



Concrete Admixtures and Fiber

## TECHNICAL INFORMATION

# HARDSOIL

Soil Stabilizer and Dust Control System

**HARDSOIL** is a liquid called sodium lignosulfonate which is a product produced from the lignin, -the natural adhesive that glue together the cellulose fibers to form the rigid structure of the wood in trees. The process consists to separate by means of the sulphonation of the resin, separating the lignin from the cellulose.

The action of adherence of the lignin is a very well known characteristic that has found many uses in a variety of applications. **HARDSOIL** is sticky and when it is wet shows excellent adherent action in solid particles. In some cases, the physical properties of some soils of road bases can be improved by means of the characteristics of wetting and dispersing thoroughly the lignosulfonate.

The application of **HARDSOIL** on roads and bases for highways, can result in various economical benefits such as:

- The reduction of repairs to roads and highways.
- Lower costs on the highway materials
- More lasting equipment
- The elimination of clouds of dust
- Improvement of the traction on the road.

**HARDSOIL** is an innovation of **INTERNATIONAL MATERIALS INDUSTRIES, L.L.C.** design to make easier and economical the use and efficiency in the applications to stabilize soils. **HARDSOIL** is concentrated and can be diluted with water at a rate of 1 part concentrate to four part water. It can be spreaded with a truck water tank

**HARDSOIL** is available in 55 gal (208 Liters) Drums and 275 gal (1000 L) Totes.

**HARDSOIL** is a biodegradable, non-toxic, non-hazardous material. It can be applied on sensitive areas such as: aquiferous, lakes, recreational and residential areas having the potential of the corrosion of the potable water.

**HARDSOIL** should be applied as soon as possible to:

- A surface well graded.
- A surface well compacted.
- A surface well drained.
- A surface pre-moist, especially in sandy soils.

ROADS PREPARATION PROCEDURE

Usually, the harder the surface of the road (minimum loss of gravel) the more time the surface continues smooth and without dust.

If the road is hard and compacted, [HARDSOIL](#), can be used without additional preparation for the road. In most cases, the regular winter preparation and maintenance of the road is adequate.

If preparation is required on the surface of a weak surface, the following procedure is recommended:

Compact the loose gravel or give enough time for the incorporation of natural gravel from the rain and the traffic. The compaction is preferable because the sooner the loose gravel is incorporated the less gravel is lost.

If some loose gravel is left, it should be compacted toward the side before application.

#### DUST CONTROL APPLICATION PROCEDURE

[HARDSOIL](#) should be applied to flat normal terrain at the rate of 1.3 liters per square meter for dust control of the surface of roads. This application should be repeated generally once the first month, then one time at three months, then once each year. [HARDSOIL](#) should be applied using a tank truck with a pressurized sprayer or using a pump.

The total area of the surface should be covered because [HARDSOIL](#) does not flow to the sides of the road.

#### MAINTENANCE PROCEDURE

A road treated with [HARDSOIL](#) can be lightly flattened whenever necessary, but it should be done only after a heavy rain. Do not drag gravel without being treated on the road because this will dilute the product and reduce its effectiveness. After a light flatten, the surface will dry rapidly and the gravel will re-glue.

If the surface of the road has to be disturbed for any reason (example, installation of a manhole), the cut can be filled and apply [HARDSOIL](#) only on the area which is loose to glue it together to the rest of the surface and help to stabilize the soil.

#### SOIL STABILIZATION APPLICATION PROCEDURE

For the stabilization of normal flattened soils it is recommended applications of 2.6 liters of [HARDSOIL](#) per square meter. The optimum application depends on the weather conditions, the amount of sand, mud, clay or gravel on the base, the arid nature of the ambient, the scarification depth and type of compaction after the treatment. The surface treatment in conditions of surfaces well flattened with high traffic volume, can be repeated in 60 days and then every year. Pre-wetting is not required.

Apply [HARDSOIL](#) to the surface in 2 or 3 passes until the equivalent of the 10,400 liters has been applied for every kilometer of road with a width of 4 meters. The material that sticks to a vehicle after the application can easily be washed with water.

#### PREPARATION OF THE LIQUID IN THE TANK

Place in the tank one part of [HARDSOIL](#) for every 4 parts of water. Circulate the water using a pump at the bottom of the tank to the top of the tank. [HARDSOIL](#) is very hygroscopic. This makes it easy to mix with water.

