

## Radiocesium in atmospheric particulate

1. The details of atmospheric particulate standard reference material (FUKe3) and atmospheric particulate sample (FUK551) were presented in [Table 1](#):

Table 1. The details of atmospheric particulate standard reference material (FUKe3) and atmospheric particulate sample (FUK551)

Sample	Collection	Volume (m <sup>3</sup> )	<sup>134</sup> Cs (Bq)	<sup>137</sup> Cs (Bq)	Monitor time (s)
FUKe3	2011/5/23	719.9	18.9±1.3	18.3±1.2	22109.3
FUK551	2016/4/7	3023.9	?	?	57792.0

2. Since the distances between sample and detector were both 1 cm for FUKe3 and FUK551, and the shapes of FUKe3 and FUK551 were the same, the detection efficiencies for both FUKe3 and FUK551 were the same. According to [equation 1 and 2](#), the detection efficiencies of <sup>134</sup>Cs and <sup>137</sup>Cs were 1.07±0.07% and 1.14±0.07%, respectively, for standard reference material (FUKe3).

$$\text{Detection efficiency} = \text{detection count} / \text{emitted gamma-ray} \quad (1)$$

$$\text{Detection count} = \text{peak area} / \text{detection time} \quad (2)$$

3. Then, <sup>137</sup>Cs in atmospheric particulate sample FUK551 was calculated to be 0.343±0.023 Bq (decay corrected to 2012/4/7). However, <sup>134</sup>Cs in the same sample was below the detection limit.

It is appreciated for me to see Shinohara sensei and Ninomiya sensei and have a wonderful training in Osaka University. Before that, I also get many kind help from other people, such as Takeda sama in Tsukuba university. As a foreigner, there is still a long way for me to know Japanese scientific environment in the radionuclide field and cultural deeply, and I am interested in knowing more. Therefore, I am appreciated for this training. In the past, I worked in the field of analytic method development for various radionuclides in environment, and gamma spectrometer is one of tools for me for monitoring. However, I did not know the principle comprehensively. Through this training, I know the gamma spectrometer from basic knowledge to operation, and to final calculation.

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