



# Excel Erosion Education Circular, Volume - 5 Western Excelsior Introduces Tackmat<sub>x</sub>

Excel Erosion Education Circular (E<sup>3</sup>C) is produced by Western Excelsior to furnish education pertinent and specific to the erosion control industry. E<sup>3</sup>C is intended to offer erosion control professionals an educational resource to serve as a foundation for performance focused solutions. Volume 5 of E<sup>3</sup>C has been developed to provide an introduction to Western Excelsior's Tackmat<sub>x</sub>.

## What is Tackmat<sub>x</sub>

Tackmat<sub>x</sub> represents the next evolutionary step in erosion control, the dawn of a new era. A combination of two effective, proven technologies yielding a final product greater than the sum of its parts. Tackmat<sub>x</sub> is a single net (top side) excelsior erosion control blanket, specifically produced to receive an infusion of polyacrylamide (PAM) during manufacture that is deployed to the soil surface upon installation.

with respect to erosion control and mulching. Tackmat<sub>x</sub> excelsior fibers have been specifically developed for deployment of PAM and high erosion control and vegetation establishment performance.

## What is PAM

PAM is a flocculent used in production of drinking water, cosmetics, food and fruit juices. The unique chemistry of PAM materials is engineered and can be formulated to accomplish a variety of objectives. Specific to erosion control, PAM is designed to react with the electrical components of soil that are responsible for cohesion, and thus, the ability of fine grained soils to resist erosion. Typically, PAM reacts with calcium ions within the soil to form an electrical bridge between two like-charged soil particles. When like-charged particles are adhered, smaller particles become larger aggregate particles, improving the resistance to erosion or aiding in flocculation. With sufficient dosage, the soil surface can be transformed to a stable, high infiltration armor layer a few millimeters thick. Without the calcium ion bridge provided by the PAM, soil particles are not bound by an electrical attraction, and thus more readily displaced by the forces of wind and water.

The United States Department of Agriculture (USDA) has been advocating and specifying the use of PAM for nearly twenty years for food crop fields. USDA research has shown, by minimizing the displacement of soil particles from crop fields, PAM materials are particularly effective in reducing the effluent of fertilizers and microbes (i.e. fecal coliform) from crop fields, thus reducing the pollution delivered to natural waters.



Excelsior is an engineered wood fiber (shaving) that is machine produced. Since the dimensions of the excelsior fiber is engineered and machine produced, the quality and consistency of the fiber can be controlled and verified. Excelsior fibers provide an ideal Erosion Control Blanket (ECB) matrix for storage and dispersal of PAM. Excelsior provides better resistance to erosive forces with high open area, compared to other ECB matrix fibers. Thus, excelsior ECBs provide long lasting, high performance

Excel Erosion  
Education Circular

E<sup>3</sup>C

Volume 5



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## Benefits of Combination

Hybrids in technology often result in the highest performance materials. From metal alloys like titanium to advanced construction materials like carbon fiber composites, combining the unique properties of two materials can yield ground breaking new possibilities. In the case of Tackmat<sub>x</sub>, the combination of PAM and an excelsior blanket provides a unique material with specific performance advantages that yield new ground securing possibilities.

Tackmat<sub>x</sub> has been shown in full scale laboratory trials to reduce erosion by more than 99% in some trials and more than 97% on average in rainfall/hillslope conditions. Once the PAM from Tackmat<sub>x</sub> is deployed, the soil surface is amended to provide improved infiltration, resulting in less runoff and more water available for germinating vegetation. Additionally, the excelsior blanket provides protection from sunlight, extending the longevity of the deployed PAM and excellent mulching with minimal tenting and structural protection for the soil surface. Protected from the impact of raindrops or light foot traffic, forces that are typically detrimental to naked PAM installations, PAM deployed by Tackmat<sub>x</sub> is allowed to be fully effective. The combination of PAM and excelsior blanket allows for the use of abutted seams for adjacent blankets. Abutted seams saves up to 6% in overall coverage. Finally, lightweight rolls maximize shipping and storage efficiency.

Primarily, Tackmat<sub>x</sub> is intended to be utilized as a high performance slope protection material. However, Tackmat<sub>x</sub> is also intended to be effective in other installation modes. Tackmat<sub>x</sub> may be used as a buffer strip, aiding in flocculating sediment from overland flow or as a channel liner. In all installations, the combination of PAM and excelsior provides excellent mulching and accelerated vegetation establishment.

In addition to the unique new advantages, Tackmat<sub>x</sub> is a product of Western Excelsior, thus assuring outstanding product quality and service along with ground securing and mulching performance. Tackmat<sub>x</sub> is available with nominal fifteen month longevity, rapid degradable (approximately 90 day longevity) and fully biodegradable (*All Natural*) netting. Tackmat<sub>x</sub> is available in natural or green color. Contact Western Excelsior at 1-866-540-9810 or [www.westernexcelsior.com](http://www.westernexcelsior.com) for more information.



Tackmat<sub>x</sub>

Tackmat <sub>x</sub> Properties	
Roll Size	8ft x 150ft
Area	133.3 yd <sup>2</sup>
Netting	Top Side, Temporary
Roll Weight	66.7 lb
Seam Detail	No Overlap Required
Longevity	Nominal 15 Months
C Factor	< 0.01 - 0.03
Maximum Shear Stress	1.6 psf



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