OXYHYDROGEN GAS BLOWPIPE COMBUSTION APPARATUS

(Wickbold Method)

ASTM D2784 / ASTMD2785 - AFNOR M41-009 / ISO 4260 - IP243 / DIN 51408 NF.EN 24260 / EN41

PRINCIPLE

Sulfur and Chlorine Analysis

The sample (S) is drawn and burnt into the flame of an oxyhydrogen burner. The combustion products are absorbed in the suitable reagent. They are then recuperated (R) for a separated titration.

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EQUIPMENT

It consists of:

- **1 STAINLESS BURNER (B)** which allows a temperature up to about 2000°C. A quartz burner can be provided (on request).

- **1 QUARTZ COMBUSTION CHAMBER (C)** water-cooled.

- **1 PYREX ABSORBER (A)**, similarly cooled, having a frit (G), and a 3-way valve at the base.

- **1 GLASS SPHERE (E)** to retain the vapours from the absorbent.

- **5 FLUID CONNEXIONS:**
  - 1 Hydrogen
  - 1 Oxygen
  - 1 vacuum
  - 2 cooling water (input and free exhaust)

- **4 FLOWMETERS (D) WITH THEIR CONTROLS :**
  - D1 = combustion O2
  - D2 = purging O2
  - D3 = Hydrogen
  - D4 = total flow of gas in the apparatus

- **1 MERCURY MANOMETER (M)** to measure the total pressure drop

- **1 DRY VACUUM PUMP (P)** with a flow of about 3.000 l/h integrated in the apparatus (graphite vanes pump).

APPLICATIONS

Liquid or gaseous samples mineralization (essentially petroleum products) for sulphur or chlorine analysis.

TECHNICAL CHARACTERISTICS

Advantages of the method :

A very high combustion temperature in over oxygen atmosphere, insuring a nearly perfect combustion.
Possibility of important specimens (several ten cc) allowing very low measurement thresholds (≈ 1 ppm Sulphur)

A very high level of safety

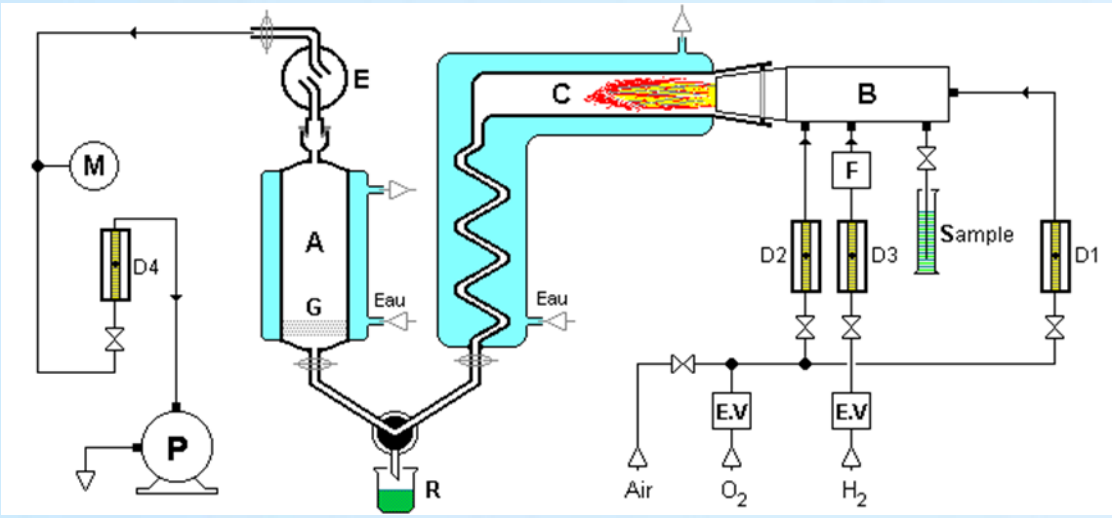
- **Passive:** using a stainless burner / Flame shutoff frit (F) / Glasses protected by caps.
- **Active**: «Security» functions shutting off Oxygen automatically by locking electrovalves (EV) in case of :
    a) Decrease of cooling water pressure Baisse de la pression d'oxygène
    b) Decrease of oxygen pressure
    c) Decrease of depression
    d) Protection cap opening

Dimensions : breadth 68 cm, height 65 cm,
depth 48 cm, weight ≈ 50 kg
Electricity: 220 V – 50 Hz – 500 W
Gases: Oxygen and Hydrogen

Notice:

1) According to ISO 4260, the stainless burner must be used for light olefins
2) The titration part is not provided with the apparatus. The possible methods (visual or automatic colorimeter, conductimetry…) have to be determined on the contents to measure (cf ISO 4260).
3) For out-standard mineralization applications, refer to our MINERALYSEUR documentation

Schematic diagram of Gas circuits

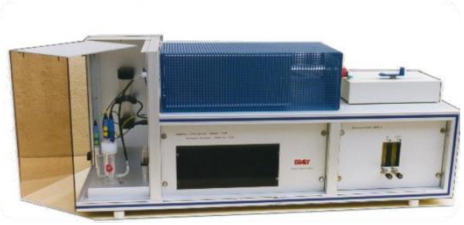


We made also:

Nitrogen Analyzer
ASTM D4629 / ASTM D6069 / ASTM D5176 / ASTM D7184 / NF EN 12260 / NF M 07-058

Tubular furnace with temperature controller for laboratory

Sulfer Analyzer
ASTM D5453 / ASTM D6667 / ASTM D 7183 / ISO 20 846 NF M0759



Chlorine Analyzer
AOX - Pox - Eox according to ISO 9562

Tri-four pyrolysis for
Tritium, Carbon 14, Chlorine 36, Iodine 129

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