
A Soy Methyl Ester-based PoreShield Application and Demonstration

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Performed for:

Minnesota Soybean Research & Promotion Council and the
Soy Transportation Coalition

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EXECUTIVE SUMMARY

At the request of the Minnesota Soybean Research and Promotion Council (MSR&PC), the Agricultural Utilization Research Institute (AURI) implemented a \$10,000 Soy Transportation Coalition grant to complete a regional demonstration of PoreShield™. PoreShield is a soy methyl ester product developed by Purdue University and Indiana Soybean Alliance that is beneficial for concrete infrastructure, including roads, bridges, parking garages, and airport runways. Additional details on the product are in Appendices A through C.

AURI coordinated with a local contractor and government agencies to develop an application strategy and budgetary estimate for the project. AURI arranged several demonstration areas for the application of PoreShield to at least two distinct types of concrete infrastructure. AURI worked with the City of Hutchinson Public Works Department for an identified concrete project located at the airport in Hutchinson, a walking trail, and two community sidewalks. AURI also scheduled a bridge deck application, which the city will complete. *A meeting was held with the PoreShield representative, Indiana Corn & Soybean Councils staff member, the representative from Phoscrete, City of Hutchinson officials, and Mike Youngerberg of MN Soybean on future promotions of the project.*

GOAL 1: COORDINATE LOCAL APPLICATION CONTRACTOR, REGIONAL GOVERNMENT, AND MATERIALS FOR PORESHIELD DEMONSTRATION SITES

In support of Goal 1, Objective 1, the completion of the PoreShield application occurred on July 7, 2022, in Hutchinson, Minnesota. Treated areas included three separate concrete slabs at the Hutchinson Municipal Airport, one walking trail, and two separate sections of community sidewalks. An additional application on a bridge deck will be completed by the City of Hutchinson later, due to having to close the bridge for a specified time for the material to dry. Present at the application was John Olson, Public Works Director for the City of Hutchinson; Harold Stanislawski, AURI Director of Business and Industry; Paul Imbrock, Technology and Business Development Officer with PoreShield; Ben Forsythe, Sustainability and Value Creation Innovation Director for the Indiana Soy Alliance; Kyle Bartfay, Vice President of Sales for Phoscrete; and Mike Youngerberg, MSR&PC.

Figure 1.1 – Hutchinson Municipal Airport – Fueling Pad



Figure 1.2 - Hutchinson Municipal Airport – Aircraft Tie-Down



Figure 1.3 - Hutchinson Municipal Airport – Aircraft Tie-Down



Figure 2 – Walking trail in the City of Hutchinson



Figure 3 Sidewalk in the City of Hutchinson



In support of Goal 1, Objective 2, to establish and conduct an outreach effort for the soy based PoreShield product, an article will appear in AURI's *Ag Innovation News (AIN)*, *October 2022 issue*, featuring the PoreShield application in Hutchinson. Representatives interviewed for the article included city officials, the manufacturer, PoreShield employees, and sales and distribution channel participants. A copy of the draft article is attached as Appendix D. AURI's AIN publication reaches approximately 9,645 subscribers and a digital version will be

posted on AURI's website. Articles from the publication are also included in AURI's *Ag Innovation Update* (e-newsletter), which has 4,162 subscribers. Other outreach efforts included a PoreShield display at the annual 2022 Minnesota Farmfest in Redwood Falls, MN. This year's attendance topped 28,000 and AURI estimates more than 1,000 people passed through its tent during the three-day event.

On July 19, 2022, AURI staff Harold Stanislawski, Dr. Jimmy Gosse, and Dan Skogen, as well as Mike Youngerberg of MN Soy met with Minnesota Representative Susan Akland to discuss biobased materials, including PoreShield.

The project team will also share details of this application with city and county officials via electronic media, at future tradeshow, such as MN Ag Expo, and possibly a county engineer tradeshow, as well as feature it on an AURI Connects Webinar Wednesday episode. PoreShield representatives also visited the Minnesota Department of Transportation to provide education and technical awareness of the product. Information will also be placed on the AURI website and MSR&PC websites.

CONCLUSION

The Soy Transportation Coalition, along with MSR&PC, are committed to soy-based product use in the transportation sector. The PoreShield product is an approved USDA Biobased product that has proven research, commercialization partners, and an ideal product profile in helping concrete investments last longer. This research project is another example of checkoff-funded research to promote the utilization of soybeans grown by Minnesota farmers. In addition, regional cities like Hutchinson, MN, are catalysts for the continued adoption of this biobased technology. It is an added benefit that Hutchinson, MN also serves as a regional hub for the Minnesota Department of Transportation; therefore, adding an additional potential understanding of this product in the transportation sector with key decision-makers.

AURI is committed to the advancement of the utilization of soybean formulated products for use in the transportation sector and is pleased to partner with the Soy Transportation Coalition and the MSR&PC. The market impact for soybean use in this sector could be significant. According to a researcher at PoreShield, on a per gallon basis, one bushel of soybeans can make 1.5 gallons of PoreShield. On a square foot basis, one gallon treated 220-250 sq ft depending on density. Therefore, one bushel treats approximately 350 square feet. For example, in Mississenewa Lake, Wabash County, Indiana, a bridge deck of 23,760 sq ft used 183 gallons of PoreShield which utilizes 122 bushels of soybeans (PoreShield Fact Sheet, Appendix B).

APPENDICES – FY22 A SOY METHYL ESTER-BASED PORESHIELD APPLICATION AND DEMONSTRATION FINAL REPORT

NOTE: Please see the PDF Attachment Section to view each Appendix included herein.

Appendix A: PoreShield Handout (Biz Card Size; USB Approved)



PoreShield Handout
(Biz Card size, USB Ap

Appendix B: PoreShield Handout (Full Page; USB Approved)



PoreShield Handout
(Full Page, USB Appro

Appendix C: PoreShield Technical and Sustainability Handout



PoreShield Tech &
Sustainability Handou

Appendix D: AURI_AIN Article-Shielding Concrete with Soy/Becker County Demo Site



AURI_AIN_OctDec_20
22_Soy_RePlay article-