

Laboratory Ash Furnace

ASTM D2584, D5630

Scope:

An Ash test is used to determine if a material contains inorganic filler. The test will identify the total filler content. It cannot identify individual percentages in multi-filled materials without additional test procedures being performed. An ash test cannot be used to determine the percent carbon fiber or percent carbon black since carbon burns off during the Ash test.

Test procedure:

An Ash test involves taking a known amount of sample, placing the weighed sample into a dried / pre-weighed porcelain crucible, burning away the polymer in an air atmosphere at temperatures above 500°C, and weighing the crucible after it has been cooled to room temperature in a desiccator. Ash residue remaining in the crucible is considered filler unless the residue is less than 1%. Residues of less than 1% are typically the result of additives that did not burn off.

Specimen size:

Six grams of sample is typically used, which represents three crucibles each containing two grams of sample. Smaller sample weights can be tested but accuracy diminishes with smaller sample sizes.

Data:

The Ash test result is expressed as % ash. A magnified optical examination of the ash residue is performed to determine if the ash is glass, mineral, or a combination of both. The total percentage of ash content equals the weight of the ash divided by the weight of the original sample multiplied by 100.

