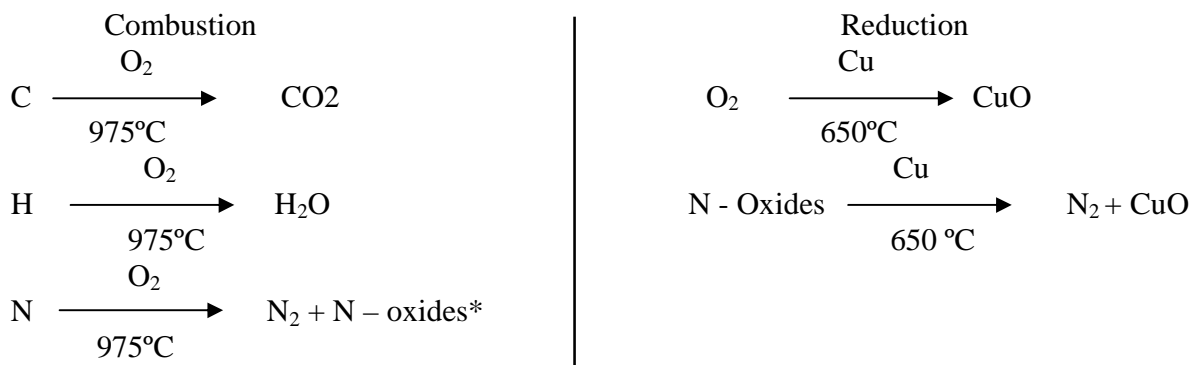
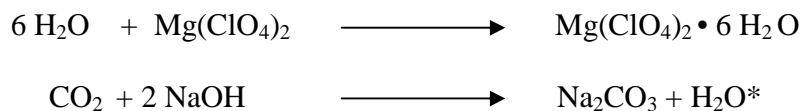


Microanalysis is the most important chemical analysis that is required for organic, inorganic and organometallic compounds. This is a basic and important facility that gives valuable primary information of the composition of a chemical compound, i.e., various elements present in the compounds. Using this method, normally the percentage of elements, such as C, H, N, S / O present in the organic compounds can be obtained experimentally. This technique is based on the combustion process where the sample (~1-2 mg) is heated to high temperature in the presence of oxygen atmosphere. The oxidized and the reduced volatiles, such as CO₂, H₂O and N₂, have been absorbed using different traps separately and the quantity of the gases absorbed is measured using the detectors (**Charts 1 and 2**). From this the values of the C, H, and N present in the organic compounds can be found. Although this method has been known widely for the organic compounds, nowadays, metal-organic, organometallic, and the coordination compounds have also been used for the measurements of the C, H, and N elemental composition.



*Note: The majority of Nitrogen is converted to N-oxides, some compounds will form N₂ directly.

Chart 1



* The remaining nitrogen is referenced against pure helium.

Chart 2

In general any microanalyzer should be capable of handling any type of chemical sample and should be able to accurately give C, H, N, S and O composition. Many commercially available machines can perform this task.

Under the CARE budget (2008 – 2009), an EXETER Model CE 440 Elemental Analyzer and a Sartorius micro-analytical balance (CP-2P) were procured. This instrument has the following features

- C, H, and N can be measured simultaneously
- S and O can be measured separately
- 10 – 30 mg is required for the analysis
- Analysis time is 15 min. per sample.
- All kinds of solid and liquid samples can be analyzed
- The accuracy and precision is $< 0.3\%$ ($\pm 0.15\%$)



The Location of the instrument and contact information is given below.

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