

SEAUPG ANNUAL MEETING 

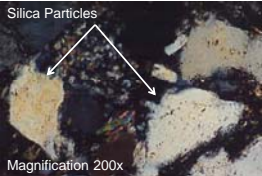
Silica Safety for Asphalt Milling

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National Institute of Occupational Safety and Health (NIOSH) researchers find measurable quantities of silica in asphalt milling fines.



NIOSH asks the National Asphalt Pavement Association (NAPA) to form and manage a research team to evaluate silica exposure in asphalt milling and find ways to reduce airborne dust.



NAPA works with American Equipment Manufacturers (AEM) to contact labor, industry, government, and contractors to form the Silica/Milling Machine Partnership



Silica/Milling Machine Partnership - 2006



Initial field studies establish base line levels of dust exposure and were weighed against the current Occupational Health and Safety Administration (OSHA) standard for dust exposure in the field.





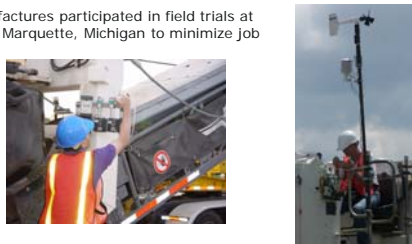
Although dust exposures measured were below the existing OSHA standard, the team resolved to achieve reductions through optimizing water systems for dust control.




Silica/Milling Machine Partnership 2008




All partnership manufactures participated in field trials at abandoned airport in Marquette, Michigan to minimize job site variables.




These trials helped manufactures to determine the most effective water based control elements.

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As machinery was prepared for testing, it was critical that water systems were operating properly and utilized as intended. Accordingly, the Partnership wanted to emphasize how critical it was for contractors to properly maintain and operate their water spray systems so a section was added in the AEM "Cold Planer Safety Manual" addressing water system maintenance and operation.




<http://shop.aem.org>

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AEM and NAPA also developed "Best Practices Bulletin"

OPERATIONAL GUIDANCE FOR WATER SYSTEMS DURING ROTO-MILLING OPERATION



PRE-OPERATION INSPECTION

- 1. Inspect all water systems and hoses.
- 2. Check for leaks and damaged hoses.
- 3. Check for proper hose connections.
- 4. Check for proper hose routing.
- 5. Check for proper hose tension.
- 6. Check for proper hose length.
- 7. Check for proper hose color.
- 8. Check for proper hose markings.
- 9. Check for proper hose identification.
- 10. Check for proper hose storage.

PREPARE FOR SAFE OPERATION


- 1. Shut down the machine before any maintenance.
- 2. Lock out the machine before any maintenance.
- 3. Tag out the machine before any maintenance.
- 4. Remove all personnel from the machine before any maintenance.
- 5. Remove all tools and equipment from the machine before any maintenance.
- 6. Remove all debris from the machine before any maintenance.
- 7. Remove all obstructions from the machine before any maintenance.
- 8. Remove all hazards from the machine before any maintenance.
- 9. Remove all safety devices from the machine before any maintenance.
- 10. Remove all safety barriers from the machine before any maintenance.

OPERATION


- 1. Operate the machine at a safe speed.
- 2. Operate the machine at a safe distance.
- 3. Operate the machine at a safe angle.
- 4. Operate the machine at a safe height.
- 5. Operate the machine at a safe width.
- 6. Operate the machine at a safe depth.
- 7. Operate the machine at a safe rate.
- 8. Operate the machine at a safe pressure.
- 9. Operate the machine at a safe temperature.
- 10. Operate the machine at a safe humidity.

PROJECT PREPARATION

- 1. Prepare the site for safe operation.
- 2. Prepare the site for safe maintenance.
- 3. Prepare the site for safe storage.
- 4. Prepare the site for safe disposal.
- 5. Prepare the site for safe recycling.
- 6. Prepare the site for safe reuse.
- 7. Prepare the site for safe repurposing.
- 8. Prepare the site for safe renovation.
- 9. Prepare the site for safe reconstruction.
- 10. Prepare the site for safe reconstruction.



SAFETY RESOURCES



www.aem.org or www.asphaltpavement.org

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Silica/Milling Machine Partnership 2010

Partnership manufacturers gathered again for field trials in Shawano, Wisconsin - this time to test improvements based on results from Marquette.


As an extra step, certain companies included an experimental vacuum system on their machine to test in conjunction with water based controls.




Silica/Milling Machine Partnership 2011 


Tests results from Shawano showed that optimized water based controls were effective but they also showed that vacuum controls along with water can provide for significant reductions at critical locations or test zones around the machine.





Focus shifted from optimizing water based controls to optimizing dust control with water and vacuum systems.
The Partnership agreed that the ultimate goal must be to provide the best dust control feasibly possible.


Outstanding article was published in "Asphalt Pavement Magazine" (Sept/Oct 2012) outlining Silica Partnership efforts and the decision to continue on with the addition of vacuum based controls.




Silica/Milling Machine Partnership 2012 

NIOSH tracer gas tests performed in controlled environment to determine capture efficiency of production vacuum systems.




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Began field testing combined water /evacuation dust control systems.

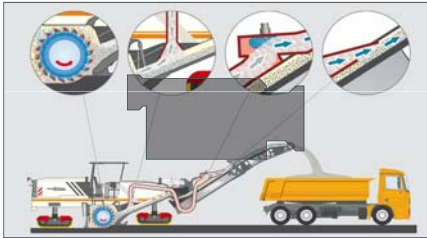


Initial results from controlled environment testing and from field testing looked very good!

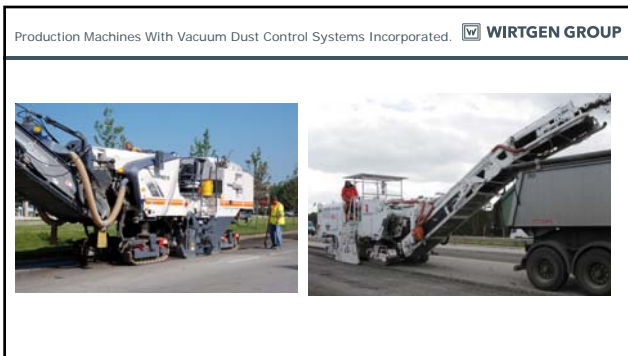
Silica/Milling Machine Partnership 2013  WIRTGEN GROUP


Complete field tests for combined water/evacuation dust controls.
Water based control systems will continue to provide primary dust control.
Secondary evacuation systems will capture airborne dust in primary areas of dust generation and deposit the exhaust into the secondary conveyor chute - carrying dust away from the operators.
New OSHA standard proposal for respirable dust exposure expected.

Vacuum Dust Control Systems  WIRTGEN GROUP








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Thank You

 **WIRTGEN GROUP**
A JOHN DEERE COMPANY

CLOSE TO OUR CUSTOMERS

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