



## Method Summary

### Determination of Total Nitrogen in Waters By High Temperature Catalytic Oxidation

#### Scope and Range

This method is suitable for all waters.

The detection limit is 1mg/l and the calibrated range is 0-100mg/l.

In this context, the term Total Nitrogen refers to the total of Nitrate N, Nitrite N, Organic N and Ammoniacal N. These species are analysed together to give one non-specified result.

Speciation is available by further analysis of the sample to subtract the Nitrate N, Nitrite N and/or the Ammoniacal N: -

e.g. Total Nitrogen - (Nitrate N + Nitrite N) = Kjeldahl Nitrogen (Organic N & Ammoniacal N)

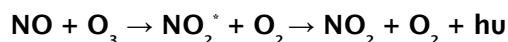
#### Principle

##### Preparation and Extraction

The samples are filtered through 0.45µm syringe filters.

##### Analysis

The sample is injected into a high temperature furnace containing a mixed catalyst. The nitrogen compounds in the sample react with the catalyst to form nitric oxide (NO). The gas flow through the system carries this to an ozonator reactor where it forms 'excited' nitrogen dioxide (NO<sub>2</sub><sup>\*</sup>). As the nitrogen dioxide loses this 'excitement', the energy given off is detected and recorded. When plotted over time, this recording forms peaks. The amount of nitrogen in the sample is quantified by comparison to the areas of peaks from standards of known concentration.



#### Interferences

Low pH samples may adversely affect the catalysts and therefore the recovery achieved.

High TOC levels are listed as a possible interference, although this has not been borne out in trials undertaken at this laboratory.