Added Levee Protection From Burrowing Animals

SHOREGUARD® VINYL SHEET PILE WITH RODENTGUARD™ FORMULATION

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The Challenge

Rodent populations are rising worldwide and so is the economic damage they cause. Some of these rodents burrow into earthen levees and dams for shelter and safety. These burrows can fill with water. Changing water levels then create seepage paths ("piping"), leading to internal erosion of embankments and the potential for their catastrophic failure. Embankment failures can cause property damage, loss of life, and interrupt crucial delivery of water in many parts of the world.

After 30 years and thousands of PVC sheet pile installations for levees, embankments, and earthen berms, there have been no reported incidents of material damage to the vinyl piles from rodent attacks.

Nevertheless, the significant increases in rodent populations and their burrowing activities has lead CMI to research new ways to further increase the rodent resistance for ShoreGuard® vinyl sheet pile.

The Development of RodentGuard™

CMI has developed an anti-rodent formula in conjunction with XCR manufacturing technology to produce a PVC material that will provide integral, non-toxic, rodent deterrent within the sheet pile itself. This specialized formulation is incorporated into the sheet pile’s virgin capstock material - it is not a sprayed on or a field-applied material. By integrating the RodentGuard™ material into the sheet pile itself, the uniform distribution of repelling properties are ensured throughout the entire thickness of the capstock.

To stay true to CMI’s core values, the additive is environmentally friendly:

- it does not contain any lead, heavy metals, insecticides, rodenticides, or bromine. The chemical additive does not kill. Instead, the formula repels rodents on multiple sensory levels. Its potent foul smell causes a fear response. Particularly aggressive rodents are further deterred by the additive’s dermal irritation and extremely bitter taste.
- Repeated exposure appears to modify burrowing rodents’ behavior, conditioning them to no longer attempt to “taste” the PVC sheet piles: see the following page for test results.

ShoreGuard® sheet piling with RodentGuard™ repels burrowing animals, providing an additional layer of protection against destructive rodents and their potentially catastrophic activities.
ShoreGuard® vinyl sheet pile used to raise the freeboard height and for levee seepage protection in Suffolk, England.

The Validation
A full-scale test was conducted in which PVC samples were introduced to a rodent population. There were two sets of samples: treated and untreated. The above graph demonstrates the effectiveness of the RodentGuard™ additive as a deterrent. After the initial gnawing of the treated PVC sample, the rodents learned that the material was not pleasant and stayed away from the samples. Furthermore, the test data indicates that the number of rodent bites continues to decrease and eventually cease over time for the product with the additive.

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Innovating the Industries We Serve
The RodentGuard™ technology is available in all of our ShoreGuard® vinyl sheet pile profiles. Its development is another advancement in CMI’s innovative line of synthetic sheet piles. CMI offers vinyl, composite and aluminum products as alternatives to steel, concrete and wood sheet piling structures. CMI has the world’s largest vinyl sheet piling fabrication facility, specifically designed to incorporate new advancements in manufacturing technologies. Advanced materials processes reduce the carbon footprint of manufacturing and increases the level of quality control. In addition, CMI’s vinyl sheet piling has been extensively tested and approved by the United States Army Corps of Engineers and the NRCS. Our products are American made and our research team has patented over two dozen new products and technologies.