



icgene

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 Device for real-time genetic detection

→ TECHNICAL DESCRIPTION

Thanks to modern DNA amplification techniques, it is possible to identify specific microorganisms in extremely short time compared to classical methods, based on microbiological analysis with plates, but also compared to PCR based techniques, requiring important equipment, specialized laboratory staff and longer incubation times.

The operation of **icgene** (figure 1) is based on the amplification of specific DNA sequences using the LAMP technique (*Loop-mediated isothermal amplification*) applied directly on food samples.



Figure 1. The device icgene.

The production of amplifications of these sequences is converted into a fluorescent signal, revealing the contamination. The device works by applying reagents, serving to extract the DNA from the matrix and to amplify it, making it detectable by the device.

After identifying the sample to be analysed (beer, water, washing solutions, etc.), a sample of solution is centrifuged and processed with reagents suitable for DNA extraction and precipitation. Once this procedure has been carried out, the specific gene sequences are amplified by using the special micro tubes included in the kit. In about half an hour, you can get the result.





icgene

To date, AEB has developed for the brewing industry some kits for the detection of *Brettanomyces bruxellensis* (figure 2).



Figure 2: reagent kit for the analysis of *Brettanomyces bruxellensis*.

The device shows the results of the analysis on a tablet, which is an integral part of the equipment. The system also stores all analysis in a cloud, allowing the user to have a complete history.

→ TECHNICAL CHARACTERISTICS

The **icgene** equipment is composed by:

- Isothermal incubator (60°C) for micro tubes
 - Android tablet as interface to the device
- Software for analysis and consultation of results included.

→ ACCESSORIES

Among the accessories for **icgene** sold by AEB, there are:

- mini-centrifuge up to 14000 rpm;
- set of micro pipettes pre-calibrated with the volumes of the analysis
- set of micro pipettes pre-calibrated for the protocol volumes to be applied
- first analysis kit containing the consumables necessary to carry out the first amplifications.

Such equipment is necessary for carrying out the work; however, these are equipment normally present in normal laboratories of analysis.

