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# Seeing clearly — Mechanical insulation's environmental benefits

The classic Johnny Nash song “I Can See Clearly Now” is the backdrop to this month’s message on Life Cycle Assessment (LCA) and embodied carbon of mechanical insulation. The insulation industry is using LCA to identify products’ embodied carbon impacts more clearly. LCA is a technique following ISO standards and using software such as SimaPro, GaBi or OpenLCA to assess potential environmental impacts associated with all the stages of a product’s life, from raw material extraction through materials processing, manufacture, distribution, use, repair and maintenance, and disposal or recycling. Typically, it takes six to nine months for a company to collect data, obtain verification and finalize LCA documents for a particular product. Simply put, an LCA measures the potential environmental impact of a product.

Why is an LCA that important? The words of Nash’s chorus, “I can see all the obstacles in my way, gone are the dark clouds that had me blind,” represent the clarity an LCA offers. In today’s building environment, building owners, designers and constructors are concerned with sustainability and CO<sub>2</sub> emissions of a building or facility. These elements assist the builder in

working toward their carbon neutral or net-zero carbon construction targets. An LCA helps them define the potential environmental impacts in terms of “footprint” and “handprint.” Many readers will soon, if not already, become more familiar with the sustainable terms footprint and handprint. Footprint is a newer term for what we used to call pollution. A more formal meaning is “a measure of the resources necessary to produce the goods that an individual or population consumes.” Handprint is simply the benefit of a product to the world. Footprint “takes,” while handprint “gives.” At the end of the day, if the handprint of the product is better than the footprint, the result will be advantageous to the world.

To tie all this together and provide an example, readers also need to know about an Environmental Product Declaration (EPD). An EPD is the main document that quantifies the amount of potential environmental impacts of a manufacturer’s products during its entire life cycle. These include global warming potential, as well as other indicators for air and water. It requires detailed information, not only regarding a product’s ingredients, but knowledge about the manufacturer’s operations, its supply chain and

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how the products are being used by customers. An EPD is drafted based on LCA results and follows an industry consensus set of Product Category Rules. All documents are verified by a third party to prevent “greenwashing” — the practice of products giving a false impression of being eco-friendly when they are not.

Learning about these tools can help you “see clearly now” about potential environmental impacts of products. In our mechanical insulation industry, many manufacturers are still building their expertise in the area of EPDs. Manufacturers’ development of EPDs will be of benefit to all participants of the mechanical insulation industry.

As most readers know, mechanical insulation is typically used at higher operating temperatures, which translates to higher greenhouse gases savings when insulation is applied to bare pipe surfaces. In simple terms, for higher temperature applications, mechanical insulation will have a smaller footprint (impact) and a much larger handprint (benefit). How much of an impact can be determined by performing the calculations with the manufacturer’s EPDs.

In summary, installing mechanical insulation can provide tangible benefits — CO<sub>2</sub> reduction as well as savings on BTU loss, energy usage and energy dollars. Greenhouse gas reduction is moving to the center stage as the nation, states and businesses work to reduce their emissions. The mechanical industry, led by the National Insulation Association (NIA), has the resources and tools to ensure that “it’s going to be a bright, bright sunny day.”

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