

# ANEXO 1

## INFORMAÇÕES DO FABRICANTE - CATÁLOGO ON-LINE DAS FONTES - FOTOS

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### PRODUCTS

#### [559 821] Am-241 preparation

For advanced energy-analysis experiments with the solid-state detector (559 921) or the scintillation counter (559 901). The preparation possess the following activity  
Am-241 preparation, predominantly  $\alpha + \gamma$ , 74 kBq  
Preparation for touch protection covered in metal holder  
Dimensions: 85 mm x 12 mm  $\emptyset$   
Al container for storage: 5.5 cm x 3 cm  $\emptyset$   
Type approval No.: BfS 01/10 StriSchV

Questions? We are pleased to answer you.



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### PRODUCTS

#### [559 835] Radioactive preparations, set of 3

For advanced energy-analysis experiments with the solid-state detector (559 921) or the scintillation counter (559 901). The preparations possess the following activity:

##### Technical Data

Al container for storage: 6 cm x 3 cm  $\emptyset$   
Each preparation for touch protection covered in metal holder  
Dimensions: 85 mm x 12 mm  $\emptyset$   
Type approval No.: BfS 01/10 StriSchV

##### Scope of delivery

1 Am-241 preparation,  $\alpha + \gamma$ , 74 kBq  
1 Sr-90 preparation,  $\beta$ , 45 kBq  
1 Cs-137 preparation,  $\beta, \gamma$ , 74 kBq

Questions? We are pleased to answer you.



PRODUCTS

**[559 855] Co-60 preparation**

For investigating the characteristics of radioactive radiation, particularly for advanced energy-analysis experiments with the solid-state detector (559 921) or the scintillation counter (559 901).  
 Co-60 preparation,  $\beta + \gamma$ , 74 kBq  
 Preparation for touch protection covered in metal holder  
 Dimensions: 85 mm x 12 mm  $\varnothing$   
 Al container for storage: 5.5 cm x 3 cm  $\varnothing$   
 Permissible preparation without type approval No.

Questions? We are pleased to answer you.  




PRODUCTS

- Physics
- Chemistry/ Biology
- Electrotechnology/ Electronics
- Laboratory Furniture and Equipment **LeyLab**
- Order & Download **Laboratory Furniture and Equipment**

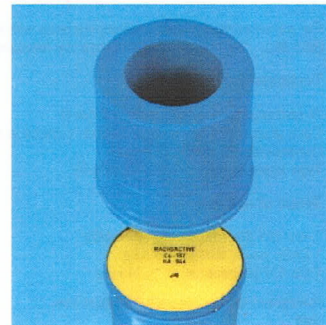
**[559 885] Calibrating preparation CS-137**

Sealed preparation with measured activity, for calibrating a measuring station for e.g. environmental samples in reference geometry; as the activity is homogeneously distributed over the entire volume of the Marinelli beaker at a density of 1 g/cm<sup>3</sup>, the calibrating preparation is also suitable for determining the activity of aqueous samples. With protective container and certificate of calibration with an accuracy of  $\pm 10\%$ . Consult your local authorities regarding requirements for radioactive preparations which may apply to you.

**Technical Data**

Dimensions: dia. 16 cm, height 15 cm  
 Weight: 1.5 kg

Questions? We are pleased to answer you.  

PRODUCTS

[559 595] Ra-226 Radium source for Wilson chamber, 5 kBq

on a needle for fitting inside Wilson cloud chamber (559 57); also suitable for introductory experiments with the Geiger counter (546 282) and the counter tubes (559 00/01).  
 Activity: 5 kBq  
 Preparation: Ra 226  
 Radiation:  $\alpha$ ,  $\beta$ ,  $\gamma$   
 Casing and mounting of the preparation: screened from contact in a hollow cylinder: mounted on a needle  
 Total length of the preparation: 3 cm  
 Container: Glass with stopper, 5 cm x 4.5 cm  $\varnothing$

Questions? We are pleased to answer you.



TOPICS

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KP7	Solid-state physics
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Physics of the atomic shell (P6.3.3)

The radiation of an X-ray tube consists of two components: continuous bremsstrahlung radiation generated when fast electrons are decelerated in the anode. Characteristic radiation consisting of lines is formed by electrons dropping to the inner shells of the atoms of the anode material from which electrons were liberated by collision.

554 801 X-ray apparatus Mo, complete 4

Fully-featured, microprocessor-controlled device with x-ray tube Mo and goniometer designed for conducting a wide variety of experiments in x-ray physics. The high-voltage system, x-ray tube and experiment chamber are all within a radiation-proof housing. German type approval as school x-ray apparatus and full-protection device. The type approval is also valid for further x-ray tubes (Fe, Cu, Ag, W, Au). The x-ray tubes are delivered completely adjusted and allow thus an easy and user-friendly exchange. Highest safety and operation comfort by an automatic door locking, which unlock the doors automatically, when no x-ray radiation is generated.

Two large displays show all relevant information on the current experiment. The tube voltage and tube current can be set in the ranges 0 to 35 kV and 0 to 1 mA respectively. The built-in rate meter including counter-tube voltage supply enables direct measuring in conjunction with a Geiger-Müller counter tube. The x-ray apparatus can also be connected to a PC via the USB-port (software included) for recording Bragg spectra. All two analogue outputs (counting rate and angular position) permit data acquisition using a chart. The goniometer (554 831) enables precise setting of any angular position of the sensor and the as coupled 2:1 sensor and target motion, both manual and automatic angular scans are possible. Two screened coaxial lead-ins and one free access duct provide access to set-ups in the experiment chamber, e.g. for connecting an x-ray energy detector. Device fully assembled and adjusted, ready for operation.



Anme

667 9183 Geiger Counter with Ticker **8**

This measuring instrument measures and records radioactive radiation ( $\alpha$ ,  $\beta$ ,  $\gamma$ - rays) permanently. The different types of radiation are selectable with a changeable screen. Stores all registered pulses in its internal memory. The software (in delivery) enables one to evaluate the measuring data with a computer. The built-in battery will last at least ten years. An acoustic signal sounds when the radiation exceeds a set limit, an acoustic ticker can be activated, too. Including RS232-Port, connection lead, Windows-Software and operating instructions.



Technical Data:

- Display:  
Liquid-crystal display (LCD), 4-digit, numeric with unit, analog logarithmic bar chart, Operating-mode indicator
- Measuring data  
Sievert/h ( $\mu$ Sv/h, mSv/h) , pulses/sec, pulses/setting time interval
- Ray detector:  
End-window alpha-beta-gamma detector counting tube according to the Geiger-Müller principle, stainless-steel housing with neon halogen filling, measuring length 38.1 mm, measuring diameter 9.1 mm.  
Mica window 1.5 to 2 mg/cm<sup>2</sup>, Gamma sensibility 108 pulses at Co-60 radiation of 1 $\mu$ Sv/h in energyband of ambient radiation. Zerorate <10 pulses per minute, Operating temperature -40 bis +75°C
- Ray types :  
 $\alpha$  (alpha) from 4MeV  
 $\beta$  (beta) from 0.2 MeV  
 $\gamma$  (gamma) from 0.02 MeV
- Ray selection:  
 $\alpha+\beta+\gamma$  (without screen)  
 $\beta+\gamma$  (Al-foil, approx. 0,1 mm, screens off  $\alpha$  completely)  
 $\gamma$  (Al-screen approx. 3 mm, screens off  $\alpha$  completely and  $\beta$  to 2 MeV, weakens  $\gamma$  less than 7%)
- Internal memory:  
2 Kbyte , the number of pulses are automatically logged in different intervals
- Time, Date: setting by pressing the button
- Dimensions: 163 x 72 x 30 mm
- Weight: 150 g



FOTO DO DOSIMETRO DE AMBIENTE



FOTO DO COFRE ABERTO COM A CAIXA DE FONTES



FOTO DAS PASTILHAS DE Cs E Sr ADQUIRIDAS EM 2010

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