DIONEX

Application Update 107

Now sold under the Thermo Scientific brand

Thermo SCIENTIFIC

Direct Determination of Cyanide in Strongly Alkaline Solutions

Applicable to distillation methods for determination of total cyanide in water

PERFORMANCE

The minimum detection limit for a 200-µL sample injection is 10 ppb. The recommended working range for this volume injected is 30–1000 ppb.

APPLICATION AREAS

- Industrial waste water
- Hazardous waste
- Plating and metal finishing baths
- Ground water and drinking water

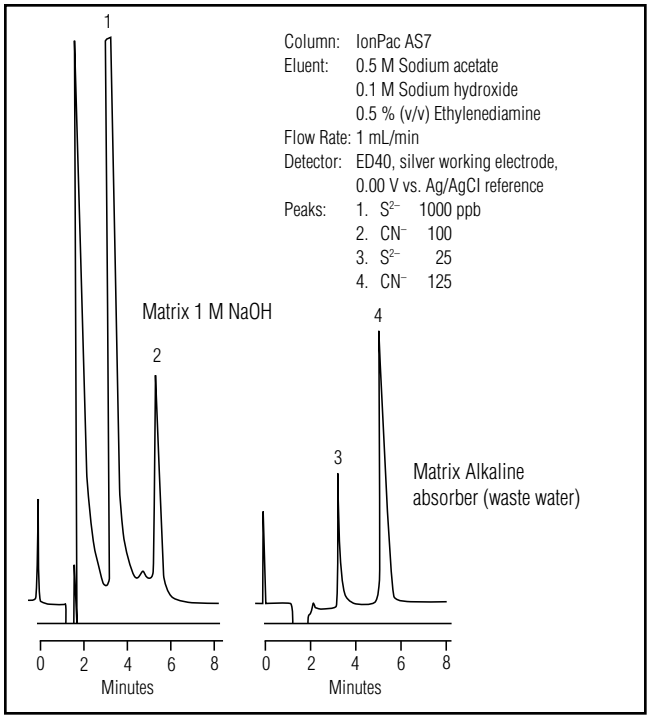

Figure 1 *Cyanide in strongly alkaline solutions.*

CONDITIONS

Column: IonPac® AS7
Eluent: 0.5 M Sodium acetate
0.1 M Sodium hydroxide
0.5% (v/v) Ethylenediamine
Flow Rate: 1 mL/min
Detector: ED40, silver working electrode,
0.00 V vs. Ag/AgCl reference

COMMENTS

Determination of total cyanide in water is usually done by refluxing the sample in an acid digest and trapping the liberated HCN gas in a strongly alkaline-absorbing solution. Most methods for analyzing the trapping solution have an upper pH limit of about 12.5 to 13. This direct injection method can determine cyanide in solutions ranging up to pH 14. This allows absorbing solutions (such as the 1.25 M NaOH solution specified in U.S. EPA method 335.2) to be quickly analyzed without dilution or other pretreatment. In addition, the technique is not subject to as many interferences as titrimetric or spectrophotometric methods, and it is well suited to automated analysis.

RECOMMENDED EQUIPMENT

Dionex DX-500 Ion Chromatograph equipped with an ED40 detector.

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* Designed, developed, and manufactured under an NSAI registered ISO 9001 Quality System.

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LPN 0754-02 1M 10/97