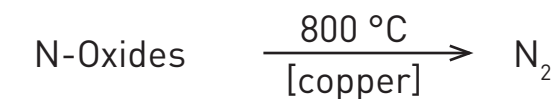
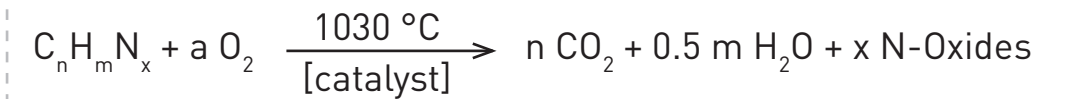
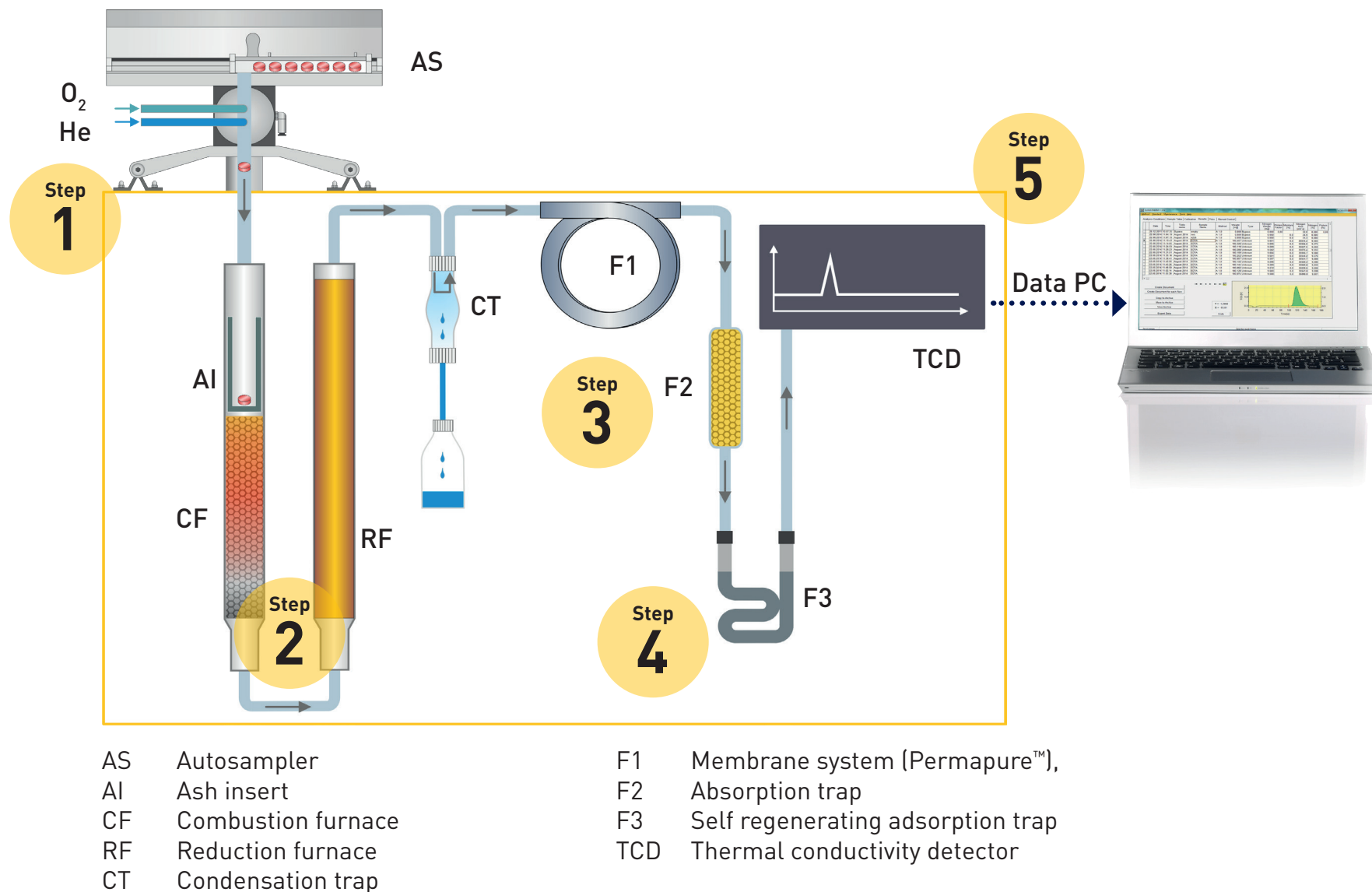


DUMATHERM®

Rapid, Smart and Easy Nitrogen / Protein Determination



Step 1

The sample enters the Dumas system via the auto sampler (AS). In the combustion reactor an exothermic reaction occurs when the oxygen (O₂), tin capsule, sample and temperatures of 1030 °C and above combine. With the aid of oxidation catalysts the sample is completely converted into its elemental oxide.

Step 2

After combustion, the oxygen flow is switched back to helium (He) which serves as the carrier gas for the combustion products through the rest of the analytical circuit. The reduction into N₂ takes place on a copper surface in the furnace (RF).

Step 3

The byproduct water is separated then by condensation (CT) and two filters (F1&F2). F1 is the Permapure™ gasdryer, which separates the majority of the water from the gas mixture. F2 is packed with absorbent to remove the residual amount of water from the gas stream.

Step 4

Carbon Dioxide CO₂ is separated from the gas into a CO₂ absorber / desorber system (F3). The CO₂ adsorbent is regenerated in the degassing furnace.

Step 5

The remaining gas mixture passes the TC detector leading to an output signal which is proportional to the nitrogen concentration in the combusted sample. Standard samples with a known concentration of nitrogen (eg. EDTA) are used for the calibration of the detector.