Loksand®

Loksand Specifications

Fibre technology to shape and reinforce natural surfaces

CENTAUR ASIA PACIFIC

https://www.centaur-asiapacific.com.au/
info@centaur-asiapacific.com
0450 791 003

General Specifications

The Loksand Rootzone System is an advanced fibre technology that provides a surface that is stable, free draining, and with excellent strength enabling uses for a variety of applications. The main component of Loksand are the fibres, which, when mixed with native or imported sand create an interlocked profile. Great for stabilising a natural structure and preventing migration and compression of material by wind, rain, or tracking, The unique crimped fibre creates and holds open voids in the Loksand creating space for grass roots.

Loksand uses a specifically developed crimped fibre technique to create an artificial “root system”, stabilising surfaces and limiting erosion. Because of this crimped fibre, the root of any optional vegetative coverage will easily interlock with the Loksand fibres and embed firmly in the topsoil. In a traditional turfed surface roots grow in small air pockets within the soil, overtime as soil becomes compacted, these air pockets disappear damaging the root system and restricting its’ growth. Loksand is able to hold this void space open allowing further penetrating roots and limiting damage from compaction.

Loksand is a revolutionary approach to sand stabilisation and erosion control, which works outside of the traditional methods. Rather than using a material to cover a surface to limit erosion by shedding water, Loksand creates a free draining surface which allows water through void space held open by the crimped fibres, but also locks the particles in place to ensure minimal migration of material. Loksand also creates a hard-wearing surface which is not limited by stresses or breaking points associated with other methods.

Physical and Chemical Properties

Loksand Fibres are crimped Polypropylene homopolymer, with process stabilisers, pigments and treated with a spin finish lubricant. Each fibre is a TITRE - 50 (45 - 55) denier with a length of 33 - 45 mm and 1.5 - 3.0 crimps per inch. Fibre Shrinkage is a Maximum of 5% and melting point is 160 - 165 °C with a softening point of 153 °C.

Loksand has been tested to withstand over 100 tonnes using machinery with low ground pressure tyres. The compaction factor is 10% after the first initial laying. (i.e If a final surface of 100mm profile is required, then it is installed at 110mm)

Loksand Mixing Rates

Different applications can sometimes allow for different rates of Loksand Application. Some pedestrian traffic only applications, such as Bunker surrounds require between 2-3kg Loksand fibre per tonne of sand/soil depending on the subsoil profile and the gradient of the bunker edge/lip. Any application for heavier vehicle traffic 3kgs per tonne sand/soil must be adhered to.

Loksand Blending

There are several approaches which can help get the best consistency of Loksand fibre spread throughout the sand profile, depending on available machinery/equipment and scale of the mixing required.

Approach one – Smaller installations

There are several approaches which can help get the best consistency of Loksand fibre spread throughout the sand profile, depending on available machinery/equipment and scale of the mixing required.

- Concrete pad 10m x 10m
- Minimum 30hp chipper/shredder
- Loader/skid steer
- 13t Excavator with bucket and grab
- 9t Dump Truck

Place 50 tonnes of sand on concrete mixing. Break off 150kg Loksand fibre Use the chipper/shredder to pass fibre through to loosen fibre and break up any chunks. Use loader to 'sprinkle' Loksand fibre evenly across the sand. Use excavator to mix the Loksand into the sand thoroughly. Once evenly distributed and mixed-use grab/bucket to load into Dump Trucks for transportation to trial area.

Approach two – Larger installations

There are several approaches which can help get the best consistency of Loksand fibre spread throughout the sand profile, depending on available machinery/equipment and scale of the mixing required.

- Concrete pad with covered bays
- Portable bale processor – Balebuster/Tomasser bale shredder
- Mixer Wagon – Keenan MechFibre380 (OR SIMILAR)
- Loader/Excavator with enough height to load mixer wagon.

Use bale processor to break apart Loksand Fibre bale, store loose Loksand in covered bays. Load Mixer wagon with sand whilst observing mixing wagons maximum weight capacity. For example, the Keenan MechFibre380 has a maximum payload of 9t, in this case load 8t sand with Loader/Excavator. Load loose Loksand Fibre into mixer wagon at a rate of 3kg per tonne. In the

example of a Keenan MechFibre380 with 8t sand, load 24kg Loksand fibre. Allow to mix until an even consistency is obtained, with certain model mixer wagons, mixing can happen when in transit from mixing area to delivery area. Use mixing wagon to distribute Loksand at required depth within the desired area using either fold down tray or stub elevator.

Approach three - Installation in situ

There are several approaches which can help get the best consistency of Loksand fibre spread throughout the sand profile, depending on available machinery/equipment and scale of the mixing required.

- Water Truck
- Minimum 30hp chipper/shredder
- Tractor driven rotavator/cultivator or hand rotavator for smaller installation sites

Place 50 tonnes of sand on concrete mixing. Break off 150kg Loksand fibre Use the chipper/shredder to pass fibre through to loosen fibre and break up any chunks. Use loader to 'sprinkle' Loksand fibre evenly across the sand. Use excavator to mix the Loksand into the sand thoroughly. Once evenly distributed and mixed-use grab/bucket to load into Dump Trucks for transportation to trial area.

Critical Mixing Rules

1. The sand should always be moist.
2. Note: If there is too much water in the mixer, the sand will sink and the Loksand fibre will float.
3. The abrasiveness of the sand will separate the fibres throughout the mix.
4. The mixed Loksand will store as you would normally have it, but the sand must not be allowed to dry out, as this will have an hour glass effect, by the sand separating from the fires, and the fires eventually blowing away.

Worksite/Bunker preparation/Completion

Existing bunker edge should be excavated to get to the desired height (as per Architects instructions) and depth (as per attached cross-section drawings). A two inch CapillaryFlow Patented Material ledge will be constructed to the desired (horizontal) depth and allowed to cure for 24-48hrs.The Loksand mix will be dropped onto the CapillaryFlow ledge one "layer" at a time and compacted sufficiently before the next layer is added. It is suggested that plywood boarding is used to form a temporary edge to the bunker wall so that the Loksand can be built up to follow the Architects specified edge angle. Turf will be laid directly on the top of the final Loksand grade.

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Contact us

https://www.loksand.com/
info@neo.com
+351 934 112 172