Use of EPDs in Pavement Decision-Making

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WHAT IS AN EPD?

An **Environmental Product Declaration** (EPD) is an independently verified report used to communicate the environmental impacts (e.g., global warming potential—GWP) of a construction material. An EPD is created based on a set of standardized rules, requirements, and guidelines called a **Product Category Rule** (PCR). A PCR governs what data is collected and how that data is used to calculate and present required environmental impacts.

WHEN CAN EPDs BE COMPARED?

The goal of an EPD is to gather and present environmental impacts for a specific type of material using a consistent framework. An EPD is not intended to be used as a means of comparing the environmental impacts of asphalt and concrete. In cases where two materials are the same type (e.g., both portland cement concrete or both asphalt), developed under the same PCR, and the two materials are meeting the same performance requirements (e.g., early-age strength, design strength, permeability, durability) a comparison of EPDs may be possible.[1]

WHAT CAN EPDs BE USED FOR?

- EPDs provide a benchmark for continuous improvement. Many strategies are available today to reduce the environmental impacts of construction materials production and to design and build sustainable pavements.[2,3] The use of EPDs is a first step in selecting technologies to reduce the overall environmental impact of pavements over the entire life cycle.
- EPDs provide an independently verified estimate of the impact of producing a unit of material that is appropriate to use to evaluate compliance with Buy Clean thresholds.
- EPDs provide information to determine the GWP of materials at the project level.
- EPDs provide plant and product-specific information for whole life-cycle assessments for infrastructure.

WHAT ARE THE LIMITATIONS OF DECISION-MAKING BASED ON EPDs?

At this time, for materials used in pavement construction, North American EPDs quantify cradle-to-gate emissions (associated with raw materials extraction and preprocessing, transportation to the plant, and production activities at the plant) and do not consider the construction, use, or end-of-life phases of a material. For example, the impacts of constructing and maintaining a road over many years are not currently assessed in an EPD. The majority (up to 78%)[4] of pavement life-cycle impacts come from the use phase (e.g., pavement and vehicle interactions, albedo effect, and carbonation)[5], which is not accounted for in cradle-to-gate EPDs currently used for pavement construction. Cradle-to-gate EPDs can be compared if all subsequent life cycle stages are equivalent for both EPDs.[6]

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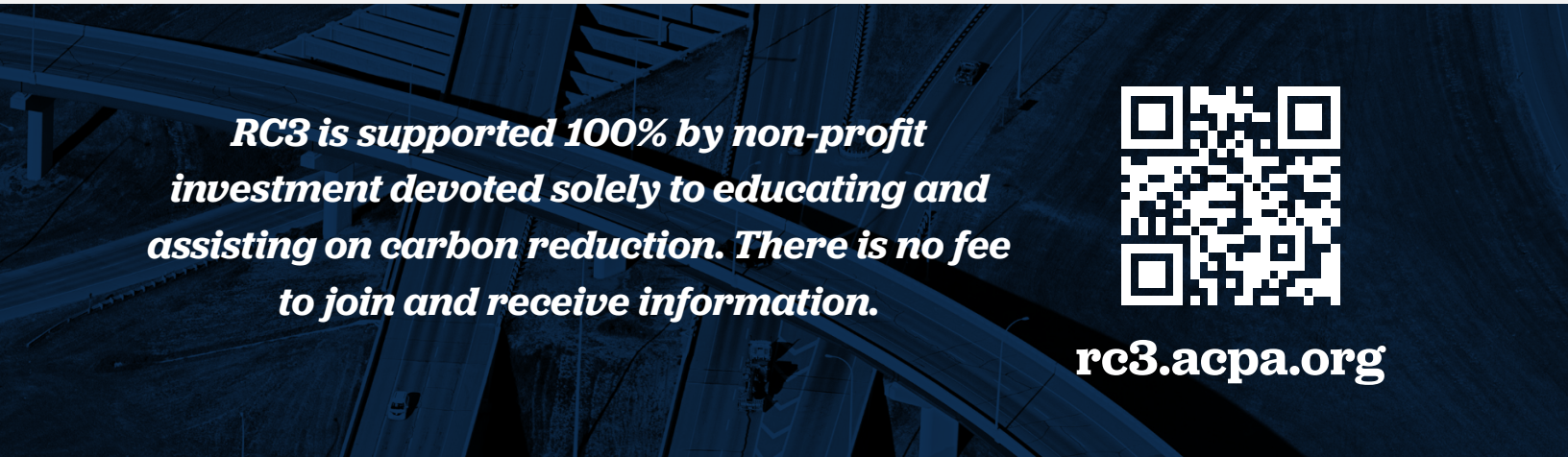
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