

 **DUST/BLOKR[®]** PB
(aka DUST|STOP)

Application Protocol: Mix-In Application

In some cases, it is recommended to mix DUST/BLOKR[®]/SB into the top 2-3” (5-8 cm) of road material. The mix-in application is recommended particularly in situations where:

- 1) The road is composed of a highly compactable/low permeability clay-based soil.
- 2) The road will have to endure heavy traffic such as a mine haul road.
- 3) Any situation where longer lasting results are desired.

DUST/BLOKR[®]/SB comes in a concentrated liquid form and is easily applied. The advantages to mixing in DUST/BLOKR[®]/SB are as follows:

- 1) Longer lasting results.
- 2) No recirculation requirements in the water truck used for the application.
- 3) Can be mixed into hydrophobic materials that are difficult to treat with a topical application.

Equipment Required:

- 1) Grader (or any soil mixing/scarifying equipment)
- 2) Water Truck
- 3) Rubber Wheeled Compactor/Loaded Haul Truck

Application Procedure:

For the purposes of this application protocol, a rate of 4L/m² of DUST/BLOKR[®]/SB and water mixture is used with a dilution rate of 10% DUST/BLOKR[®]/SB. However, in the field, typical mixing ratios and application rates can vary depending on soil and traffic type.

- 1) Calculate the area to be covered by the DUST/BLOKR[®]/SB application: measure the length and the width of the road, multiply the length by the width to determine the total area to be treated.

Ex. Road is 6 m wide x 1,000 m (1 km) long, total treatment area is **6,000 m²**

- 2) Calculate the volume of DUST/BLOKR[®]/SB required: multiply the treatment area by the application rate, then multiply that by the dilution rate to determine the total volume of concentrated DUST/BLOKR[®]/SB.

Ex. Treatment area of 6,000 m² x 4 L/m² DUST/BLOKR[®]/SB/water mixture = 24,000 L of diluted DUST/BLOKR[®]/SB x 10% dilution rate (0.1) = **2,400 L** of concentrated DUST/BLOKR[®]/SB.

- 3) Scarify/rip the top 2-3” (5-8 cm) of the road surface using a grader with a ripper attachment and place all the loosened material evenly over the surface of the road. When dealing with hydrophobic materials it may be necessary to construct retaining windrows and apply the DUST/BLOKR®/SB to the middle of the road in order to prevent loss of product during application.
- 4) Remove larger aggregate as much as possible during the ripping/grading process; rocks larger than a fist should be removed.
- 5) Based on the size of the water truck, fill the tank with the required amount of product and water to cover the calculated area at the prescribed application rate.

DUST/BLOKR®/SB is shipped in 1,000 L totes equipped with a 2” spout. Attach a 2” quick coupling joint (banjo quick disconnect or similar) to a pump if available or, if the product is to be gravity fed into the truck, a short section of hose can be used. Loosen/remove the cap on top of the tote while it is being emptied to relieve pressure.

- 6) If the entire tote is not required for the application, there are markings on the side of the tote that allow the amount of DUST/BLOKR®/SB added to the truck to be measured. Once the correct amount has been added to the water truck, close the valve on the spout of the tote as well as the cap on the top.
- 7) Apply approximately $\frac{3}{4}$ of the DUST/BLOKR®/SB and water solution onto the road as evenly as possible over the desired treatment area; the remaining amount will be applied at a later stage (after compaction). $\frac{3}{4}$ is just a guide, the correct amount of product/water mixture is the volume required to achieve optimum moisture content (OMC) in the loosened soil. For help determining OMC of a soil in the field, refer to Cypher Environmental’s Field OMC Determination guideline.
- 8) Begin mixing in the solution to the loosened surface material or windrows, back and forth, with the grader. Do not cut any deeper into the road with the grader blade during this process.
- 9) Once the road material has been thoroughly mixed, and the moisture content is consistent, grade the treated material over the surface of the road and re-shape the crown. A 2% crown is recommended to assist with water drainage after the road is complete.
- 10) Compact with a rubber wheeled compactor or loaded haul truck. During the compaction process stagger the wheel paths to achieve complete coverage over the road surface.
- 11) Apply the remaining $\frac{1}{4}$ of the DUST/BLOKR®/SB/water mixture to the surface of the shaped and compacted road. This will enable any remaining loose surface material to be bound to the material below and will result in a strengthened, dust free road.

- 12) The road is ready to be opened to traffic as soon as it dries. The amount of time it takes to dry can vary depending on the material that the product is applied to and the climatic conditions of the day. A general rule of thumb is, the longer you can wait to re-open the road, the better.
- 13) Rinse the water truck with water after the completion of the project or at the end of the workday to ensure the product is washed out of the tank, hoses, spray heads and pumps. DUST/BLOKR®/SB is water based, non-corrosive and will not damage any metal parts of the truck and is relatively easy to wash off when still wet. Utilize residual product in the rinse water on berms or areas that border the treated area to help reduce the amount of fugitive dust produced which can contaminate the work site.

The application rate discussed above is a typical rate; however, the application rate that is applicable for your project will be dependent on the project details. **Please contact your local representative for suggestions on what rate would be best applicable for your requirements.*

*** The amount of water used in an application will vary depending on the soil conditions.*

The above protocol is supplied by Cypher Environmental Ltd. to be used as a guideline only. The information contained in this protocol has been compiled as a result of the methods used during past successful DUST/BLOKR®/SB applications. Successful application methods and techniques are not limited to the guidelines listed above and the actual method used during the application of the product should be determined on a per project basis by the foreman in charge of the application. DUST/BLOKR®/SB should only be used in compliance with all provincial/state and local regulations.

Results may vary when applied to different soil types and variances in the application methods and amounts may be required to suit these variances accordingly.

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