



TECHNOLOGY OF MATERIALS

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Dear Bill

Enclosed please find a report on the analysis of the Foil. Please call me if you have any questions or concerns.

Sincerely,

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SEM/EDS Analysis of a Foil

Introduction:

An unknown foil sample was received at the laboratory for analysis. It was requested that the chemistry of the object be determined. The object was analyzed by SEM/Energy Dispersive X-ray Analysis to determine the chemical constituents. The following report summarizes the analytical results.

Materials and Method:

The sample labeled as follows was analyzed.

1) Unknown Foil

Scanning Electron Microscopy /Energy Dispersive X-ray Analysis (SEM/EDS)

In this technique, an electron microscope with an energy dispersive X-ray spectrometer is used for analysis. The electron beam in the microscope causes specimens to emit x-rays including those from the k, l and m atomic shells. Spectrometer counts of these x-rays, which are said to be “characteristic” of the elements present in the specimen, can be used to calculate composition for a full qualitative analysis. The analysis is non-destructive and is accurate to ~ 1 %.

This technique determines the elements (like Si, O, Ca, Fe, etc) present in the powder sample

Results and Discussion:

EDXRF data is also included. Elemental composition of the main body is shown in the following Table 1

- The metal is mostly **aluminum (Al)**. It also has some oxygen (O) and carbon (C). These elements may be from surface oxidation and contamination.

Table 1: Elemental Composition

| Elements (wt. %) | Foil |
|------------------|------|
| Oxygen | 1.9 |
| Aluminum | 98.1 |

