Elemental Analysis of Industrial Lubricants

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***Abstract—*** *As the most fundamental test used in oil analysis today, elemental analysis can detect between 15 and 25 different elements that are related to wear metals, contaminant metals and oil additives. In our work we have realized a spectrometric emission analysis for the characterizations of the contamination of the industrial lubricants* *which are of type iso 100 and iso 32, they are used for the lubrication of the reciprocating and rotary compressors respectively.*

***Keywords:*** oils, lubrication, compressor , emission spectrometry.

**1. Introduction**

 Collecting periodic oil samples from the equipment to be monitored is a good practice. The selected spectrometer should have the ability to perform sample analysis for trace levels of metals worn from moving components, as well as for extraneous additive element and contamination levels. The ensuing data can be used as a measure of identifying whether the wear is normal or a potentially severe issue in its early stages..

**2. Methods and materials used:**

 We carried out this study on two reciprocating compressors and two rotary compressors. The two reciprocating compressors are identical and the same for the two rotary compressors .

For each compressor and after a definite duration of operation (one year), we took a sample of lubricating oil for a spectrometric analysis using a Rotroil spectrometer.

 The oils studied are of TORADA ISO 100 and TORBA ISO 32 type which are petroleum derivative oils, manufactured by RA1Z-SONATRACH and used for the lubrication of reciprocating and rotary compressors respectively .