

HIDEX



Hidex 300 SL Super Low Level Automatic TDCR Liquid Scintillation Counter

Based on the tremendous success of the Hidex 300 SL Automatic TDCR liquid scintillation counter Hidex has developed a new instrument for challenging low radioactivity applications. The Hidex 300 SL super low-level scintillation counter is equipped with additional lead shielding, low level PMT detectors, and an active guard detector for further background reduction. The instrument is ideal for ^3H in water measurements as well as other low-level environmental monitoring, radiocarbon dating and biofuel verification applications.

New Active Guard

The Active Guard is a separate scintillator detector which detects and subtracts real-time background radiation. The guard can be turned off for high energy samples and does not interfere with alpha/beta separation.

Digital Pb shield

Is a proprietary Hidex spectral fitting algorithm that improves counting performance by utilizing spectrum information for active sample tritium counts and background counts.

Applications

Low level environmental measurements:

- ^3H & ^{14}C in natural waters
- ground water dating (^3H)
- $^{90}\text{Y}/^{90}\text{Sr}$
- gross alpha/beta
- biobased ^{14}C
- low level alphas
- ^{55}Fe , ^{66}Ni
- ^3H & ^{90}Sr radiobioassays

Models and technical data

	Standard #425-206	Super Low Level #425-020	Metrology #425-202	Hidex 600 SL #425-206
Sample capacity, 20mL/7mL	40/96	40/96	40/96	210/500
Counting efficiency ³ H/ ¹⁴ C (%)	70/96	70/96	70/96	70/96
Background ³ H in water (CPM)	12	3	12	12
Dimensions, W/H/D (cm)	52/68/63	52/68/63	52/68/63	125/69/64
Weight (kg)	125	180	125	200

Optional features

525-003 alpha/beta separation	462-019 External Eu-152 std source
425-2001 Cooling	425-018 LL PM tubes

Performance Specifications

All the measurements are performed at temperature of 22°C ± 2°C and at normal humidity conditions of Hidex laboratory, Turku, Finland (relative humidity not measured). Background may vary locally depending on natural environmental radiation.

Counting efficiency

- Counting efficiency typical > 70 % for ³H and typical > 96 % for ¹⁴C with unquenched samples.
- > 35 % for ³H quenched (8 mL water sample + 12 mL AquaLight cocktail)
- α's (²¹⁰Po, ²³⁴U/²³⁸U, ²⁴¹Am, ²²²Rn, ²²⁶Ra) > 95 %

Typical background

- < 3 CPM with 8 mL water + 12 mL AquaLight Low Level cocktail.
- *Background value measured using window with 25 % counting efficiency.
- < 0.3 CPM for alphas (with a/b separation option)

FOM (E2/B)

- ³H in water, optimized window > 220
- ³H in water, with Digital Pb shield > 300
- ³H unquenched Low Level standards, optimized window > 350
- ¹⁴C unquenched Low Level standards, optimized window > 1150
- ¹⁴C Benzene 3.5 ml in a mini glass vial > 2000 (71 % window / 2.5 CPM background)

About Hidex



Hidex is a family owned high technology company which develops and manufactures high performance analysis equipment for life science research, nuclear measurements and nuclear medicine. Our products utilize modern technology and excellent tradition of workmanship. With strong links to the scientific community we continue to innovate and develop to improve scientific research and safety of everyday life.

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