

Duripan

Subsoil layer that is cemented by silica

Concept and Background Information

The [duripan](#) is a root-restrictive subsoil layer that is primarily cemented by illuvial silica. Other cementing agents, such as calcium carbonate, may also be present. Duripans occur in areas where silica may be illuviated into the subsoil but is not removed entirely from the profile. These conditions may occur in arid or semi-arid regions with seasonal wetness. Duripans are commonly associated with volcanic materials, such as ash deposits, which supply ample silica as they weather. They are also associated with other silica-supplying, non-volcanic parent materials, especially those with ferromagnesian minerals and feldspars.

Generalized Characteristics

- 1) More than 50% of the layer is cemented with illuvial silica.
- 2) The slake test (air dry in 1N HCl) results in < 50% dissolution of cemented fragments.

Note: There is no minimum thickness requirement for the duripan. The slake test is used to confirm that silica is the main cementing agent. Calcium carbonate cement will be dissolved by 1N HCl. To dissolve silica cement, concentrated KOH or NaOH is required.

Common Horizon Nomenclature

Commonly used horizon nomenclature includes master horizon B and suffixes q and m used together, with or without other suffixes. Examples include: Bqm and Bkqm.



A duripan in a Haplodurid near Culberson County, Texas. Rock fragments in photo are medium to coarse gravel in a silica-cemented matrix. (Photo courtesy of Dr. David Weindorf)

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