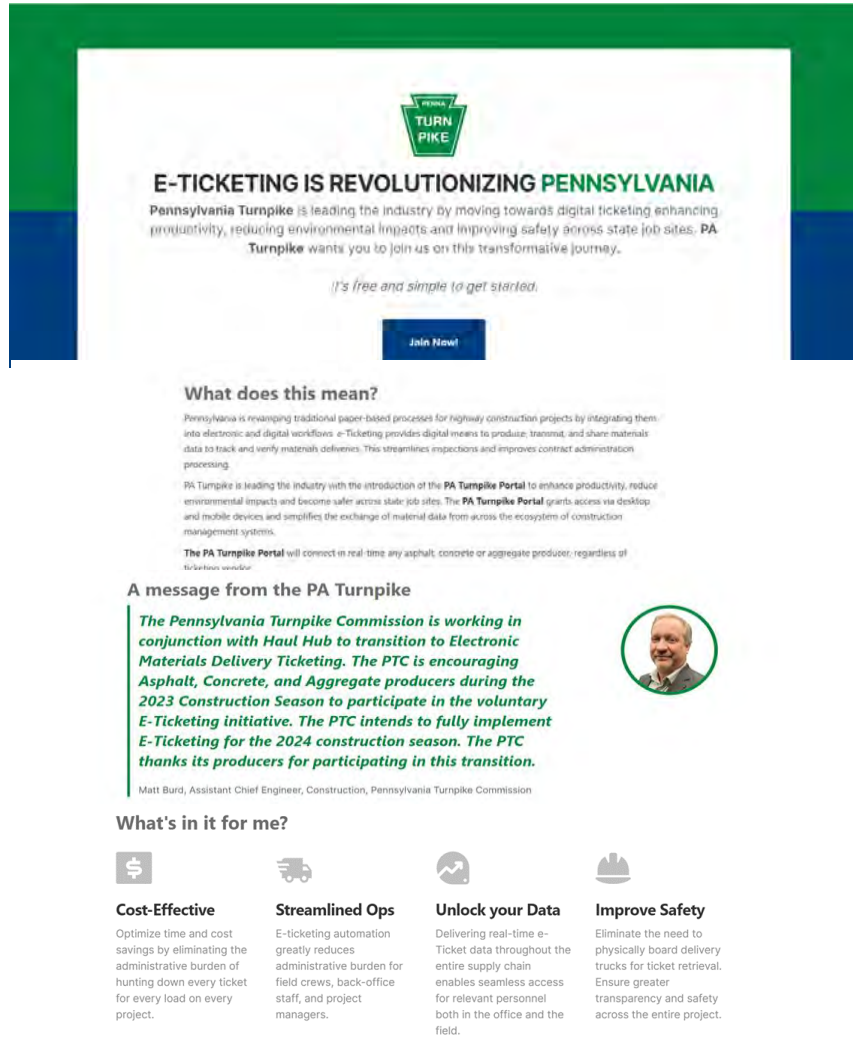


- * Haul Hub works with all loadout software platforms.
- * Producer Material Load out data is forwarded to Haul Hub.
- * Haul Hub sends the ticket data via the DOT Slip App to field inspection staff assigned to specific PTC Contracts.



Producer Invite

<https://www.haulhub.com/agency/pennsylvania-turnpike>



PA TURNPIKE

E-TICKETING IS REVOLUTIONIZING PENNSYLVANIA

Pennsylvania Turnpike is leading the industry by moving towards digital ticketing, enhancing productivity, reducing environmental impacts and improving safety across state job sites. PA Turnpike wants you to join us on this transformative journey.

It's free and simple to get started.

[Join Now!](#)

What does this mean?

Pennsylvania is reworking traditional paper-based processes for highway construction projects by integrating them into electronic and digital workflows. E-Ticketing provides digital means to produce, transmit, and share materials data to track and verify materials deliveries. This streamlines inspections and improves contract administration processing.

PA Turnpike is leading the industry with the introduction of the **PA Turnpike Portal** to enhance productivity, reduce environmental impacts and become safer across state job sites. The **PA Turnpike Portal** grants access via desktop and mobile devices and simplifies the exchange of material data from across the ecosystem of construction management systems.



The **PA Turnpike Portal** will connect in real-time any asphalt, concrete or aggregate producer, regardless of ticketing vendor.

A message from the PA Turnpike

The Pennsylvania Turnpike Commission is working in conjunction with Haul Hub to transition to Electronic Materials Delivery Ticketing. The PTC is encouraging Asphalt, Concrete, and Aggregate producers during the 2023 Construction Season to participate in the voluntary E-Ticketing initiative. The PTC intends to fully implement E-Ticketing for the 2024 construction season. The PTC thanks its producers for participating in this transition.

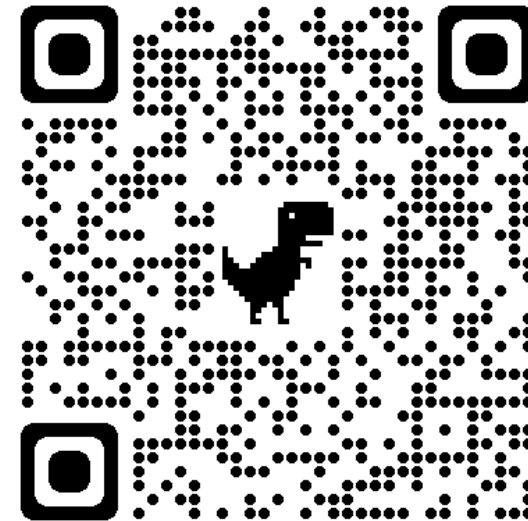
Matt Burd, Assistant Chief Engineer, Construction, Pennsylvania Turnpike Commission

What's in it for me?

 Cost-Effective Optimize time and cost savings by eliminating the administrative burden of hunting down every ticket for every load on every project.	 Streamlined Ops E-ticketing automation greatly reduces administrative burden for field crews, back-office staff, and project managers.	 Unlock your Data Delivering real-time e-Ticket data throughout the entire supply chain enables seamless access for relevant personnel both in the office and the field.	 Improve Safety Eliminate the need to physically board delivery trucks for ticket retrieval. Ensure greater transparency and safety across the entire project.
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PA Turnpike Partners with Haul Hub

Producers should begin by visiting the PTC's Haul Hub Landing page to connect with Haul Hub and begin the process of connecting electronically to share e-ticketing information.



<https://www.haulhub.com/pennsylvania-turnpike/>

TRAINING

<https://learn.haulhub.com/>



DOT e-Ticketing™

Learn the essentials and master DOT E-Ticketing™ for transportation agency's teams.

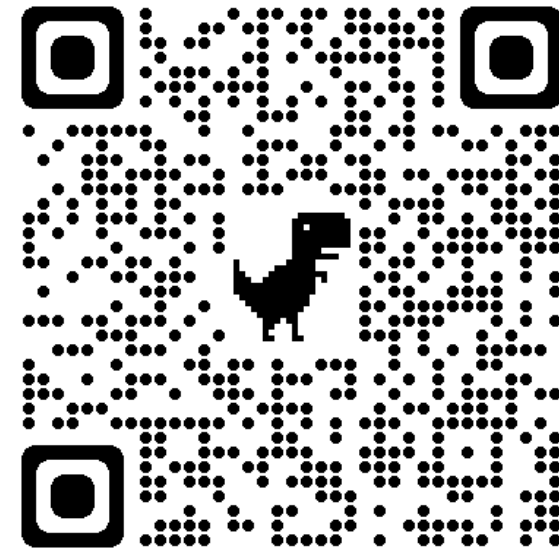
Get Started

<https://learn.haulhub.com/>

Great Resource For Learning How To Use The DOT Slip App

Welcome to HaulHub University.

Take your team's HaulHub skills to the next level with our all-inclusive online university, encompassing your learning journey from onboarding, adoption, and optimization.



HAUL HUB IS USER FRIENDLY

If you use any of the Social Media Apps below, you can use Haul Hub



facebook



Instagram



twitter

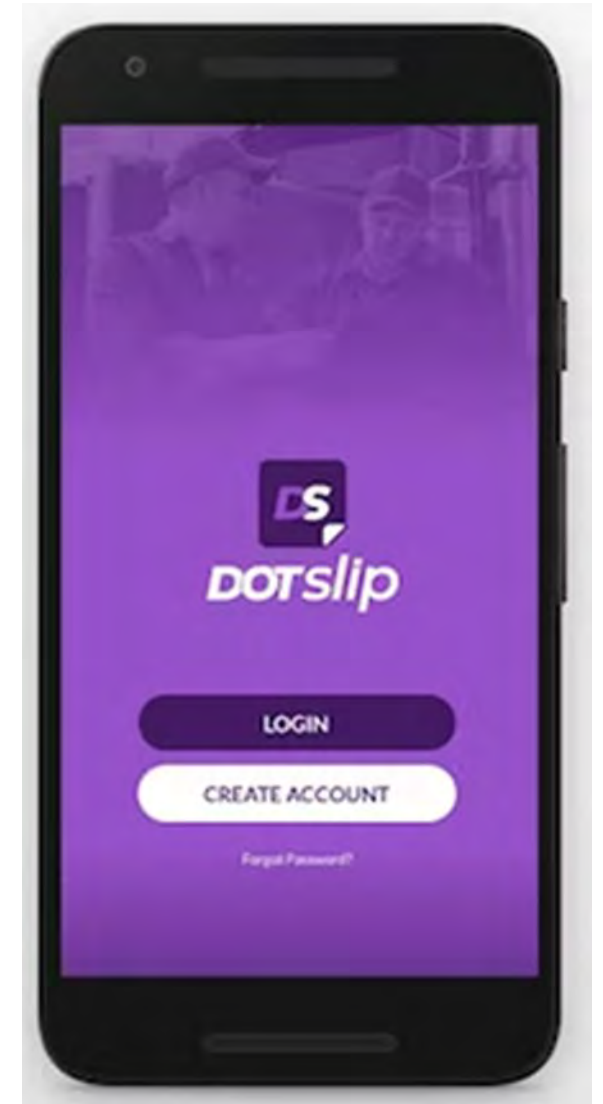


LinkedIn



When PTC Inspection Personnel are added to a PTC Contract in Haul Hub, they will receive an email invite to create an account in the DOT Slip App.

***Materials producers will manage their employee access to Haul Hub.**





PTC MATERIALS MANAGERS CONTACT INFORMATION

PTC Materials Management Supervisor: **Chris Forry** cforry@paturndpike.com

PTC **Western** Materials Manager: **Bob Clifford** rclifford@paturndpike.com

(Milepost 0 to Milepost 110 Somerset & Western Expansions)

PTC **Central** Materials Manager: **Andy Stultz** astultz@paturndpike.com

(Milepost 110 Somerset to Milepost 266 Lebanon/Lancaster)

PTC **Eastern** Materials Manager: **James Kelley** jkelley@paturndpike.com

(Milepost 266 Lebanon/Lancaster to Milepost 359 Del. River & N.E. Extension)

***PTC Materials Managers will manage inspection staff assigned to PTC contracts.**



ZycoTherm-SP2

**How Does This Impact Producers
And**

**Why Is The PA Turnpike Mandating Zyco Therm-SP2
For The 2024 Construction Season**



ZycoTherm-SP2

Impacts

PTC /PAPA Anti-Strip Update for 2024 - Feb. 09,2024

Pa Turnpike Anti-Strip



Forry, Christopher

To: Charles Goodhart; Mary Robbins (Mary@pa-asphalt.org)

Bcc: Forry, Christopher; Ranck, Brian

Retention Policy: 6 Month Sent Items (6 months)

Expires: 8/7/2024

☺ Reply Reply All Forward 📧 ⋮

Fri 2/9/2024 1:35 PM

Charlie and Mary, I am writing to inform you and your members, that for all 2024 PTC roadway resurfacing contracts, ZYCOTHERM SP2 anti strip will be required. This decision is based upon testing that has been performed in our materials lab. Should you have any questions concerning this requirement, please feel free to contact me.

Thank you.

Have a good weekend.

Chris

Chris Forry

PTC Engineering - Materials Management

Western Regional Office

Cell Phone: 717-756-9005

Office Phone: 724-755-5262

PTC Anti-Strip Letter To PAPA - Feb. 23,2024



ENGINEERING DEPARTMENT

Pennsylvania Turnpike Commission
PO Box 67676, Harrisburg PA 17106-7676
717.939.9551

February 23, 2024

Pennsylvania Asphalt Pavement Association (PAPA)
3544 North Progress Avenue
Suite 100
Harrisburg PA 17110

Re: Use of Zycotherm SP2
2024 Construction Season

Dear PAPA Membership:

The Pennsylvania Turnpike Commission is changing to the use of Zycotherm SP2 in lieu of other anti-strip additives in asphalt mixtures starting with the 2024 construction season. This applies to all current/existing asphalt paving work, as well as future projects yet to be bid. Contracts that have not yet been bid will include either a contract special provision or specification calling for the use of Zycotherm SP2.

Please contact Chris Forry at 717-756-9005 or cforry@paturndpike.com with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "M R Burd".

Matthew R. Burd, P.E.
Assistant Chief Engineer - Construction

PTC /PAPA Technical Comm. - Mar. 07,2024

Topics of Concern

- Will Time extensions be granted for new or existing contracts? **No**
- Until low dose pumps are brought online, can producers add Zycotherm SP2 to tanker loads of asphalt? **Yes, until May 1st 2024, if a PTC Materials Inspector is onsite to witness the SP2 being dosed into the tanker truck of asphalt.**
- **Producers may purchase asphalt preblended with Zycotherm SP2, from the refineries, if available until May 1st, 2024.**
- Can another Anti-Strip be used until the Zycotherm SP2 pump system is operational? **No**
- For existing contracts, can change orders be submitted in relation to this requirement? **Yes**
- **This requirement applies to all PTC Asphalt JMF's shipped to PTC standard and open-end maintenance contracts. It also includes temporary paving contract items.**
- **Penn Dot Asphalt JMF's and PTC Maintenance Dept. PO's are exempt form this requirement.**

PTC /PAPA Technical Comm. - Mar. 07,2024

Topics of Concern

- The recommended dose for Zycotherm is .1% of total weight of asphalt binder in the JMF/mix, unless otherwise directed by the manufacturer.
- The PTC Materials Lab will be testing and evaluating other anti-strip products once 2024 JMF verifications are completed. If another product performs equally as well as the Zycotherm SP2, then it will be added as acceptable for use in the 2025 construction season.
- JMF 448 sheets must be updated stating **ZYDEXA15 SP2** as the Anti-Strip used for the mix and submitted to Brian Paroda for 2024 approval.
- Upon initial production of a PTC approved JMF, a boil test must be performed in the producer lab and a loose box sample is to be collected and the PTC Materials Managers pickup the sample and deliver it to the PTC Materials Lab for testing.
- If stripping is noted, the percentage of anti-strip may need to be increased.

PTC Materials Lab Update

Brian Paroda





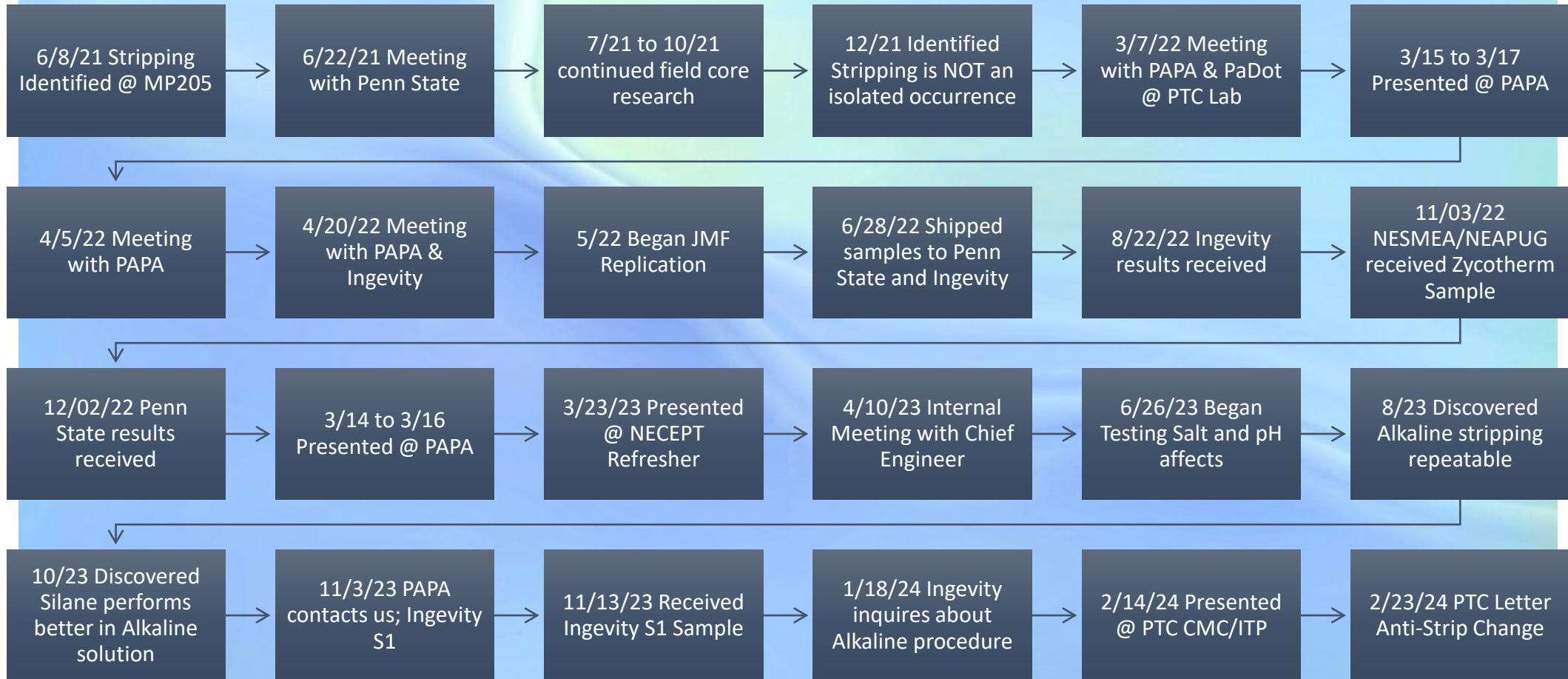
 **ZycoTherm-SP2**

The Why

Asphalt Stripping



PTC Transparency Timeline





Facts

- Severe stripping observed in pavement cores across the PTC
- TSRs and Hamburg requirements met
- Stripping could NOT be replicated or predicted with current test procedures

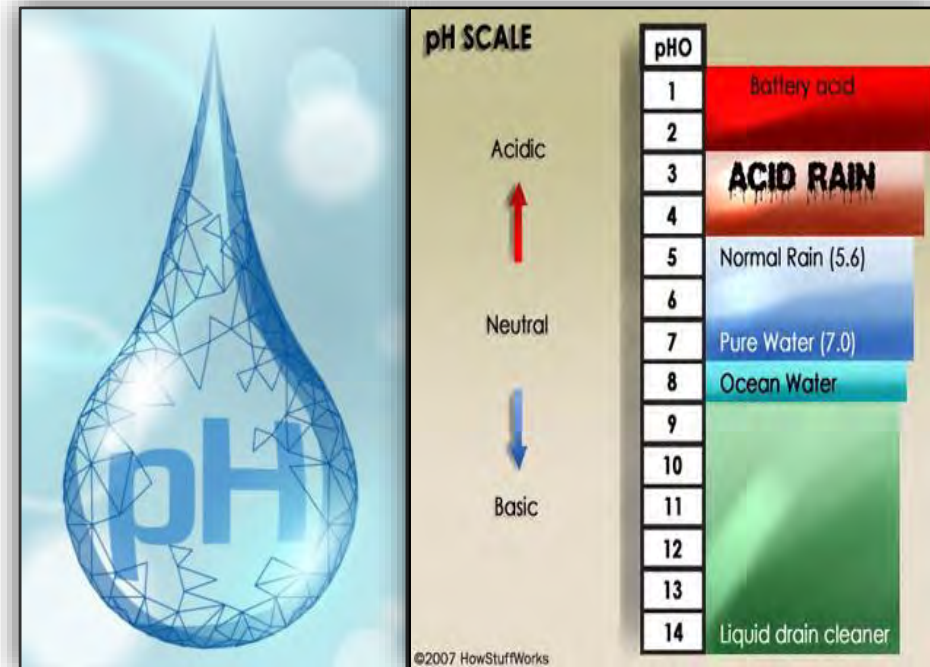
Searching for Answers

- ✓ Exhausted social resources without reasonable justification as to why the severe stripping had occurred, possible solutions or having successfully replicated stripping in the lab.

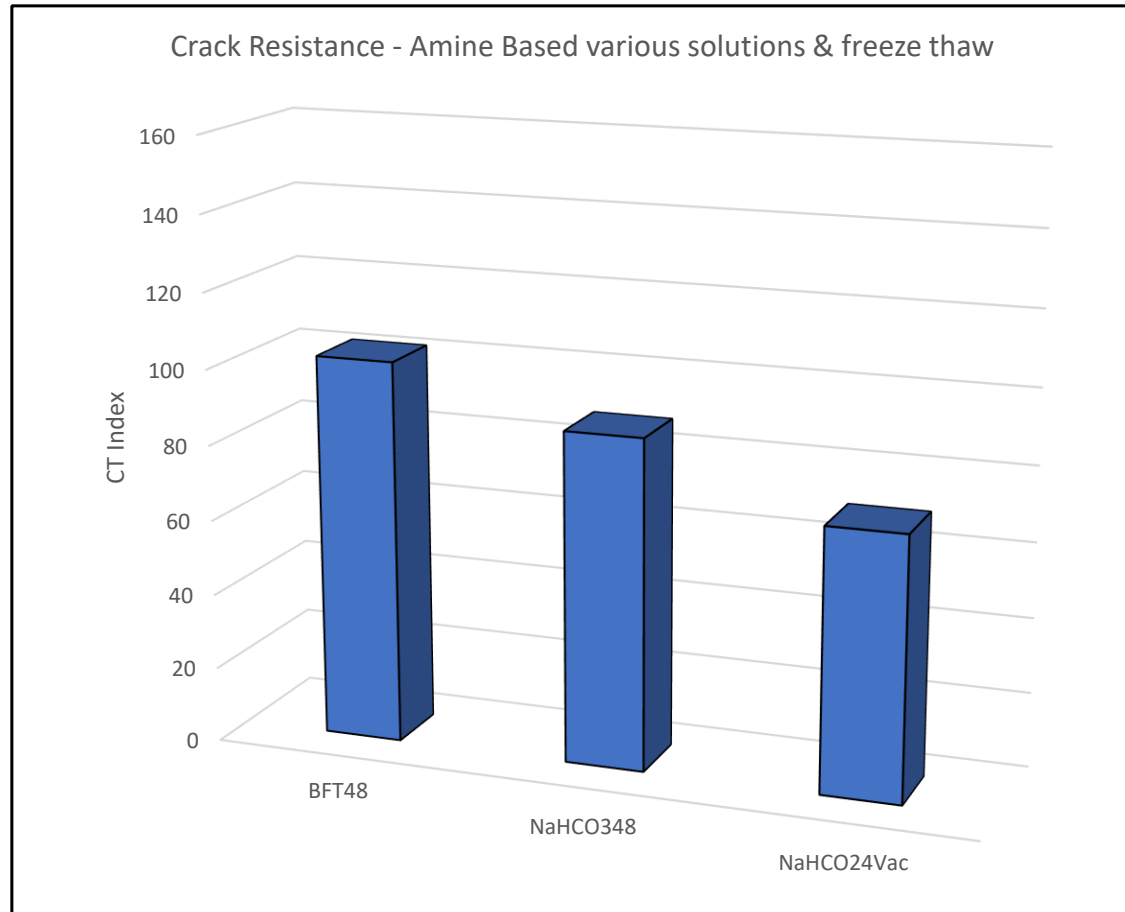
Deicers?



H₂O pH?



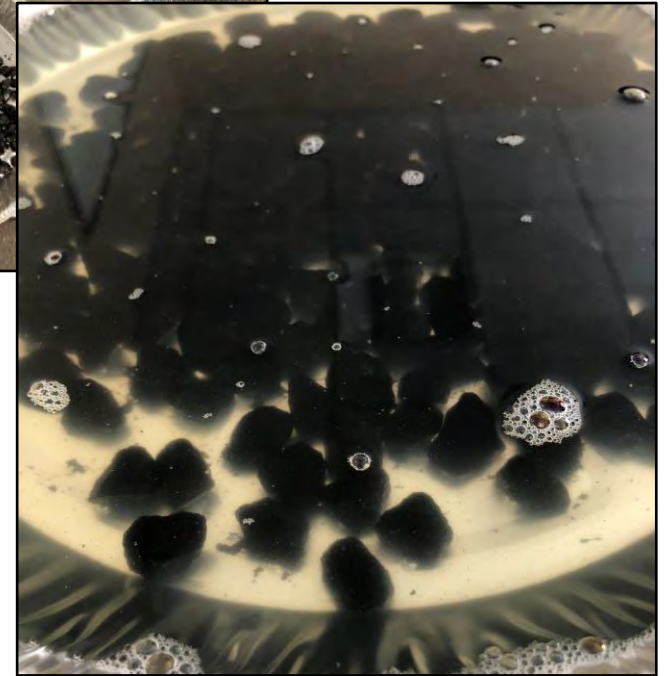
Testing Deicers



- ✓ Presented some issues as high salt water cannot be tested through DWT.
- ✓ Performed IDEAL-CT on compacted specimens in various brine solutions.
 - Standing in Sodium Solution
 - Partial vacuum in sodium, 24 hr. freeze, thaw in water
 - Partial vacuum in sodium solution, freeze 48 hr., thaw, refreeze
- ✓ Limited to No stripping observed.
- ✓ Sodium Brine **decreased** CT Index. (Pre-maturely oxidized material)

Testing With Acidic & Alkaline Water

- ✓ Blended numerous samples with quartzite aggregate and an **AMINE** based anti-strip (same gradation, same asphalt, same percentage anti-strip, etc.).
- ✓ Covered the samples with distilled water.
- ✓ Varied water pH levels from 2.0 to 8.5.
- ✓ Samples sat undisturbed for 72 hours.
- ✓ Performed ASTM D3625.



ASTM D3625 Testing With Acidic Water



Distilled Water (Control)



72 Hour Acidic Water Soak

ASTM D3625 Testing With Alkaline Water



Distilled Water (Control)



72 Hour Alkaline Water Soak

Lab Correlation to Field Core (Amine Anti-Strip)

Were there any lab results that resembled field cores?



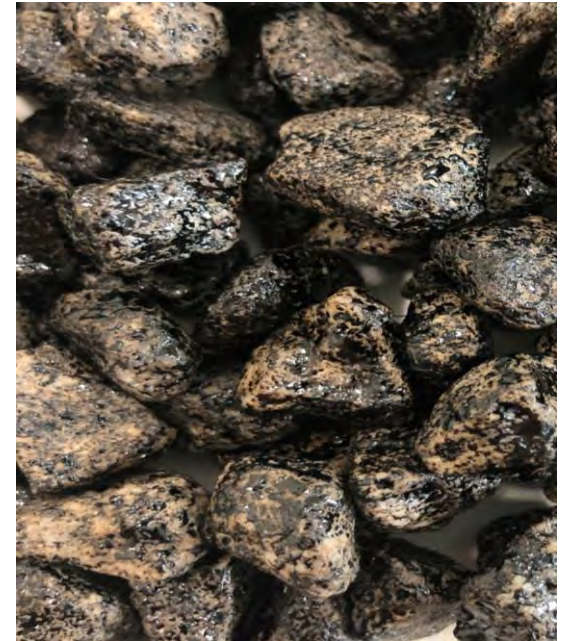
Field Core Half



ASTM D3625



TSR



PTC Expanded Boil Test

Repeatability & Other Geological Compositions



Quartzite



100%



Calcareous SS



25%



Sandstone



22%



Siltstone




8%

Zycotherm – Organo Silane Based Anti-Strip

Odor Free Antistrip and Warm Mix Technology

Zydex
Innovating for Sustainability



ZycoTherm

ZycoTherm is a next generation antistrip additive with the additional benefit of warm mix asphalt (WMA). It is compatible with all aggregate types and allows for improved adhesion of bitumen to aggregate at significantly lower dosage rates compared to conventional antistrips. ZycoTherm enables temperature reduction up to 30°C (60°F) during mix production and field compaction, and has benefits of Chemical Bonding, Complete Coating and Consistent Compaction.

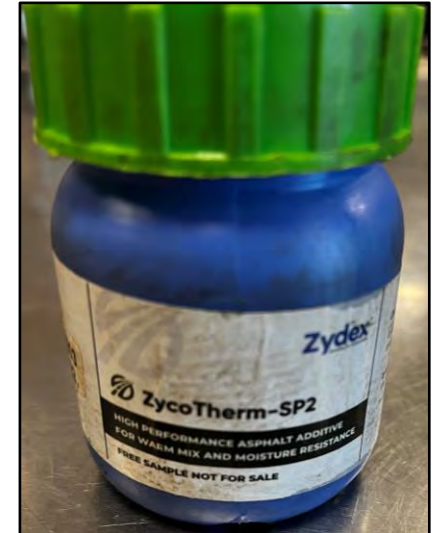
BENEFITS

- ☐ Combined Antistrip and WMA
- ☐ Higher Incorporation of RAP
- ☐ Longer Hauls
- ☐ Excellent Compaction in Cold Climates
- ☐ Odor Free
- ☐ Extremely Low Dosage Rates
- ☐ Excellent Salt Tolerance
- ☐ Compatible with PPA, SBS & CRMB

www.zydexgroup.com

Marketed As:

- ☐ Warm Mix and Anti-Strip
- ☐ Low Dosage Rates
- ☐ Excellent Salt Tolerance
- ☐ Longer Haul Times
- ☐ Low Toxicity
- ☐ No Odor
- ☐ Enhanced Chemical Adhesion



Organo Silane Based – 72 Hr. Alkaline Soak



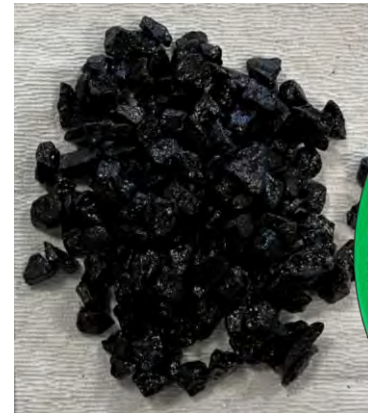
Quartzite



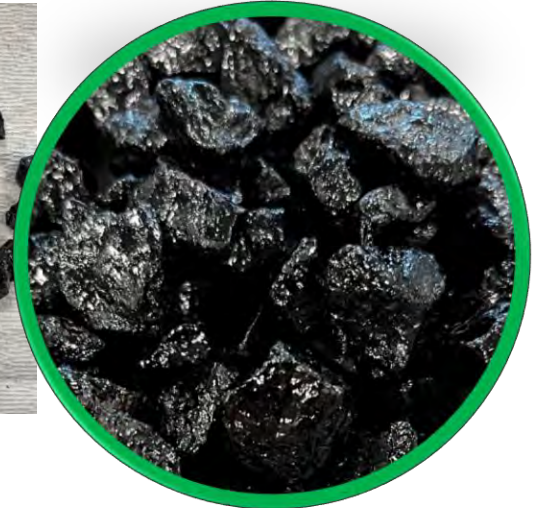
Calcareous SS



Sandstone



Siltstone



Alkaline water – Silane Based Anti Strip

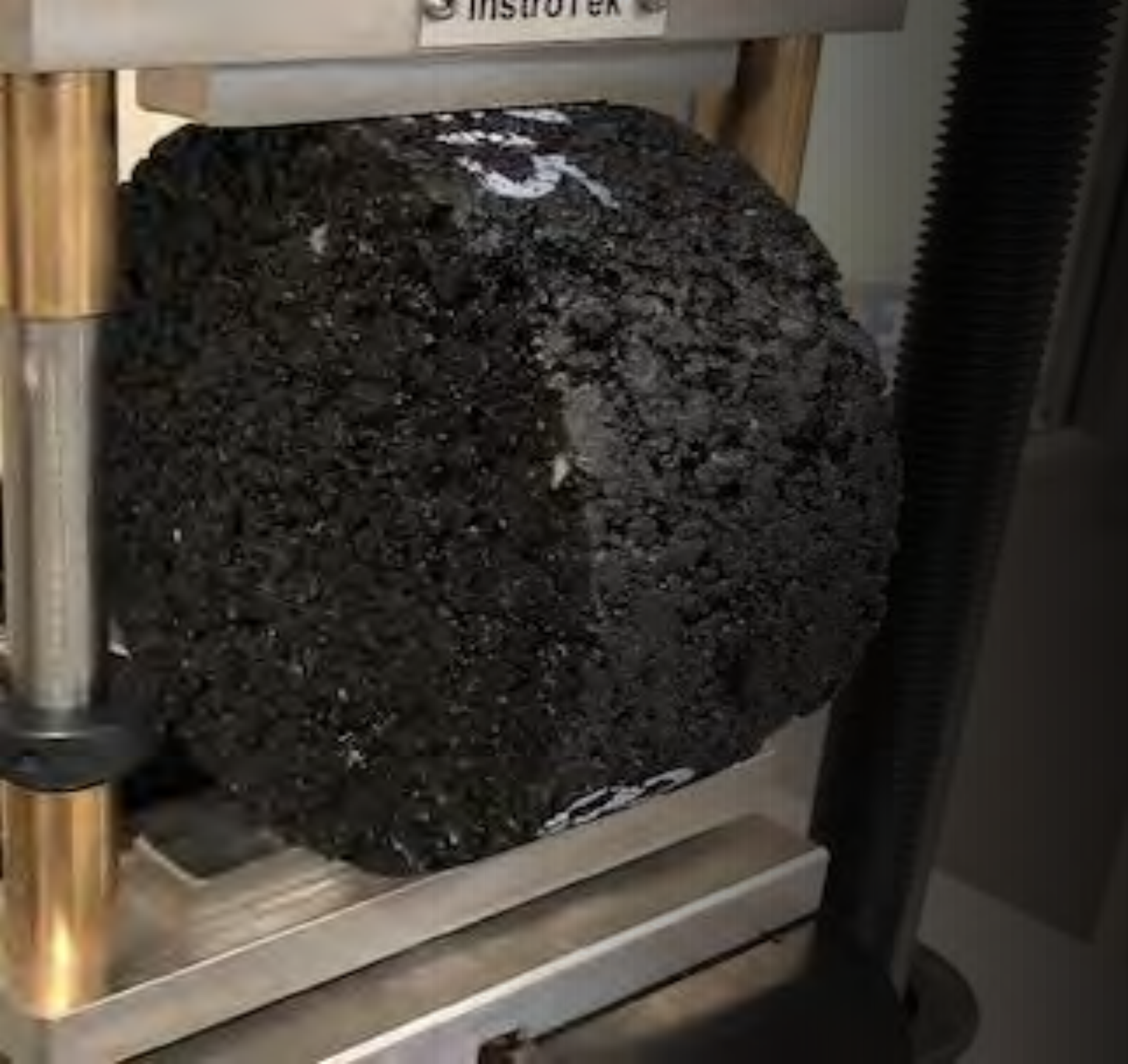


Amine Based



Silane Based

- Glossy “Wet” Appearance
- Greater Adhesiveness



PTC LAB RESULTS

Tensile Strength
Ratio

Tensile Strength Ratio (TSR)



	Avg Va.	Avg PSI	CoVar	TSR
Dry	6.9	165.3	1.8%	89.0
Conditioned	6.9	147.2	5.1%	

Amine Based Anti-Strip (0.50%)



	Avg Va.	Avg PSI	CoVar	TSR
Dry	7.1	155.1	10.3%	94.8
Conditioned	7.2	147.0	12.5%	

Silane Based Anti-Strip (0.10%)



Various Dosage Rates



Silane Based 72hr. Alkaline Soak @ Various Dosage



No Anti-Strip

+0.04% Anti-Strip

+0.08% Anti-Strip

+0.10% Anti-Strip

Approx 50% Improvement

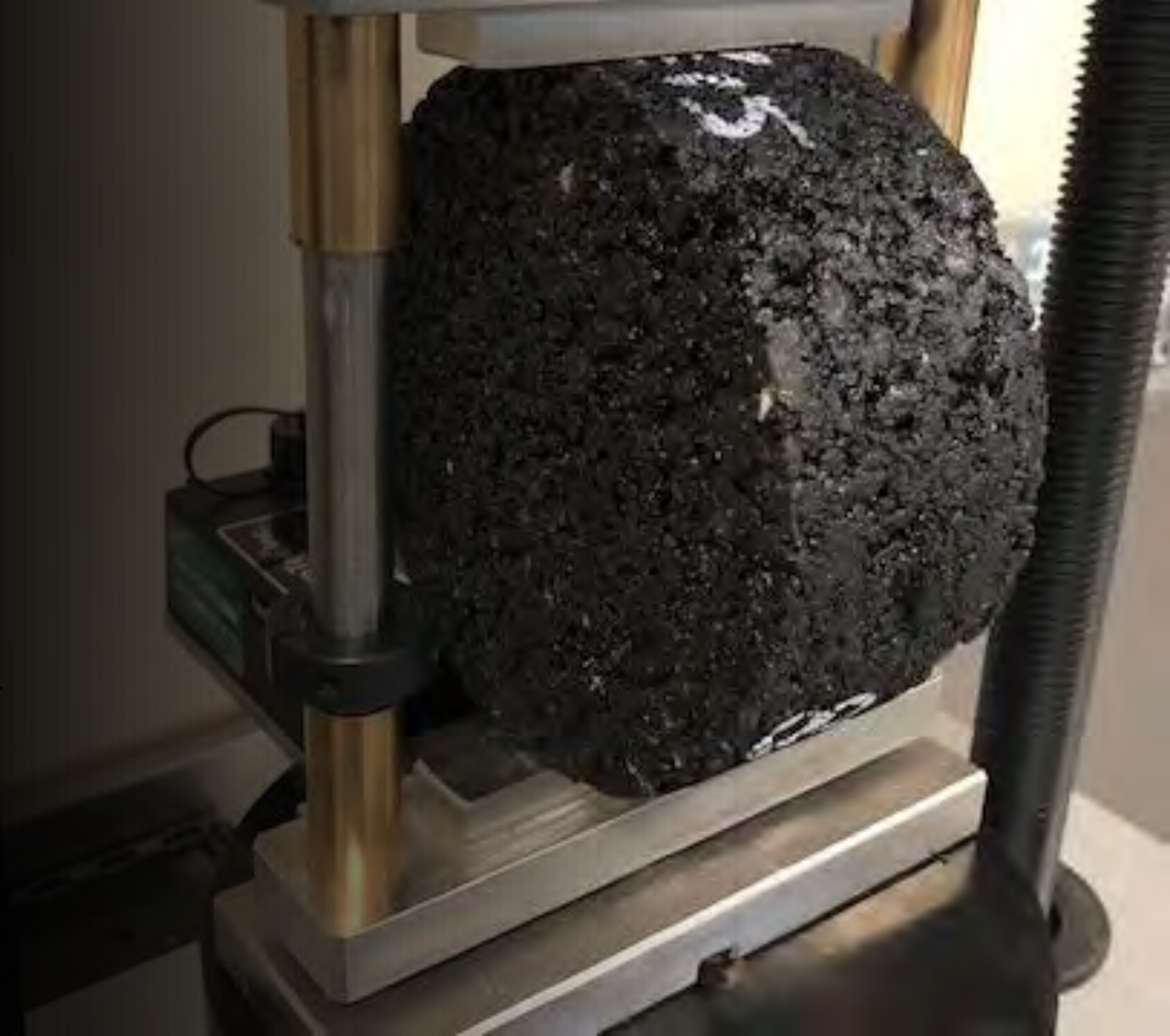
Approx 80% Improvement

100% Improvement

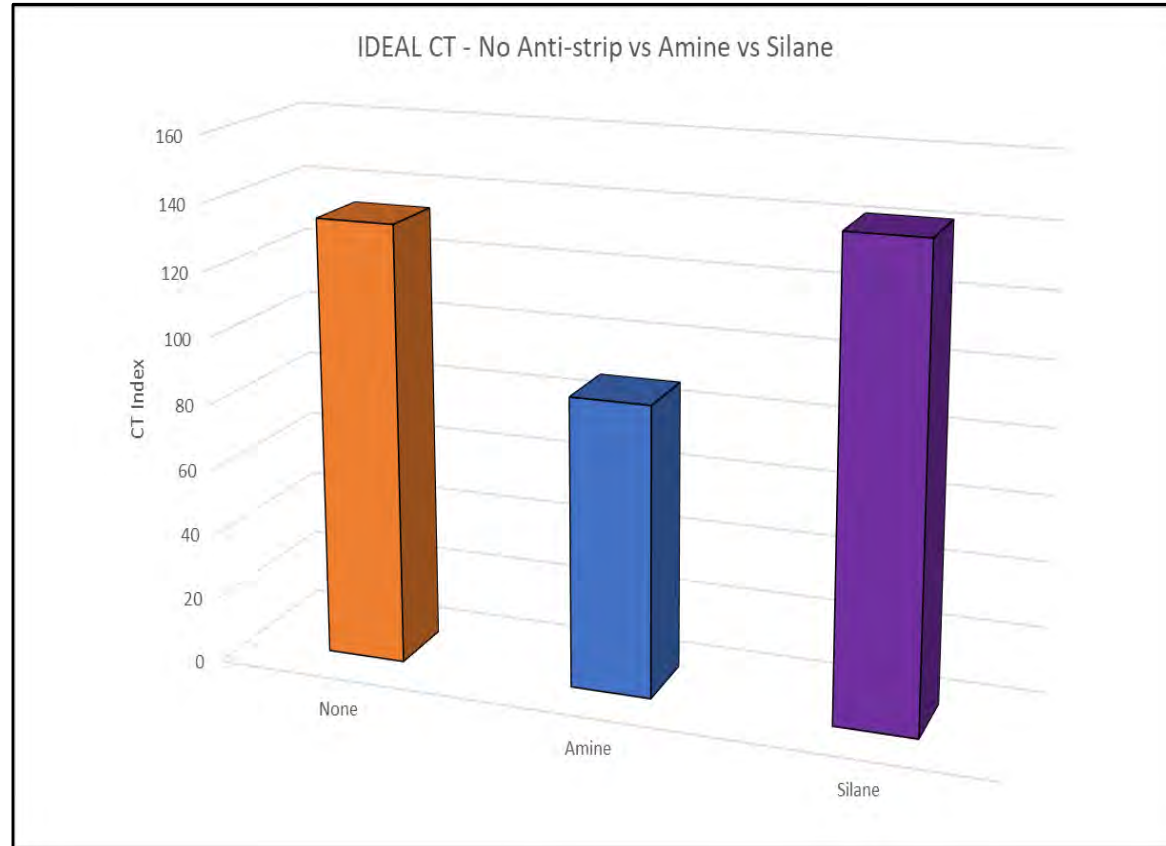
Dosage rate of Amine Based Anti-Strip was 0.50%



PTC LAB RESULTS
CT Indices

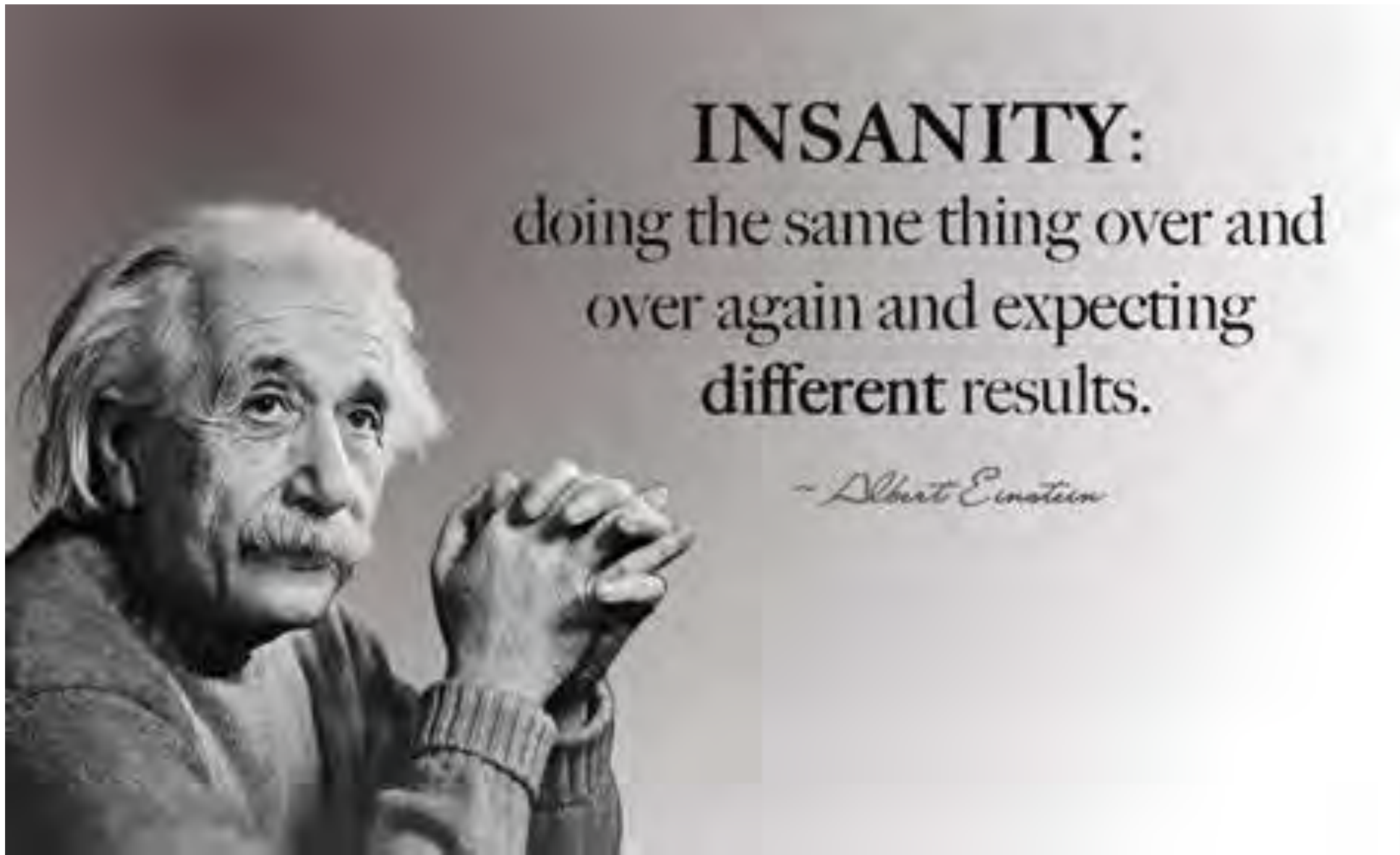


Crack Resistance Testing



❑ Amine Based – Reduced crack resistance of Control by approximately 40%.

❑ Silane Based – **Increased** crack resistance of Control by nearly 10%.



Thank you!



QUESTIONS ?