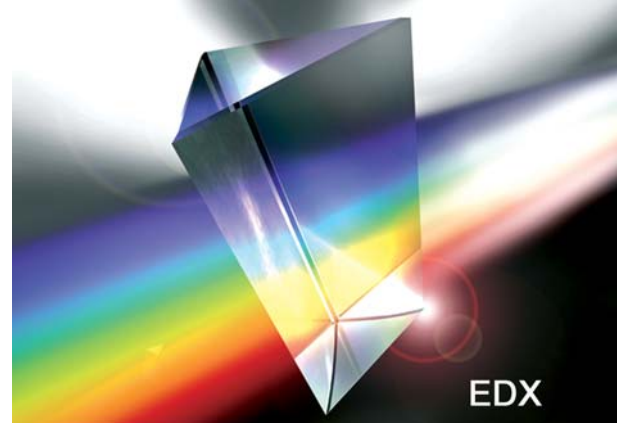


Application Note

Analysis of Food for Contamination

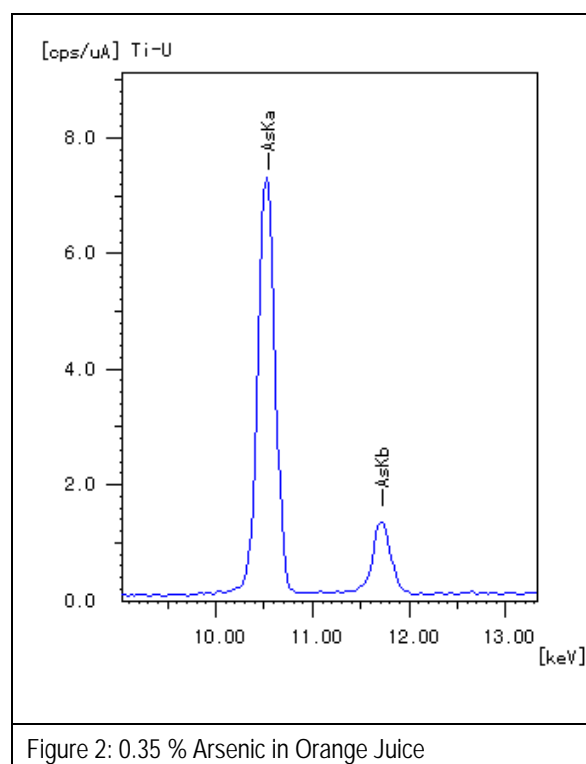
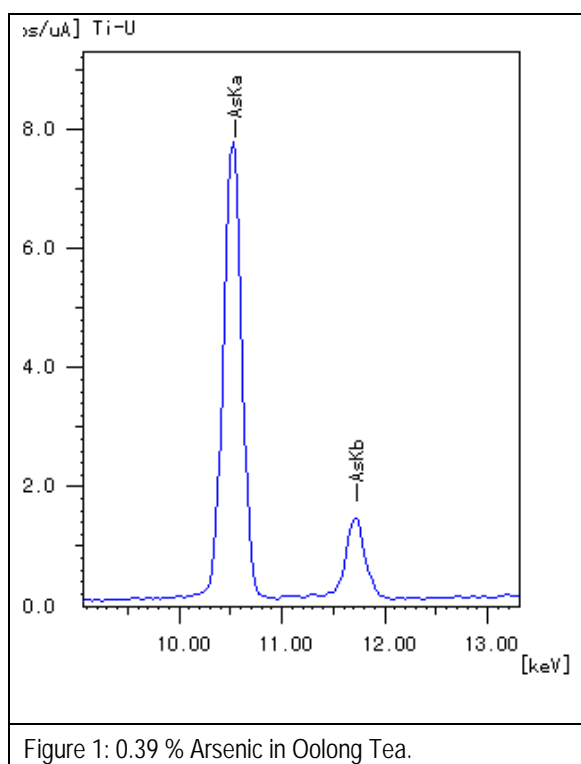


Description

In order to provide a benefit to public health concern, Arsenic has been tested in a variety of contaminated food products. As part of an ongoing Japanese mandate, to accurately test foods, the EDX provides a solution for testing if a food product contains as low as 0.5 ppm (and below) of Arsenic. Using a number of x-ray beam filters, the EDX 700/800 is able to increase the signal to noise ratio of the As signal.

Application Data

The following four (4) figures show various spectrums of Arsenic in differing concentrations. In addition the benefit of using a primary beam filter is shown in Figure 4. Notice how the spectrum is greatly enhanced through the use of a Ni beam filter.



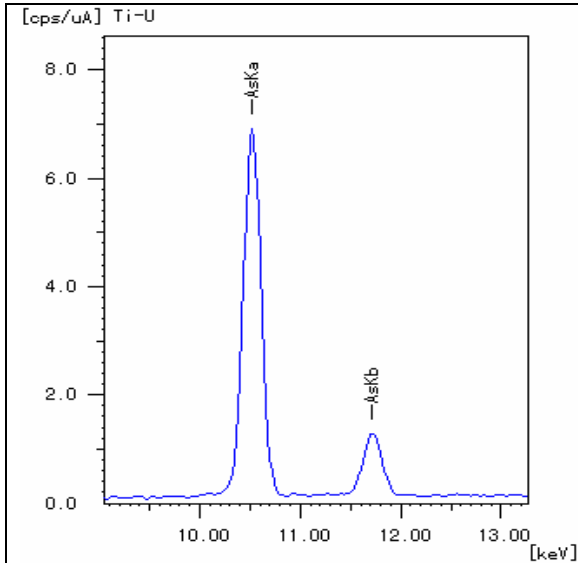


Figure 3: 0.39% of Arsenic in Curry

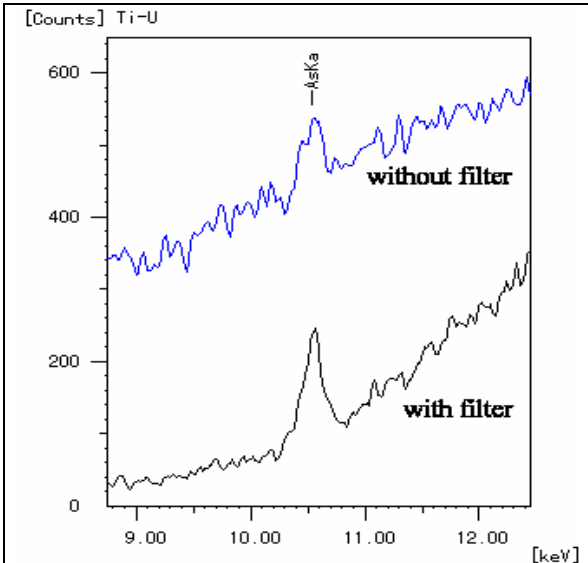


Figure 4: 10 ppm As, viewed with and without a Ni filter. Notice the Signal to Noise Enhancement.

Result Summary

Quantitative Accuracy:

Samples were made with 0.39 % As. Semi-quantitative results, without the use of standards showed the following results.

Element	Oolong Tea	Juice	Curry
As	0.39 %	0.35 %	0.33 %
H ₂ O	99.61 %	99.65 %	99.67 %

Minimum Detection Limits:

The minimum detection limit of Arsenic with and without filters is shown in Table 1.

Measurement Times	With Ni Filter	Without Filter
40 Seconds	0.9 ppm	2.0 ppm
100 Seconds	0.6 ppm	1.3 ppm
1000 Seconds	0.19 ppm	0.4 ppm

Measuring Conditions

Instrument : EDX-700	Power: 50 kV at 15 μA
X-ray Tube : Rh	Dead Time 25%
Filter : Ni or Without	Measurement Diameter 10 mm
Atmosphere : Air	Measurement Time 40 Seconds

The given specifications serve purely as technical information for the user. No guarantee is given on technical specification of the described product and/or procedures.