

## GRAETZ News:

### Detection of $\alpha$ -, $\beta$ - and $\gamma$ -radiation with the dose rate meter X5C *plus* and the external probes

- pulse probe 18526 D
- contamination probe ABG170
- scintillation probe 2002 D
- immersion counter tube ZP1083 D

- Please read the operation manual of the X5C *plus* carefully.
- Determine the natural background radiation as reference value. Depending on the surroundings and the used probe this value may vary between some counts per second and some hundred counts per second.

According to the type, the volume and the material of the detector the measured background radiation will be between 15 counts per minute and approx. 6000 counts per minute for high sensitive detectors.

Reference location is the place where the material shall be tested. It is recommended to choose a measuring time of some minutes and to select the menu point „dose rate average value” of the X5C *plus* (please see point 7 and point 5.4.1 of the manual). Thus, the determined reference value (background count) is as much independent as possible of the statistical variation of the background radiation.

- The same procedure is applied for the measurement of the part that has to be checked. Hold the probe close to the surface of the material which has to be measured (distance less than 5 cm). The immersion counter tube ZP1083 D has to be dipped into the sample of water you have filled into the measuring beaker. If the material is not contaminated, you will receive a count rate similar to the determined background count, whereas contaminated material results in considerably higher count rate. According to the German Fire Brigades Regulation, the triple background count means contamination.

**In this case the responsible authorities have to be informed accordingly.**