POLYMER003: Rapid Quantitative Analysis of Trace Amounts of Cl in Naphtha

Introduction

During the incineration of plastics made from naphtha, trace amounts of Cl are a source of toxic gases and must be controlled at the ppm level. The combustion ion chromatography (CIC) method is commonly used for quantitative analysis of Cl, but the pretreatment is complicated and time consuming. The NEX CG II employs polarized EDX optics to quickly and conveniently quantify trace amounts of Cl in liquid form, which has been difficult with ordinary EDX.

Elemental analysis

Analysis:	Raw material
Use:	Quality assurance
Analyzed materials:	Naphtha
Analysis method:	Calibration method

Figure 1: Sample preparation

Table 1: Accuracy confirmation results by repeated measurements

(ppm)

Sample	Standard value	Quantitative value (Average value)	Standard deviation
A	2	1.82	0.07
B	10	10.14	0.1
C	100	100.6	0.2

Conclusion

A calibration curve for Cl was prepared using a commercially available mineral oil standard sample, and quantitative analysis was performed using NEX CG II. A detection limit of 0.15 ppm for Cl in a 300-second measurement was achieved with a simple pretreatment process that simply involves filling the liquid sample as is. Furthermore, the accuracy was verified through repeated measurements, and stable reproducibility was confirmed over a wide concentration range (Table 1). These results indicate that NEX CG II is capable of rapid and accurate quantitative analysis of trace amounts of Cl.

Related products

NEX CG II Series

High-performance *indirect excitation* EDXRF for complex applications with trace elements and variable base matrices