



Cool Roadway Solutions: Request for Information Response Form

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Solution/Product Name: ePAVE Cool Pavement Technology

Describe how the proposed solution addresses the following (250 word maximum for each response):

1. What is the expected timeline to develop and commercialize the solution if it is not currently available?
 - A. ePAVE is developed and is in commercialization stage with two product formulations for both asphalt and concrete pavement surfaces: one for roads and another for non-vehicular surfaces. We have applied ePAVE on several road projects, schools, bike lanes. Our next upcoming projects are a few school playgrounds, a movie studio parking lot and loading stage, a driveway, a parking lot and a resort. 
2. What surface and air temperature reductions resulting from the roadway solution, daytime and nighttime, have you identified?
 - A. For vehicular roads, ePAVE yields daytime reduction of 5 to 7 degrees. For non-vehicular surfaces, ePAVE yields a daytime reduction of up to 20 degrees. We have not measured the nighttime temperature reduction.
3. How simply can the solution be integrated into existing roadway management and maintenance operations?
 - A. This solution is very simple to integrate and can be used in lieu of traditional resurfacing materials before the underlying surfaces deteriorate. Since ePAVE preserves pavement surfaces, it extends the life of and could be used to eliminate major damages to a surface.

4. What is the global warming potential associated with manufacturing the roadway solution in production and use phase?
 - A. With a thermal emittance of 0.90 and Solar reflectivity index of 32-40, ePAVE effectively reduces both surface and ambient air temperatures, mitigating Urban Heat Island effects. It also dramatically lowers the greenhouse gas emission by sealing the underlying asphalt surfaces. We haven't measured the impacts in the production phase.

5. Add any additional information for the proposed solution. Attach photos, videos or links to materials demonstrating application, installed condition, and relevant characteristics of the solution such as product material safety data sheets.
 - A. Attached are: Safety data Sheets, Technical Bulletin, Case studies and a whitepaper.
 - B. For more photos, please visit our website: www.epavellc.com
 - C. YouTube Channel:
<https://www.youtube.com/channel/UCFwFMVJzGce276duGJL3Ocg>

Cost and Installation (50 word maximum for each response):

1. Can the solution be purchased and installed by in-house department staff (i.e. does not require a licensed installer): Yes/No

A. Yes. ePAVE could be installed in-house following a proper one hour training by ePAVE.

- If so, does it require special equipment to install it: Yes/No

If yes, what equipment is needed?

A. Yes, it requires a mixer and a hand squeegee or a box squeegee

- If so, what is the cost per square yard for materials: \$/SY

A. The cost is \$4.50 per SY.

2. What is the cost per square yard for material if installed by contractor: \$/SY

A. If material is installed by a contractor, the material and installation would cost between \$10.00 to \$27.00 per SY, depending on the colors chosen and thickness of the application required.

3. What is the average installation rate: SY/Day?

A. Average installation rate is 6000 SY/Day.

Use Cases (250 word maximum for each response)

1. What are the appropriate use cases for the solution (e.g., pavement type, age, condition, climate)? Please provide appropriate case studies, testing, and/or supporting research.

A. ePAVE is engineered to be used on both asphalt and concrete surfaces. Asphalt could be a few days old to 10 years old. Concrete surfaces need to cure before ePAVE application. A pavement condition index of 70 and higher is recommended. If a pavement is deteriorated, cracks and potholes should be sealed with a recommended product before ePAVE application. Based on lab testing and field experience to date, ePAVE may be used in any climate. Case studies attached.

2. What are the safety, slipperiness, and friction characteristics (e.g. typical Surface Coefficient of Friction)?

A. A Typical ePAVE surface under wet and dry condition is higher than of industry standard (>0.50).

Surface Friction Average Dry condition=72.7

Surface Friction Average Wet condition=68

3. What is the curing time including how quickly the road can open to traffic after installation given average temperatures, partly sunny, and non-humid conditions? How does this compare to existing relevant products?

A. ePAVE cures in one hour in 70°F and higher. In temperatures below 70°F, it could vary between 1 to 4 hours. Traffic could be open immediately as soon as it cures.

B. Similar products have a much longer curing time, some as high as 12-24 hours to cure before opening to traffic.

4. Is it sensitive to placement in cool weather, i.e. 50° F and falling? Yes/No

A. No.

5. Is it sensitive to placement in high humidity or damp conditions? Yes/No

A. No.

6. How long does this treatment typically last under average traffic conditions in years? How does this compare to similar products?

- A. Based on case studies, ePAVE has lasted 5 years on a road with 2 million vehicles per year. This translates to 10 years and higher for residential roads and much longer for areas without vehicular traffic such as playgrounds, pedestrian areas and bike lanes.
 - B. Based on the data we have, typical cool pavement products last less than one year and some do not function under heavy vehicular traffic, especially around Stop sign at intersections with a hard stop.
7. Can it be re-applied over itself for renewal? Yes/No
- A. Yes.
8. Is it recommended for heavy traffic conditions like urban arterials? Yes/No
- A. Yes
9. Are standard MUTCD compliant white and yellow markings clearly visible? Yes/No
- A. Yes