

# REC DNS 100

## LONG-RETENTION POWDER STABILIZING AGENT FIBER-REINFORCED FOR SUB-BASE CONSTRUCTION OF ARTIFICIAL TURF SPORTS FIELDS

### PRODUCT DESCRIPTION

**REC DNS 100** is a long-retention stabilizing agent in powder form, fiber-reinforced and based on hydraulic reaction components, designed for the stabilization of soils and aggregates. **REC DNS 100** has been developed for the stabilization of soils, recycled aggregates, and raw aggregates used in the construction and consolidation of sports facility foundations and sub-bases. The special formulation provides extended workability and retention in the treated mixture, particularly during warm weather or under demanding site conditions. The workability of a mixture prepared with **REC DNS 100** may range from approximately 1 hour to 6 hours, depending on application conditions. The formulation contains selected mineral additions with pozzolanic reaction and binding properties. These components contribute to the durability of the stabilized layer and resistance to leaching. Polypropylene fibers are incorporated into **REC DNS 100** at a dosage of  $\geq 0.1\%$ . The fibers are designed to disperse readily throughout the mixture and contribute to the mechanical performance of the stabilized layer.

### SCOPE OF USE

**REC DNS 100** is intended for applications including:

- Sub-base stabilization for sports facilities, including soccer fields with synthetic grass.
- Sub-base construction using cold recycling techniques.
- Consolidation and stabilization of existing sports facility sub-bases.
- Stabilization of soil and aggregate layers for sports surfaces.
- Stabilization applications such as sand-based sports and tennis court foundations.

### MATERIAL TO BE TREATED

**REC DNS 100** can be used for the stabilization of:

- Natural soils
- Recycled aggregates
- Raw aggregates

The material to be treated should have a suitable particle-size distribution to improve the workability of the mixture and the mechanical performance of the final stabilized layer. Recycled aggregates may be obtained from suitable demolition and construction materials, including concrete-based materials, masonry debris, bricks, tiles, and suitable ceramic-derived aggregates.

### PRODUCT PROPERTIES

|                                 |                                           |
|---------------------------------|-------------------------------------------|
| Appearance                      | Powder with fibers                        |
| Color                           | Brown                                     |
| Product Type                    | Fiber-reinforced powder stabilizing agent |
| Bulk Density                    | $600 \pm 10 \text{ kg/m}^3$               |
| Dry Content                     | 100%                                      |
| Hazard Classification           | Irritant                                  |
| Density of Mix                  | $2,100 \pm 100 \text{ kg/m}^3$            |
| Compressive Strength (24 Hours) | $> 0.5 \text{ N/mm}^2$                    |
| Compressive Strength (7 Days)   | $> 20 \text{ N/mm}^2$                     |
| Compressive Strength at 28 Days | $> 30 \text{ N/mm}^2$                     |
| Application Temperature         | $> 15^\circ\text{C}$                      |

## **APPLICATION PROCEDURE**

### **PREPARATION OF THE SUB-BASE**

The sub-base on which the next layer stabilized with **REC DNS 100** will be placed should be mechanically leveled and subsequently compacted by rolling until the required bearing capacity is achieved. The required bearing capacity should be established according to the intended use of the treated area. For sports areas such as soccer fields with synthetic grass, a dynamic modulus higher than 120 N/mm<sup>2</sup>, measured using a 300 mm diameter plate, is generally recommended. After the base has been adequately prepared, the material to be treated may be placed on it. Where existing soil or aggregate is to be treated in situ, preliminary loosening followed by homogenization using suitable equipment is recommended.

### **PRE-HUMIDIFICATION**

Before spreading **REC DNS 100**, pre-humidify the soil or aggregate to approximately half of the total required water content. This operation helps reduce application time and promotes more uniform distribution of the water, which acts as an activator for the stabilizing agent.

### **SPREADING**

Spread **REC DNS 100** uniformly using suitable equipment, such as a mechanical spreader, at the dosage determined for the project. Spreading should only be carried out over the portion of the surface that can be processed within the working day. The stabilizer dosage should be determined through laboratory testing and maintained as uniformly as possible during application.

### **MIXING**

After spreading **REC DNS 100**, mix the soil or aggregate with the stabilizing agent throughout the specified treatment depth. Use suitable mixing equipment to obtain a homogeneous mixture. Add the remaining required water progressively while continuing to mix until the optimum moisture content determined by preliminary laboratory testing is achieved. Continue mixing until the brown powder of **REC DNS 100** has been completely and uniformly dispersed throughout the mixture.

### **COMPACTION**

Compact the prepared mixture using suitable compaction equipment, such as road rollers or articulated tandem rollers with combined action. The target compaction density should be at least 98% of Modified AASHTO unless otherwise specified by the project requirements.

### **CURING**

After completion of the stabilization and compaction process, the treated surface should be properly maintained with water for at least 24 hours after application. Water should be applied uniformly while avoiding excessive runoff or erosion caused by concentrated water jets.

### **DOSAGE**

The required dosage of **REC DNS 100** depends on the type of material being treated and the mechanical performance required. The typical dosage range is:

3–8% by weight of the soil or aggregate being treated

For a minimum treatment thickness of 8 cm, this corresponds approximately to:

6–16 kg/m<sup>2</sup>

The approximate equivalent dosage is:

60–150 kg/m<sup>3</sup>

The optimum dosage of **REC DNS 100** and the required mixing water should be determined through appropriate laboratory testing.

Recommended testing may include:

- Modified Proctor compaction testing
- CBR testing
- Other project-specific mechanical performance tests

### **IMPORTANT APPLICATION NOTICE**

- In severe weather conditions, including strong winds or the possibility of rain, application should be suspended where necessary.
- Surfaces that have already been treated should be properly closed and compacted before work is suspended.

- The optimum moisture content required on site may vary by approximately 1–3%, depending on application conditions, weather, aggregate characteristics, and other site factors.
- The minimum recommended treatment thickness for **REC DNS 100** is 8 cm.
- The working time of the water-soil-stabilizer mixture generally ranges from approximately 1 to 6 hours, depending particularly on the temperature and site conditions.
- Actual dosage, moisture content, treatment thickness, and compaction requirements should be confirmed through laboratory testing and project-specific trials.

## PACKAGING

**REC DNS 100** is supplied in various packaging sizes depending on the request of client.

## SAFETY PRECAUTIONS

Avoid prolonged contact with skin. Wear suitable protective gloves and eye protection during handling and application. In case of skin contact, wash thoroughly with soap and clean water. In case of eye contact, rinse thoroughly with clean water. Seek medical attention if irritation persists. If swallowed, do not induce vomiting. Seek medical attention. Keep the product away from unnecessary exposure during handling and application. The product is non-flammable.

## STORAGE

Up to 1 years when stored in accordance with manufacturer's instructions.

## HEALTH & SAFETY

In case of frost, the product recovers its properties after progressive thawing and homogenizing by agitation. In case of contact with skin or eyes, rinse thoroughly with water. If irritation persists, seek medical attention. If swallowed, do not induce vomiting and seek medical attention.

## QUALITY STATEMENT

All our products are manufactured to comply with our internal QC program and quality management system to ensure consistency and quality.

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