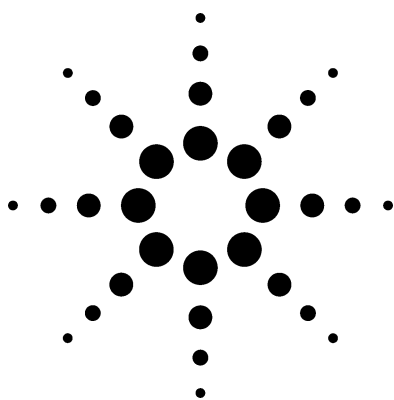


Successful Detection Using the Agilent 255 Nitrogen Chemiluminescence Detector (255 NCD)

Technical Overview



Introduction

The Agilent 255 Nitrogen Chemiluminescence Detector (255 NCD) can easily detect organic compounds containing nitrogen after conversion of the compounds to nitric oxide.

Frequently, chemists at Agilent are asked what nitrogen compounds are detected by the 255 NCD. Successful detection of nitrogen-containing compounds requires the conversion of these compounds to nitric oxide. The 255 NCD stainless steel burner converts nitrogen compounds to nitric oxide in a hydrogen and oxygen plasma at temperatures greater than 1800 °C.

The 255 NCD can easily detect organic compounds containing nitrogen after conversion of the compounds to nitric oxide. The stainless steel burner can also convert inorganic compounds such as ammonia and hydrazine to nitric oxide. The nitric oxide from the stainless steel burner reacts with ozone in the chemiluminescence reaction cell to produce a chemiluminescence reaction. A red optical filter allows transmission of the light from the chemiluminescence nitrogen reaction while suppressing chemiluminescence signals from other chemical species.

The selectivity of the 255 NCD results from the fact that not all compounds exhibit chemiluminescence when mixed with ozone. Also, the stainless burner cannot convert all compounds to nitric oxide.

Some compounds giving little or no response with the 255 NCD include carbon dioxide, water, nitrogen, oxygen, noble gases, and chlorinated hydrocarbons. These compounds represent the major constituents of many sample matrices. None of these compounds interfere significantly with the 255 NCD and determination of trace levels of the nitrogen-containing analytes.

Examples of Compounds Detected by the 255 NCD

- Amines
- Carbazoles
- Indoles
- Nitro-compounds
- Nitriles
- Nitrosamines
- Pyridines
- Quinolines
- Ammonia
- Hydrazine
- Hydrogen cyanide
- Nitric oxide, NO
- Nitrogen dioxide, NO₂
- NO_x

Compounds Not Detected by the 255 NCD

- Carbon dioxide
- Nitrogen gas
- Water
- Hydrocarbons



Agilent Technologies

For More Information

For more information on our products and services, visit our Web site at www.agilent.com/chem.

Agilent shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Information, descriptions, and specifications in this publication are subject to change without notice.

© Agilent Technologies, Inc. 2007

Printed in the USA
May 17, 2007
5989-6770EN



Agilent Technologies