Au/Ni/Cu

Description

This application determines the thickness of Au and Ni coatings on a copper substrate

Requirements

SmartLink FP version 2.1 build 16 or higher is required to run the application. A **Co filter** is required. The application was released on rules file version 11.17.00.2.1.16a. The following standards are used to create the calibration.

	Required Standards
1	Au ∞
2	Ni ∞
3	Cu ∞
4	Au foil(s)
5	Ni foil(s)

Accuracy / Feasible Range

The measurable Au and Ni thickness can be calculated with the following equation: Au * 10 + Ni = 800. For example, 80μ in Au * 100 + 0μ in Ni = 800. Hence, the Ni layer cannot be guaranteed when the Au thickness exceeds 80 μ in.

One type standard can be used for this application, but two type standards will result in a wider tracking range.

Standard	Collimator	Measuring Range
10 Au / 400 Ni / Cu and 60 Au / 160 Ni / Cu	12 mil	2 to 80 μ in Au measured within 5.5%, 40 to 600 Ni within 10 %
10 Au / 400 Ni / Cu and 60 Au / 160 Ni / Cu	2x2 mil	2 to 65 μ in Au measured within 5.5%, 40 to 600 Ni within 15 %
20 Au / 300 Ni / Cu and 40 Au / 100 Ni / Cu	12 mil	2 to 80 μ in Au measured within 3%, 40 to 400 Ni within 13 % (higher Ni not tested)

Precision

Measured Standard (Nominal Thickness)	Collimator Size (mils)	Meas. Time (sec)	Standard Deviation	
			Au Thck (μ in)	Ni Thck (μ in)
40 Au / 160 Ni / Cu	12	30	39.5 ± 0.20	164.5 ± 3.84

How To Calibrate

Using the Calibrate FP mode, create a new calibration file by calling up the following elements in the indicated layers: **Au/Ni/Cu**. The standards should be entered into the calibration in the following manner.

1	Au ∞
2	Ni ∞
3	Cu ∞
4	One type standard
5	2 nd type standard (optional)

The standard information such as thickness should be entered in the **Standards** tab.

This application can be measured with either a Calibration file or an Application file. When creating the Application file, nothing should be entered in the Known Thickness or Composition table under the **Advanced** tab.

Special Notes:

The calibrate mode is recommended when Au will always be greater than 80 μ in, where Ni cannot be measured or if the customer does not wish to measure it.