

WHAT IS IT?

Cement-treated base (CTB) is a strong, frost-resistant base for a concrete or asphalt pavement wearing surface. CTB consists of native soils, gravels, or manufactured aggregates blended with prescribed quantities of cement and water. CTB can be mixed in-place with on-site soils or mixed in a central plant or pugmill depending on the project requirements.

Typical cement contents range from 3 to 10 percent, resulting in 7-day unconfined compressive strengths from 300 to 800 psi.

Why use it?

CTB allows contractors to create a strong base for projects with specified minimum durability and strength requirements.

Pavements with CTB will be much stronger and more rigid than an unstabilized, granular base. CTB thicknesses are less than those required for granular bases carrying the same traffic. It can distribute loads over a wider area, reducing the stresses on the subgrade and acting as the load-carrying element of a flexible pavement or a subbase for concrete.

Its slab-like characteristics and beam strength are unmatched by granular bases that can fail when aggregate interlock is lost. This happens when wet subgrade soil is forced up into the base by traffic loads. Hard, rigid CTB is practically impervious. It resists cyclic freezing, rain, and spring-weather damage. CTB continues to gain strength with age even under traffic. This reserve strength accounts in part for CTB's excellent performance.

The rigidity of CTB reduces deflection, rutting in the base and other asphalt strains.

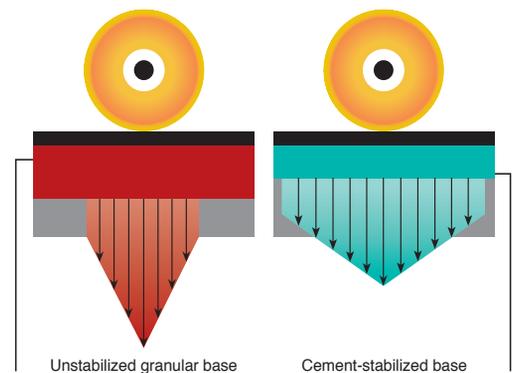
The versatility of cement is critical to the success in this pavement solution because site conditions and soil types (from gravel to clays) can easily change during or between projects and cement acts as a "universal stabilizer."

The Process

The mixed-in-place construction process consists of the following steps:

- Initial shaping and grading
- Compacting and fine grading
- Application of cement
- Curing
- Mixing water and cement with soil

CTB can also be produced in a central plant or pugmill using selected granular material. The mixed CTB is hauled to the placement area in dump trucks and placed on the roadway using a grader, paver or Jersey-type spreader.



CEMENT-TREATED BASE

The versatility of cement is critical to the success in this pavement solution because site conditions and soil types (from gravel to clays) can easily change during or between projects and cement acts as a “universal stabilizer.”

When to use it

CTB is suitable as a base (for asphalt pavements) or subbase (for concrete pavements) of:

- Mainline highways
- High-volume streets and local roads
- Residential streets
- Heavy industrial/intermodal/military facilities
- Airport runways, taxiways and aprons
- Parking lots

Solutions Provided:

- Lower cost through use of local or marginal aggregates
- Eliminates subgrade infiltration into base
- Fast construction
- Reduced moisture susceptibility
- Reduces work stoppages due to rain (open base sheds water)
- Frost-resistant
- Spans weak subgrades



Portland Cement Association
5420 Old Orchard Road
Skokie, Illinois 60077-1083
847.966.6200 Fax 847.966.9781

500 New Jersey Avenue NW, 7th Floor
Washington, DC 20001-2066
202.408.9494 Fax 202.408.0877

www.cement.org