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PROCESS ANALYZERS

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ChemScan[®] Method Summary #124 Total Oxidized Nitrogen (TON)

Oxidized forms of nitrogen include nitrite (NO₂) and nitrate (NO₃). In water or wastewater applications, Total Oxidized Nitrogen (TON) is the sum of nitrate and nitrite. This can also be defined as a fraction of Total Nitrogen, excluding ammonia and organically bound nitrogen (See ChemScan Method Summary #130, Total Nitrogen in Wastewater).

Total Oxidized Nitrogen analysis is used in applications where a separate analysis of nitrate and nitrite is not important. Many analysis methods that claim to detect "nitrate" actually detect TON, as the preservation or analysis methods employed often convert all oxidized nitrogen into a single form prior to analysis. This is true for colorimetric methods such as cadmium reduction, hydrazine reduction and titanous chloride reduction unless special precautions are taken.

ChemScan Analysis Methods

Both nitrate and nitrite have similar but nevertheless distinct absorbance signatures in water, which allow detection either as separate ions or together as oxidized nitrogen. (See ChemScan Method Summary #56, Nitrate in Water or Wastewater and #57, Nitrite in Water or Wastewater). Analyzers that use only one wavelength for analysis, with or without correction for organics and turbidity, are not capable of performing separate analysis of nitrate and nitrite. While full spectrum analysis is an absolute requirement for separate analysis of nitrate and nitrite using spectrophotometric methods, limited wavelengths can produce acceptable TON results in pure water. If turbidity, organics, dissolved metals and other uv absorbing constituents are likely to be in the sample, full spectrum analysis is recommended to fully compensate for background absorbance from these constituents.