

Sand Analysis

Shape

Geologists use different names to describe the shape of sand particles. As sand is moved from one place to another by water, wind, or ice, it gets worn down or abraded. You can identify the shape of a sand grain when you look at it through a magnifier.

Angular: Has sharp edges. Edges are hardly worn off.

Subangular: Shows slight abrasion. Corners and edges are worn off slightly.

Subrounded: Shows more abrasion. Many edges have been noticeably worn off.

Rounded: Original edges are smoothed and worn by abrasion. Original shape still recognizable.

Well-rounded: Original edges and corners have been worn off totally by abrasion.

PARTICLE ROUNDNESS



Angular



Subangular



Subrounded



Rounded

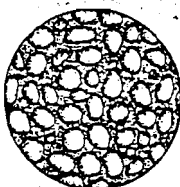


Well rounded

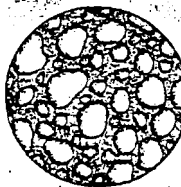
Sorting

Sorting describes how the sand has been separated by size. Sorting depends on how the sand was moved and how far it was moved. Water does a good job of sorting particles by size and density. Wind sorts particles even more, but only the smaller sizes. Glacial ice has little effect on sorting. Well-sorted sand has particles all the same size; poorly sorted sand includes many different sizes.

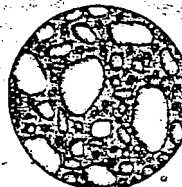
SAND SORTING



Very well sorted



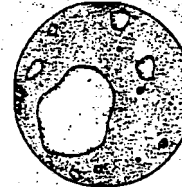
Well sorted



Moderately well sorted



Poorly sorted



Very poorly sorted

Grain size

Sand is classified into several sizes. See the Wentworth scale for more details about size.

Composition

The composition of sand depends on the rock from which it formed. Knowing the composition of sand can help trace the sand back to its source. Sand found on California beaches is most often composed of quartz with some feldspar. Geologists have identified its source as nearby mountains. The mountains are composed of granites and other igneous rocks—sources of quartz and feldspar. Some beaches in Hawaii are composed of black sand. Black sand has its source in lava flows.

Wentworth

SCALE OF ROCK PARTICLE SIZES

CLASSIFICATION	PARTICLE SIZE (DIAMETER)
Boulder	Above 256 mm
Cobble	64–256 mm
Pebble	4–64 mm
Gravel (or granule)	2–4 mm
Very coarse sand	1–2 mm
Coarse sand	0.5–1 mm
Medium sand	0.25–0.5 mm
Fine sand	0.125–0.25 mm
Very fine sand	0.062–0.125 mm
Silt	0.004–0.062 mm
Clay	Less than 0.004 mm