ORTEC

FoodGuard-1

NaI-based system for rapid food screening

Ready-to-use system for rapid screening of solid and liquid foodstuffs for radioactive contamination, aimed at food producers, traders and import and export agencies. A 3 × 3 in NaI detector in a lead shield and a USB-connected digiBASE measure samples in 1-litre Marinelli beakers; the software checks the results against allowable limits, raises alarms and prints the report. Supplied pre-calibrated, battery operated and transportable on a cart.



Detector type

NaI(Tl) 3 × 3 in (ORTEC 905-4) with digiBASE: 14-pin PMT base with integrated bias supply, preamplifier and digital MCA [1]

Typical energy resolution, Cs-137

8% at 662 keV [1]

Specifications

DETECTOR

Detector type	NaI(Tl) 3 × 3 in (ORTEC 905-4) with digiBASE: 14-pin PMT base with integrated bias supply, preamplifier and digital MCA	[1]
Monitored nuclides	^{131}I, ^{103}Ru, ^{134}Cs and ^{137}Cs; total caesium (^{134}Cs + ^{137}Cs) can be reported; naturally occurring ^{40}K is reported to monitor system performance	[1]
Sample geometry	1-litre Marinelli beakers (GA-MA 133N-E with lid), six included	[1]

PERFORMANCE

Typical energy resolution, Cs-137	8% at 662 keV	[1]

SOFTWARE & DATA

Analysis method	“Interference ROI matrix”, approved by the US FDA for monitoring foodstuffs; results as percentage of maximum permitted concentration (MPC) with audible alarm at a user-set limit	[1]

CONNECTIVITY & INTERFACE

Communication	USB 2.0 (12 Mbps); the digiBASE is powered from the USB cable	[1]

ENVIRONMENT & RATINGS

Listed operating system	Windows XP Professional SP3 or Windows 7	[1]

ORDERING & ACCESSORIES

Included software	FoodGuard-1 v2.0 (FG-1-BW) in English, Russian, Chinese and Japanese; MAESTRO for spectrum display and calibration	[1]
Accessories	FGCART transport cart (24 × 24 in base, 36 in high, locking wheels); additional Marinelli beakers (FG-1-MARINELLI-CASE, 33 pcs)	[1]

Models	FOODGUARD-1 (base system), FOODGUARD-1-PC (with laptop and printer), FOODGUARD-1-CART (with cart), FOODGUARD-1-PC-CART (with computer, printer and cart)	[1]

GENERAL

Lead shielding	Bench-top low-background lead shield, 30 mm (G5-FOODGUARD-1), accommodates a 1-litre Marinelli beaker	[1]
Calibration	Supplied pre-calibrated for gain and efficiency; gain is stabilised on the ^{40}K peak from a small KCl sample inside the shield; a check source of approx. 2 kg KCl is included	[1]

Sources

[1] **FoodGuard-1 Food Screening System Based on NaI(Tl) Radiation Detectors**
ORTEC (AMETEK) · product-page · Specifications – Hardware; Ordering Information; Specifications – Hardware; More Information; Specifications – Software · checked 2026-10-16
https://web.archive.org/web/20261016000000/https://www.ortec-online.com/products/systems/food-monitoring-sys…

Every value is taken from the manufacturer’s own document; the number after the value refers to the source list. Always check against the latest datasheet before ordering.

The data comes from the manufacturer’s published documents. Manufacturers may change specifications; the current configuration and performance are confirmed in the quotation.