FOOMON

FULLY INTEGRATED FOOD MONITOR FOR EMERGENCY USE

ELSE NUCLEAR

High sensitivity, short measuring time

Portable self-contained fully-integrated solution
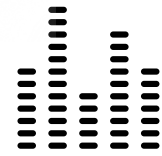
Fully-featured spectrometry system

- Laboratory-grade performances in portable form
- Ruggedness and high IP grade, suited for all weather and environmental conditions
- Simple and intuitive user interface
- Automatic activity calculation for multiple isotopes

FOOMON is a portable fully-integrated instrument specifically conceived for screening of I-131, Cs-134 and Cs-137 accumulated in food samples. Its "on-the-field" design allows deploying the device in any kind of situation, such as routine campaigns or emergency procedures.

The whole device is self-contained in a portable high-IP-grade technical case, for an overall weight < 25 kg. The food samples are to be placed in 500 ml Marinelli beakers, which then are lodged inside a 1 cm thick lead shielding well upon the detector's end cap. The complete setup and deployment of the system requires less than 5 minutes.

The User can manage **FOOMON** through the user-friendly control and analysis software installed on the embedded panel PC, automatically calculating the specific activity and the Minimum Detectable Concentration (MDC) of the sample (in Bq/kg). Data are stored locally and can be analysed and downloaded with dedicated software routines.

The measured activity concentration is compared with isotope-specific and food-group-specific alarms. In the case of an alarm, the measurement output is clearly labelled and the alarm status is clearly displayed on the software, which also activates the acoustic alarm.

The counts-to-activity-concentration conversion coefficients are calculated by means of dedicated Monte Carlo calculations.

The MDC achievable in 1 minute, with an average indoor background (150 nSv/h), is as low as about 150 Bq/kg for Cs-137 and Cs-134, and about 90 Bq/kg for I-131. Under the same conditions, MDC as low as about 30 Bq/kg for I-131, and about 40 Bq/kg for Cs-134 and Cs-137, can be achieved in about 10 minutes.

If enabled, the automatic background subtraction subroutine allows further lowering MDC and measurement uncertainty without increasing the counting time.

TECHNICAL SPECIFICATIONS

Detector probe

- NaI(Tl) dimension: 2" x 2"
- Resolution: < 7.5% @662 keV
- Lead collimator: 1.5 cm
- MCA: 1024 channels

System performances

- Default isotope library: 131I, 134Cs, 137Cs
- Default food groups: Infant food, Dairy produce, Other food, and Liquid food (*)
- MDA: about 30-50 Bq in 10 min (depending on isotope)
- Maximum measurable activity: about 1 MBq/kg
- No source needed for energy and efficiency calibration

(*) Following the guidelines given in the EURATOM COUNCIL REGULATION 2016/52

FOOMON overall system with components
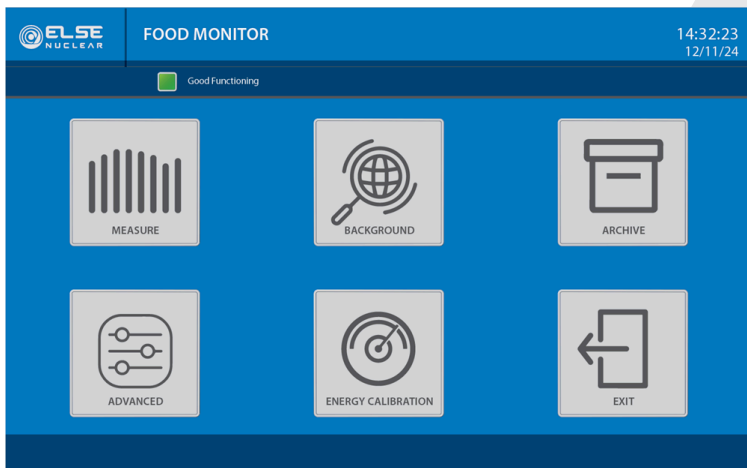
FOOMON software interface

OPTIONS

- Monte Carlo efficiency curves for custom food groups/measurement classes and material types
- 250 ml or 1000 ml Marinelli beaker measuring chamber

ACCESSORIES AVAILABLE UPON REQUEST

- Quality control sources
  - Natural potassium salt
  - Cs-137 point source, < 10 kBq
- Warranty extension from 12 months to 24 months