Lead-free roofing

Bituminous membranes made from VESTOPLAST® save cost and time.

Lead sheet materials are considered a must in the construction industry, especially along roof extensions or as flashings, but the heavy metal is an environmental pollutant. Because of its thermal conduction properties and rising raw material prices, lead is also not an ideal roof insulation material and expensive. Innovative bitumen membranes made of VESTOPLAST® by Evonik Industries have better thermostability and are more cost effective than conventional insulation materials. And, they are 100% lead-free.

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Roofers swear by lead. Thanks to its high resistance to corrosion and UV radiation, the material has been a preferred roofing and insulation material for decades. So-called lead aprons are used to seal the perimeter of chimneys, angled windows, or solar panels to protect the structures from moisture. However, there are several important concerns that call for an alternative. The proven building material has been an increasing strain on homeowners' budgets ever since the price of lead jumped from approx. €400 in 2003 to currently around €1,900 per metric ton. In addition, lead easily conducts heat, which makes for ineffective heat insulation. Most importantly, the toxic heavy metal is an environmental pollutant, as small quantities of lead are leached out of roof flashings by rainwater and wash into the ground.

Ubiflex as an alternative

These are significant economic and ecological reasons for getting away from lead flashings for good. The creativity of the leading manufacturer of SBS-modified (styrene butadiene styrene) bituminous membranes, Bitufa Waterproofing B.V. from JP Wapenveld, Netherlands, combined with the development expertise and innovation of Evonik, led to a completely new bituminous membrane product. "Ubiflex" lives up to all expectations. The material is made from a bituminous compound of Bitufa and VESTOPLAST® polyolefins by Evonik.

"It took about two years from the first experimental mixture to the final product," says Evonik application technology engineer, Udo Spitzer. "Bitufa determined the specification profile and we came up with the corresponding formulations in numerous test phases, which ranged from varying the volume proportions to replacing additives. Thanks to our company's extensive process expertise, we quickly found the right solution in VESTOPLAST® as the base material." Because of its property profile of thermostability, high adhesion and low weight, the product is ideally suited for this demanding application and "creates many new design opportunities," as Spitzer notes.

Unbeatable advantages

The new bituminous membrane is not only better for the environment and human health, but also has significant advantages in terms of product weight. The insulation material weighs eighty percent less than lead, which makes it easier to transport and install. With sheet lengths of up to

The lead-free Ubiflex flashing is as easy to install as rolled lead, but has significant advantages over it: It is much lighter, environmentally friendly, and costs less.

twelve meters instead of the previous seven, work advances faster, at lower cost, and with minimal waste.

Once installed, Ubiflex is resistant to corrosion, UV radiation, and high winds. An embedded expandable aluminum base provides the necessary flexibility. As before, installers can cut, shape, hammer, or adhere the material with conventional tools to bring it to the desired shape. In spite of its flexible properties, the material does not buckle and therefore requires no expansion joints. The addition of VESTOPLAST® makes the bituminous membranes resistant to temperature fluctuations in a range from -30 to +90° C. Thanks to the high thermostability of Ubiflex, roofs take up less heat in the summer and lose less heat in the winter.

Whether brick red, gray shale grit, or classic black, the various surface finishing options give developers a lot of design options. Once Ubiflex reaches the end of its service life, it can be recycled like all other synthetic materials, which means that components are separated by melting point, melted, and returned to new applications.

Wherever it rains

"Roofs all over the world hold about thirty million square meters of lead. We have already replaced one million of these in renovations and new structures," explains Roeland van Delden, executive manager of Bitufa. After the successful product launch in Europe, he is now setting his sights on markets in the U.S., Canada, Australia, and India, or "wherever it rains." The replacement on the roof can be easier than changing the minds of roofers. "Because the material has been used effectively for centuries, it is hard to accept an alternative, but the new quality and the environmental protection will convince roofers in the long term," says van Delden.