18.3.6 Sampling stages

Increment (applies to bulk materials and large units)

An individual portion of material collected by a single operation of a sampling device.

Notes:

(1) Increments may be reduced individually or tested either (a) individually or (b) combined with other increments with the resulting composite reduced in size and tested as a single unit.

(2) Increments are created by the sampling operation and are usually taken from parts of a lot separated in time or space.

(3) Increments of a bulk population correspond to units of a packaged population.

Primary sample

The collection of one or more increments or units initially taken from a population.

Notes:

(1) The portions may be either combined (composited or bulked sample) or kept separate (gross sample). If combined and mixed to homogeneity, it is a blended bulk sample.

(2) The term "bulk sample" is commonly used in the sampling literature as the sample formed by combining increments. The term "bulk sample" is ambiguous since it could also mean a sample from a bulk lot and it does not indicate whether the increments or units are kept separate or combined. Such use should be discouraged because less ambiguous alternative terms (composite sample, aggregate sample) are available.

(3) "Lot sample" and "batch sample" have also been used for this concept, but they are self limiting terms.

(4) The use of "primary" in this sense is not meant to imply the necessity for multistage sampling.

Reduced sample

A representative part of the primary (composited or gross) sample obtained by a division and reduction process.

Note: Typically the mass approximates that of the final laboratory sample.

Subsample

A subsample may be:
(a) a portion of the sample obtained by selection or division;
(b) an individual unit of the lot taken as part of the sample;
(c) the final unit of *multistage sampling*.

Note: The term "subsample" is used either in the sense of a "sample of a sample" or as a synonym for "unit". In practice, the meaning is usually apparent from the context or is defined.

Laboratory sample

The sample or subsample(s) sent to or received by the laboratory.

Notes:
(1) When the laboratory sample is further prepared (reduced) by subdividing, mixing, grinding, or by combinations of these operations, the result is the *test sample*. When no preparation of the laboratory sample is required, the laboratory sample is the test sample. A *test portion* is removed from the test sample for the performance of the test or for analysis.

(2) The laboratory sample is the final sample from the point of view of sample collection but it is the initial sample from the point of view of the laboratory.

(3) Several laboratory samples may be prepared and sent to different laboratories or to the same laboratory for different purposes. When sent to the same laboratory, the set is generally considered as a single laboratory sample and is documented as a single sample.

Test sample/analytical sample

The sample, prepared from the laboratory sample, from which test portions are removed for testing or for analysis.

Test portion/analytical portion

The quantity of material, of proper size for measurement of the concentration or other property of interest, removed from the test sample.

Notes:

(1) The test portion may be taken from the primary sample or from the laboratory sample directly if no preparation of sample is required (e.g., with liquids), but usually it is taken from the prepared test sample.

(2) A unit or increment of proper homogeneity, size, and fineness, needing no further preparation, may be a test portion.

Test solution/analytical solution

The solution prepared by dissolving, with or without reaction, the test portion in a liquid.

Treated solution

The test solution that has been subjected to reaction or separation procedures prior to measurement of some property.

Aliquot

A known amount of a homogeneous material, assumed to be taken with negligible sampling error. The term is usually applied to fluids.

Notes:

(1) The term "aliquot" is usually used when the fractional part is an exact divisor of the whole; the term "aliquant" has been used when the fractional part is not exact divisor of the whole (e.g., a 15 mL portion is an aliquant of 100 mL).

(2) When a laboratory sample or a test sample is "aliquoted" or otherwise subdivided, the portions have been called split samples.