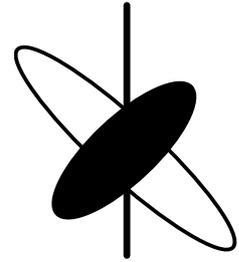


# INFO for ALPHAIx contamination measuring device with submersible probe



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The ALPHAIx contamination measuring device was developed at the end of the 1980s, after the Chernobyl disaster, as a mobile radiation counter for radiation. It is well known that radiation can be absorbed by water or all types of fluids.

This means that radiation in contaminated foodstuffs with a high liquid content can only be measured partly or not at all.

Due to the unwieldy nature of measuring devices used to check food for contamination we have developed submersible probes, which can be placed **within** food when taking measurements, including foods with a high liquid content. The measuring probes are about 6 times more sensitive when making internal measurements than on the surface (geometry factor). The measuring probes are watertight and washable.

Normal, mobile contamination measuring devices costing around €2,000 can only measure dry samples. That means that liquid content must be vaporised first in order to measure the radiation. However, volatile nuclides such as iodine and caesium can be lost during this process. Any measurement would then only concern the remaining radioactive nuclides. The whole process is laborious and inaccurate, because measurements must first be converted to normal weight and then on a per kilo basis to obtain a value for comparison. Generally, these kinds of dry procedures are only possible in the laboratory and not practicable in mobile applications.

Our submersible probe makes mobile use significantly easier when taking both surface and interior measurements. The probe can be placed on contaminated samples (washable). This is particularly useful for relatively weakly radioactive samples, because it is likely that measurements will span several minutes. Longer measurement times mean better accuracy (higher count rate). Because the distance between probe and sample must remain constant, handheld measurements taken over several minutes may become a problem. In fact the inverse square rule of distance which says that:

**«the intensity of radiation is inversely proportional to the square of the distance to the source»**, means that precise, handheld measurements are not really possible.

The development of submersible probes for mobile applications was actually a consequence of experiences of measuring radiation made after Chernobyl. The ALPHAIx was originally intended to aid in training but with the development of the submersible probe the system became increasingly used in laboratories and within the area of environmental protection. The ALPHAIx system is a cost-effective alternative to expensive measuring devices, which for many are simply not affordable. The system was developed and is manufactured in Germany.

Contamination measuring devices should not be confused with dose rate meters, now being sold cheaply by many suppliers. Dose rate meters are designed to detect GAMMA rays; in other words radiation that one receives or is exposed to. These dose meters however cannot measure radiation (particulate radiation) within foodstuffs or which may be inhaled or breathed in when touching contaminated objects. Dose rate meters are principally not suitable for checking foodstuffs.

We developed the ALPHAIx system and its counting tubes together with the Institute of Nuclear Chemistry at the University of Darmstadt. Many tests were undertaken, the results of which were confirmed in various reports. The amount of effort was large and the reports were expensive. The reports, in German, can be viewed.

As far as we can make out, we are the only company offering a mobile, contamination measuring device for taking measurements in fluids and within foodstuffs. Similar contamination measuring devices are presently only used in stationary applications in the laboratory.

Of course, we will continue to develop the system in the future so that we can carry on providing modern, value for money and high quality measuring devices.