APPLICATION NOTE 034

Calibrating The MA-1040 for Non Iron Magnetic Materials

ABSTRACT:

The MA-1040 was designed around measuring samples with iron particles mixed in the product. For some products it is important to make sure the iron content is below a minimum level for production of the product. Typical levels evaluated in the MA-1040 are from about 1 PPM to 100 PPM, the range of a basic MA-1040 is from 0.1 PPM to 1999.9 PPM.

If a material contains non iron magnetic material the MA-1040 can over size or under size the content.

This application note should help in getting accurate measurements of non iron magnetic materials on the MA-104.

INSTRUMENT:

The MA-1040 uses 2 wire wrapped coils with an electric current flowing through them. The coils are a matched set so that the electric field in each is the same. When a sample is placed in one of the coils the instrument compares the change to the 2nd coil, this is then shown as the magnetic content in PPM.

When the MA-1040 is calibrated at the factory, a material with known iron content is used.

PROBLEM:

Some customers buy a MA-1040 without getting their sample to see if their material will work on the MA-1040.

When they test their samples they find the results do not match the historical data.

Some other methods separate the magnet material from the sample and apply different measuring techniques to determine the magnetic content of the sample.

The MA-1040 will report the magnetic content as if it is iron.

When material that is not iron is measured the results will be different.

SOLUTION:

Find 3 samples with different known levels of magnetic content.

Measure them on the MA-1040.

Plot the known value vs. the measured value. This is the calibration line for non iron magnetic material for the MA-1040.

All future samples can be compared to the calibration plot.