EFFICIENCY & ACCURACY IN TEST

CARBON BLACK ASTM D1603-20

Complete system for determination of carbon black content in olefin materials like polyethylene or polypropylene that do not contain non-volatile additives or fillers.
The system consists of a tube furnace with a temperature of max. 1200° Celsius

An optional muffle oven for heating the combustion boats to red heat and the mandatory accessories; gas panel, flow meter and glass for Nitrogen cleaning.
For Carbon Black analysis according to ASTM D1603-20

TEST PROCEDURE

ASTM D1603-20

- **Sample prep:** Cut to size, clean, and accurately weigh (record initial mass)
- **Pyrolysis:** Heat to ~600 °C → polymer decomposes. Residue left: carbon black + inorganic fillers
- **Combustion** (oxidation): burn off carbon black. Remaining material = ash
- **Weighing**: Weigh residue after pyrolysis and final ash
- **Calculation:** Determine carbon black from mass loss during oxidation.

Carbon black % = mass loss (carbon black) vs. initial mass

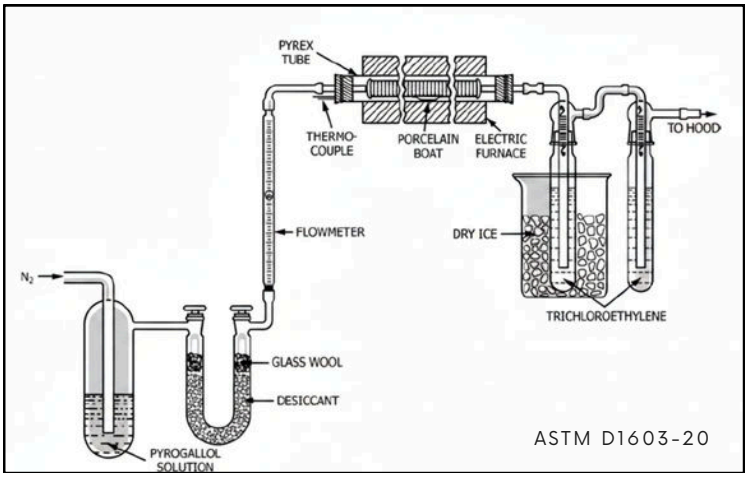
Visit sciteq.com for more info about the test standards and testing methods. Contact sales@sciteq.com for more info and enquiries

EFFICIENCY & ACCURACY IN TEST

TUBE FURNACE

The tube furnace is used for the pyrolysis heating to ~600 °C (nitrogen) for the polymer to decompose, followed by the combustion (oxidation) burning off carbon black, leaving the remaining material in the form of ash.

The tube furnace includes ceramic working tube incl. two fiber plugs for operation under air.
The furnace is operated via user-friendly touch-controller.



Specifications	**Tube Furnace** Item no. 8004120
Max. temperature	1200°C
Outer tube Ø	50 mm
Heated length	250 mm
Tube length	450 mm
Outer dimensions	W:434 x D340 x H508 mm excl. tube Weight 22 kg.
Consumption	1.9 kW
Electrical connection	120V or 220-240V, 50/60Hz, 1-phase,

SCITEQ

EFFICIENCY & ACCURACY IN TEST

MUFFLE OVEN

Muffle oven capable of heating the combustion boats to red heat to ensure no contamination of the test.

Heating from two sides by ceramic heating plates with integral heating element which is safeguarded and easy to replace.

Controlled via touch-screen.

Specifications	**Muffle oven** Item no. 8004200/8004205
Max. temperature	1100°C
Outer tube Ø	50 mm
Heated length	250 mm
Tube length	450 mm
Inner dimensions	W:160 x D140 x H100 mm, Volume 3 L.
Outer dimensions	W:385 x D:330 x H: 405 + 155 (chimney) mm. Weight 21 kg.
Heating time to max. temp.	41 min. (empty oven, oven door closed during heating)
Consumption	1.3 kW
Electrical connection	120V or 220-240V, 50/60Hz, 1-phase,

EFFICIENCY & ACCURACY IN TEST

ACCESSORIES

The Carbon Black Testing System for ASTM D1603-20 is supplied with specially designed glassware for nitrogen purification (up to 99.998% purity) and gas washing, ensuring optimal test conditions and reliable results.

Combined with a precision flow meter and all required accessories, the system provides a complete, ready-to-use solution for performing accurate and standards-compliant carbon black determinations.

FOR ASTM D1603-20

- Flow Meter 0,1-0,2 L./min.
- Glass for cleaning Nitrogen (nitrogen purity must be 99.998%)
- Combustion porcelain boats
- Nitrogen Regulator
- Gas washing bottles (required unless laboratory is equipped with adequate exhaust ventilation.)

SMART TESTING. PROVEN EXCELLENCE

Note: Weighing balance is optional (item 8010106)