Determination of Loss-On-Drying by TGA

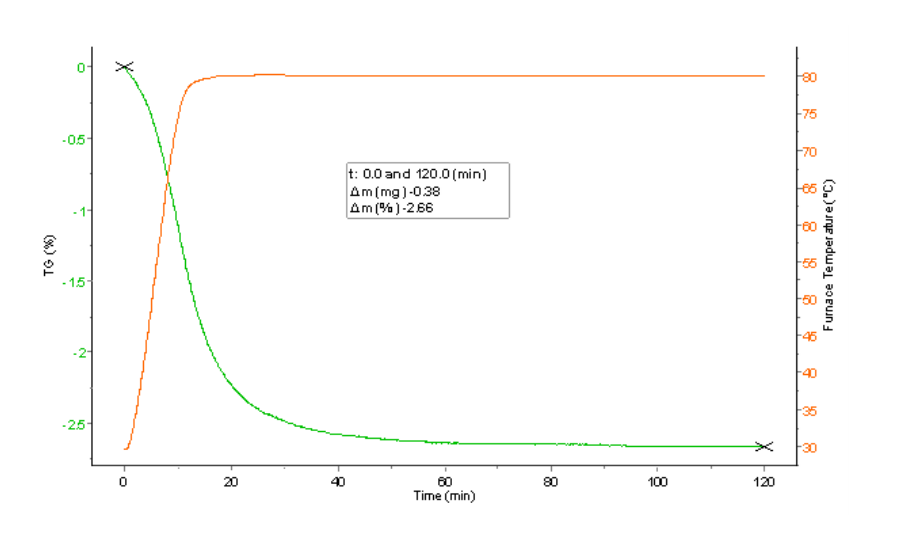
INTRODUCTION

A loss-on-drying test aims at determining the amount of volatile matter of any kind in a sample. It is achieved by drying the sample under specified temperature and time conditions. Here, a lubricant oil was tested using the SETLINE TGA, using the procedure described in the ASTM E1868-10 standard. This test method applies to a wide variety of solid or liquid materials, mixtures, or blends when the major component is stable at the test temperature.

EXPERIMENT

A lubricant oil sample of 15 mg ± 1 mg was weighed and inserted in an alumina crucible.
The experiment was run using the following experimental conditions:

- Heating from 30°C to 80°C at 5K/minute
- Isotherm at 80°C during 110 minutes
- Atmosphere: nitrogen flow at a rate of 30 ml/min



RESULTS AND CONCLUSION

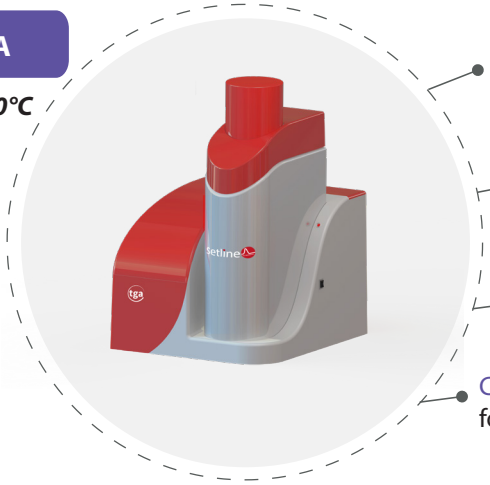
During the experiment, a mass loss was detected during the heating and isothermal steps (Figure 1). It was linked with the evaporation of volatile compounds. The mass loss was found to be equal to 2.66%.
So, the loss-on-drying (LOD) for this lubricant oil is 2.66% (110 minutes at 80°C) for the experiment.

Reference: ASTME1868-10 Standard test method for loss-on-drying by thermogravimetry

INSTRUMENT

SETLINE TGA

Ambient to 1100°C



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