

A Primer on Sandy (Coarse-textured) Soils

U.S. Department of Agriculture soil scientists classify soils into 12 different texture classes based on their percentage contents of sand, silt and clay. The three texture classes with the highest quantity of sand are sand, loamy sand, and sandy loam.

The five USDA subcategories of sand according to particle size are as follows:

- Very Coarse 2.00-1.00 mm
- Coarse 1.00-0.50 mm
- Medium 0.50-0.25 mm
- Fine 0.25-0.10 mm
- Very Fine 0.10-0.05 mm

TEXTURE CLASS	SAND	SILT	CLAY
Sand	85-100	0-15	0-15
Loamy Sand	70-90	0-30	10-30
Sandy Loam	45-85	0-50	15-55

Sometimes general names are used to designate a sand instead of the official USDA (Comprehensive Soil Classification System) categories. Some of these names, generally based on construction use or source, are:

These are often termed "sandy" or "coarse-textured" soils. Obviously, a soil can be called "sandy" but contain considerable silt and clay. Physical, chemical and biological properties can vary dramatically even between two soils within the same texture class.

Coarse-textured soils, whether natural or constructed, are used on many high-traffic sites because of their better physical properties relative to soils with more silt and/or clay content. For example, USGA Green Section specifications for golf greens and athletic fields are designed to provide a playing surface with a root zone that resists compaction and has sample macropores for water movement, gas exchange and root penetration.

Sand Classification

The separate soil class of "sand" is based on the size of mineral particles falling within a range of 0.05 to 2.00 millimeters in diameter. Silt particle sizes range downward from 0.05 to 0.002 millimeters, while clay particles go below 0.002.

- **Concrete Sand** — usually features wide particle-size range of sands and fine gravel;
- **Mason's Sand** — similar to concrete sand but without the fine gravel;
- **Dune Sand** — wind or water-deposited, usually has narrow particle-size range;
- **River Sand** — bottom deposits, can vary from very uniform to considerably mixed fines.

For turfgrass sites that receive frequent traffic, rootzone construction often requires sands with well-defined ranges of particle size. On turf or ornamental sites where sand is added to existing soil and limited traffic is expected, size specification is less important.

(Excerpted from Chapter 9, "Physical Problems of Coarse-Textured Soils," by Robert N. Carrow, Crop and Soil Science Department, University of Georgia, Griffin, GA, in the Handbook of IPM for Turf and Ornamentals, 1994, Lewis Publishers/CRC Press, Boca Raton, Fla.)



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