

Chemical Stabilization



A truck applies chemical stabilizers to reduce soil erosion where vegetation can not be planted (Source: Terra Firma Industries, 1999)

Description

Chemical stabilizers, also known as soil binders or soil palliatives, provide temporary soil stabilization. Vinyl, asphalt, or rubber are sprayed onto the surface of exposed soils to hold the soil in place and minimize erosion from runoff and wind. These materials are easily applied to the surface of the soil, can stabilize areas where vegetation cannot be established, and provide immediate protection.

Applicability

Use chemical stabilizers alone in areas where other methods of stabilization are not effective because of environmental constraints, or use them in combination with vegetative or perimeter practices to enhance erosion and sediment control.

Siting and Design Considerations

Closely follow the manufacturer's recommended application procedures to prevent the products from pooling and creating impervious areas where stormwater cannot infiltrate.

Limitations

Chemical stabilizers, if improperly applied, can create impervious surfaces where water cannot infiltrate and could increase stormwater runoff. In addition, chemical stabilization is usually more expensive than vegetative practices.

Maintenance Considerations

Inspect chemically stabilized areas regularly for signs of erosion, and if necessary, reapply the stabilizer.

Effectiveness

In general, the effectiveness of polymer stabilization methods ranges from 70 percent to 90 percent. The effectiveness of a polymer depends on soil type, application method, and the polymer's individual chemical characteristics (Aicardo, 1996).

Cost Considerations

Polyacrylamide, one of the more common soil palliatives, costs between \$4 and \$35 per pound; a pound can stabilize approximately 1 acre of land.

References

Aicardo, R. 1996. Screening of Polymers to Determine Their Potential Use in Erosion Control on Construction Sites. In *Proceedings from Conference held at College of Southern Idaho: Managing Irrigation-Induced Erosion and Infiltration with Polyacrylamide, May 6-8, 1996, Twin Falls, ID*. University of Idaho Miscellaneous Publication No. 101-96.

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USEPA (U.S. Environmental Protection Agency). 1992. *Stormwater Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices*. EPA 832-R-92-005. U.S. Environmental Protection