

## Title: Turn Post Consumers Shingles into a Circular Model

Primary Topic: Building a Sustainable Circular Economy for Roofing Materials and Products  
Secondary Topic: Industrial Decarbonization-Enabling Technologies

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Figure 1. EA-RAS, Granules and Mixed Solids

### Abstract

Approximately 13 million tons of post-consumer shingle waste are sent to landfills every year in the US. The Asphalt Roofing Manufacturer's Association (ARMA) has pledged to reduce landfill disposal of shingle waste to 50% by 2035 and 0% by 2050 <sup>(1)</sup>. Numerous technologies have been explored within academia and industry to address this opportunity for shingle circularity, but none have proven to replace virgin raw materials. Owens Corning, in conjunction with Redivius, has developed an approach that deconstructs waste shingles into three components: extracted asphalt coating (EA-RAS), granules, and mixed solids (Figure 1). The process is designed to reclaim the entire shingle to prevent any components from going to waste.

The proprietary, patent-pending process allows the deconstruction of shingle waste through mechanical and chemical treatment to produce EA-RAS, which Owens Corning will reuse in making new products. Asphalt coating contributes to 25% of the embodied carbon of a shingle. The availability of this raw material has declined by over 50% in the last twenty years. Creating a circular model by recovering asphalt coating provides dual benefits: it limits the use of virgin raw materials and reduces the embodied carbon of the shingle.

Owens Corning aims to build a sustainable future through material innovation. This Shingle Circularity initiative supports their Enterprise Sustainability Goals to achieve zero waste to landfill, reduce GHG emissions by 2030, and explore circular economy models <sup>(2)</sup>.

This paper will describe the process developed to convert shingle waste into reusable materials and the reuse of EA-RAS in shingle production. LCA impact will also be discussed, along with opportunities for further industrial deployment.

1. Asphalt Roofing Manufacturer's Associations, <http://www.asphaltroofing.org/arma-statement-on-recycling-of-asphalt-roofing-materials>, 2022.
2. Owens Corning Sustainability report - <https://investor.owenscorning.com/investors/stock-performance-and-earnings/press-releases/press-release-details/2024/Owens-Corning-Publishes-2023-Sustainability-Report/default.aspx>