

# Smear Test Counters

for



## nuclear industry

dismantling of nuclear plants

waste management

release measurements

**fuel element transports**



**SEA**

Strahlenschutz- | Entwicklungs- | und Ausrüstungs-  
Gesellschaft mbH

# Smear Test Counters WIMP

## Use and function:

If tools, measuring devices or plant parts have to leave control areas for handling, repair or recycling whereas unsealed radioactive material is present in these control areas, the leaving objects have to be checked for contamination. For this purpose a smear test sample is taken.

With the smear test counter it is possible to evaluate smear-test samples (swabs, screening-tests) or aerosol filters with a diameter of 60 till 220 mm, measuring  $\alpha$ - and  $\beta/\gamma$ -radiation separately. A substantial advantage of our smear test counters is the innovative detector technology, working completely without gas-filled or gas-flow detectors. The systems use thin-layer plastic scintillation detectors.

Our smear test counters WIMP are all available in 2 versions:

- with microcontroller-based measuring electronics as stand-alone-system with simple menu structure.
- with PC-based measuring electronics. With the PC-based version the possibilities to document the measuring data and to define default settings for measuring protocols are more comfortable.

## Performance features:

- simultaneous, selective  $\alpha$ - and  $\beta/\gamma$ -measurement
- for smear test samples and aerosol filters up to 220 mm diameter
- sample can stay on the smear test paper during measurement
- adjustable functions: nuclide selection, smear factor, detection surface, measuring time, alarm thresholds, measuring channel etc.
- integrated calibration software
- no gas supply required
- easy to decontaminate



WIMP 120 C smear test counter with microcontroller

## Technical data:

- thin-layer, ZnS-coated plastic scintillation detector with integrated photomultiplier and detector electronics
- simultaneous, separate  $\alpha$ - and  $\beta/\gamma$ -measurement
- ergonomic measuring system housing with large-area LCD display (240 x 128 pixels), illuminated (microcontroller version) or PC-based measuring electronics with external LCD display
- measurement result display as count rate (cps) or activity (Bq, Bq/cm<sup>2</sup>, Bq/m<sup>3</sup>)
- calculation and display of detection limits
- automatic background compensation
- serial measurement function
- user-friendly menu structure, operation by means of function buttons and touch screen
- database with reference nuclides, freely programmable
- settings and measurement parameters are protected by pass code
- integrated, user-guided calibration software
- measuring chamber with shielding; low-activity lead
- easy-to-decontaminate, changeable drawer for sample plates accommodating the smear test or aerosol filter
- maintenance-friendly system construction, simple opening of the system
- The smear test counters can be calibrated according to activity or surface emission rate of the test source



smear test counter on movable stainless steel table

## Type overview:

The following smear test counters belong to our delivery programme:

**WIMP 60** for up to 60 mm filter diameter in the following versions:  
 WIMP 60 M as a mobile, portable smear test counter with microcontroller-measuring electronics  
 WIMP 60 C with microcontroller-measuring electronics  
 WIMP 60 PC with PC-based measuring electronics

**WIMP 120** for up to 120 mm filter diameter in the following versions:  
 WIMP 120 C with microcontroller-measuring electronics  
 WIMP 120 PC with PC-based measuring electronics

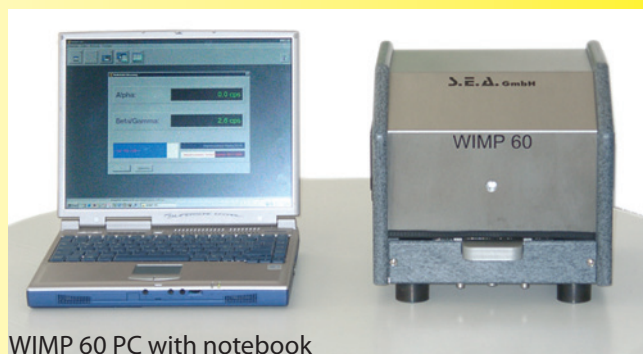
**WIMP 220** for up to 220 mm filter diameter or screening filter in the following versions:  
 WIMP 220 C with microcontroller-measuring electronics  
 WIMP 220 PC with PC-based measuring electronics

### Multiple smear test counters

WIMP 60 x 6 for up to 6 smear test samples simultaneously  
 WIMP 60 x 8 for up to 8 smear test samples simultaneously  
 WIMP 60 x 10 for up to 10 smear test samples simultaneously, all systems for 60 mm filter diameter only available with PC-based measuring electronics



mobile smear test counter WIMP 60 M



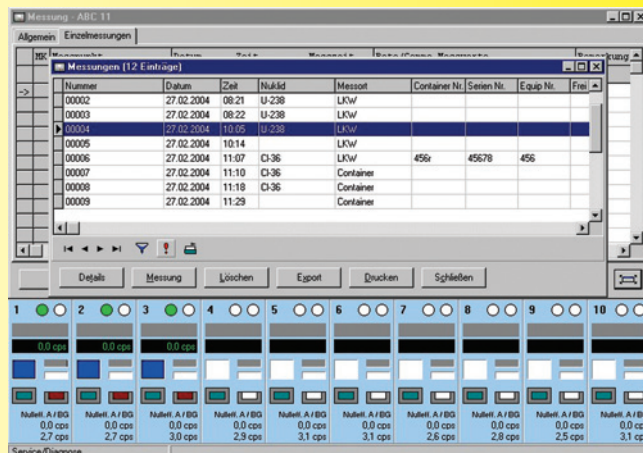
WIMP 60 PC with notebook

### Smear test software

Thanks to the application-specific software (based on Windows operation systems) the PC-based WIMP measuring systems are easy to operate and their parameters can be set in a comfortable way.

The application-specific software has the following characteristics:

- adjustable measuring functions (nuclide, smear factor, detection surface, measuring time, alarm thresholds, ...)
- freely definable measuring objects (containers, tools, FE-containers)
- free assignment of measuring results
- calculation of detection limit
- integrated autocalibration
- data storage



software window

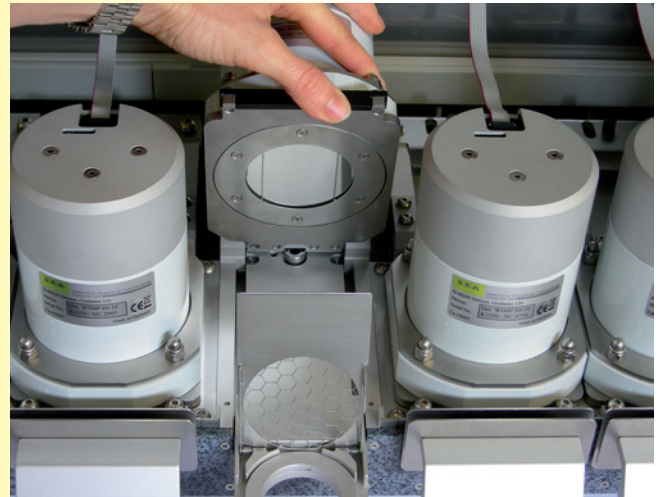


For maintenance and service, the shielded smear test counter can be opened easily. In this way the drawer can be removed very simply, for example for decontamination. Detector foil exchange is also possible in very short time.





multiple smear test counter WIMP 60 x 10



maintenance-friendly system construction

## Multiple smear test counter

With the multiple smear test counter it is possible to evaluate 6 to 10 smear test samples simultaneously (WIMP 60 x 6/8/10). The multiple smear test counters are only available with PC-based measuring electronics.

**Table:** technical data of the smear test counters

Technical Data	WIMP 60	WIMP 60 M	WIMP 120	WIMP 220	WIMP 60 x 6/8/10
Detector size	60 mm	60 mm	120 mm	220 mm	6/8/10 detectors each 60 mm
Detector type	thin-layer plastic scintillator with ZnS-coating				
Integrated lead shielding	30 mm Pb	12.5 mm Pb	50 mm Pb	30 mm Pb	each 30 mm Pb
Background (γ)	approx. 3 cps	approx. 2 cps	approx. 7 cps	approx. 15 cps	approx. 2 cps
Typical efficiencies					
Co-60	approx. 25 %	approx. 25 %	approx. 25 %	approx. 23 %	approx. 25 %
Cs-137	approx. 35 %	approx. 40 %	approx. 35 %	approx. 36 %	approx. 35 %
Sr90/Y90	approx. 43 %	approx. 42 %	approx. 45 %	approx. 42 %	approx. 43 %
Am-241(α)	approx. 24 %	approx. 24 %	approx. 20 %	approx. 20 %	approx. 24 %
Weight	approx. 30 kg	approx. 8 kg	approx. 85 kg	approx. 120 kg	approx.180/250 kg
Dimensions (W x H x T)	290 x 280 x 320 mm	255 x 145 x 220 mm	410 x 350 x 385 mm	500 x 400 x 450 mm	850-1120 x 700 x 1120 (incl. table)
Temperature	+ 10° C till + 40° C		WIMP 60 M: - 20° C till + 40° C		
Power supply	generally: 100/240 V, 50-60 Hz, also with rechargeable batteries				