

[Note technique 2026-005EN] /
Olivier VARET, FROILABO

Drying of Raw Materials and Animal Feed: The Air Scientific 120 L Oven Delivers Expected Performance and Features a New User-Friendly Interface

INTRODUCTION

The development of new FROILABO equipment necessarily involves validation carried out with end users. This approach ensures that the proposed products fully meet final application requirements, as well as current and future processes.

Prior to the commercialization of the new oven range, the QUALIANE laboratory evaluated the FROILABO Air Scientific 120 L model.

The QUALIANE laboratory, located in Laval (France), specializes in rapid analysis for animal nutrition, which is the core activity of its parent company, Nourience. It conducts tests to verify the nutritional composition, sanitary safety, and regulatory compliance of raw materials and finished products.

The laboratory has developed expertise in infrared analysis of finished feed for livestock, raw materials, and fodder. More than 15,000 analyses are performed annually to support livestock sectors in improving performance, resilience, and sustainability.

Among all tests carried out by QUALIANE, this note focuses on those aimed at determining dry matter content, or in the opposite, moisture levels, in fodder intended for cattle and in finished products (compound feed for pigs, poultry, and ruminants).

Ms. Marine DEFAY, Laboratory Technician and Team Leader at QUALIANE, conducted the tests with her team using the FROILABO Air Scientific 120 L oven. This application note describes the tests performed and the results obtained.

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Image 1: Air Scientific oven 120 L, model AS120

DESCRIPTION OF TESTS AND RESULTS

For the determination of dry matter content from wet fodder, the first step consists of collecting a 200 g sample of wet fodder. This sample is placed in the Air Scientific 120 L oven at 80 °C for 48 hours.

At the end of the cycle, drying quality is assessed by grinding the sample. If drying quality is sufficient, the sample is deemed completely dry and grinding occurs without agglomeration.

Conversely, the presence of residual moisture leads to the formation of aggregates during grinding. Below are pictures (image 2 and image 3) of samples before and after drying.



Image 2: Sample of grass. Fresh and humid sample on the left, and dried sample on the right.

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Image 3: Sample of grind corn. Original sample on the left and dried sample on the right side.

The drying quality obtained with the FROILABO ASINDUS 120 oven is comparative with that obtained using the laboratory's reference oven (Venticell model).

Image 4 references a batch of samples in an oven before starting the heating process.



Image 4: Example of drying of a batch with oven. Considered as the reference.

To determine the dry matter content in finished animal feed products, samples are heated at 103 °C for 4 hours.

At the end of the cycle, dry matter content is calculated based on the mass difference between the sample before and after drying.

Sample quality is also evaluated using infrared spectroscopy, which measures the amount of light

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absorbed by the sample at a specific wavelength. The resulting absorption spectrum allows calculation of nutritional values, providing information on the sample's nutritional properties (data not shown).

Conclusion

All tests carried out by the QUALIANE laboratory team using the FROILABO Air Scientific ASINDUS120 oven, <https://www.froilabo.com/products/air-scientific>, demonstrate drying performance equivalent to the reference method across all samples tested in this comparative study.

These tests also confirm the ease of use of the new interface (image 5). The 7-inch touchscreen enables clear visualization of the drying cycle, with real-time monitoring of the temperature profile.

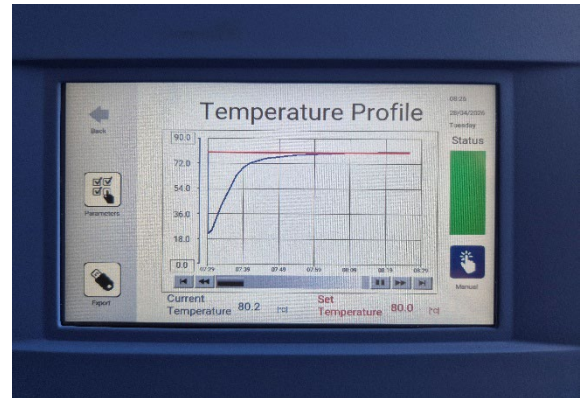


Image 5: screenshot of running protocol, at 80 °C for 48h

From a quality assurance perspective, the software provides controlled access with different user levels secured by password protection. Data history can be easily exported via USB.

Finally, FROILABO has developed a secure remote monitoring module compatible with the simultaneous supervision of multiple units.