Erosion Protection with the TERRAVEST K®-System

The protection of surfaces from erosion either by water or wind may be done by the installation of a vegetation cover or a surface fixation. Soil stabilizer, erosion protection fibres and if necessary erosion protection mats are used for this. The main application sectors for such systems are hydroseedings during grassings and dust fixations as a protection from wind erosion.

The TERRAVEST K®-system includes two components which can be used for the above mentioned purposes. These are the soil stabilizer TERRAVEST K and the erosion protection fibres Ef.

General Properties of TERRAVEST K and TERRAVEST K, Ef

TERRAVEST K is based on a special liquid polymer combined with auxiliaries such as wetting agents, driers (accelerating oxygen uptake) and defoaming agents. TERRAVEST K is emulsified in water and then spray-applied to the surface to be protected where it penetrates up to 20 mm in depth, depending on the absorptivity of the soil substrate. After its application, TERRAVEST K reacts with atmospheric oxygen and within a few hours a firm, water-insoluble network is formed. As a result all wetted particles such as sand grains, fertilizer, seeds and other materials, become bound to the surface. The cured TERRAVEST K does not seal off the soil surface; indeed the latter's absorptivity for rain is fully maintained by the open matrix-like character of its bound (stabilized) structure. Germination and plant growth remain unimpaired.

The use of TERRAVEST K in hydroseeding is recommended if, in the period between seeding and establishment of a dense cover of vegetation, embankments/escarpments and other soil structures have to be protected against the threat of erosion from severe rain and wind. Another possibility is to stabilize the ground first and to seed it with grass at a later stage. The stabilization is frost resistant and also effective when used on acid and alkaline soils. For the fixation during a hydroseeding as little as 10 to 30 g/m² of soil stabilizer are enough, depending on the nature of the soil and the inclination. The stabilized layer remains absolutely water permeable and the soil biology is not impaired. Once root growth has taken place, TERRAVEST K is decomposed oxidatively by atmospheric oxygen, warmth and sunlight (UV radiation) to environmentally harmless carbon dioxide and water.

The basis of TERRAVEST K Ef are specifically treated needle wood fibres. They are thermically treated to melt the natural resin. Together with TERRAVEST K, the fibres construct an ideal strengthening of the three-dimensional fixation. Additionally, the natural resin of TERRAVEST K Ef reinforces the fixation effect of TERRAVEST K.

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Form supplied and application in practice

TERRAVEST K

Form supplied:

Soil stabilizer TERRAVEST K consists of 100 % Ae substance and is emulsified directly on site in spray equipment fitted with an agitator (e. g. hydroseeders).
The tank of the equipment is filled, in well-established manner, with the spray mixture of water, seed mixture, organic fertilizers and with such other necessary soil auxiliaries or conditioners needed for local conditions. The required quantity of TERRAVEST K is added with the agitator running throughout the addition. TERRAVEST K emulsifies without difficulty. The spray mixture is applied directly to the soil without any further preparatory operations.

TERRAVEST K is supplied in 20 kg non-returnable containers. TERRAVEST K, being a 100 % organic product, is frost resistant at storage.

TERRAVEST K Ef

The erosion protection fibres of TERRAVEST K Ef consist 100 % of needle wood fibres and contain a natural rest humidity.

From supplied:

TERRAVEST K Ef is supplied in 80-l-non-returnable plastic bags. The contents of one bag may be compared to a filling weight of ~ 10 kgs. TERRAVEST K, Ef, consisting of 100 % wood, has not limitation of storage.

Recommended use concentrations

The required concentrations of TERRAVEST K to be applied for an adequate stabilization will depend on local conditions (soil structure and composition) as well as on the severity of demands expected to be met. In subtropical regions with very high amounts of rainfall, the quantities of TERRAVEST K applied per m² have to be increased (see Table). These higher use concentrations neither inhibit germination nor impair the growth of seedling in an important way.

Note:

The fixed surface shall not be put weight on neither by walking nor by driving. This would destroy the fixation effect.

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For grassings the following applied quantities of TERRAVEST K and TERRAVEST K Ef per m² depending on the location are valid.

Surface structure	Examples	Product	until 15° until 1:4	until 30° until 1:2	until 45°* until 1:1	over 45°* more 1:1
smooth	loam,	TERRAVEST K	15 g	20 g	25 g	30 g
	silt,	TERRAVEST K, Ef	40 g	60 g	80 g	100 g
	clay	erosion protection mats	./.	*	**	**
coarse	sand,	TERRAVEST K	10 g	15 g	20 g	25 g
	gravel	TERRAVEST K, Ef	./.	40 g	60 g	80 g
		erosion protection mats	./.	./.	*	**
rough	coarse	TERRAVEST K	10 g	15 g	15 g	20 g
	gravel,	TERRAVEST K, Ef	./.	./.	40 g	60 g
	soft rock	erosion protection mats	./.	./.	./.	*
Add. use in areas and		TERRAVEST K	plus 10 g	plus 10 g	plus 15 g	plus 15 g
periods with major		TERRAVEST K, Ef	./.	plus 10 g	plus 20 g	plus 30 g
tendency to rain						
Add. use when longer		TERRAVEST K	plus 15 g	plus 15 g	plus 20 g	plus 20 g
growth times have to		TERRAVEST K, Ef	./.	plus 10 g	plus 20 g	plus 30 g

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be bridged					

* If necessary, it may be beneficial for slopes of this order to be additionally secured by supplementary mechanical means.

** Erosion protection mats are absolutely necessary.

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