

福島第一原子力発電所事故の初期に放出された球状セシウム粒子 Cs-bearing spherical particles emitted from an early stage of the FDNPP accident

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We found radioactive Cs-bearing, spherical particles from the filters collected in March 14 and 15, 2011, just after the Fukushima Daiichi Nuclear Power Plant (FDNPP) accident, in Tsukuba. These particles mainly consist of Fe and Zn but contain detectable amounts of Cs using a scanning electron microscope (SEM) and energy-dispersive X-ray spectrometer (EDS). They are several micro meter and are hardly water soluble. They are mostly spherical, suggesting they formed through rapid cooling of radioactive materials. These particles were only found in the filters collected on March 14 and 15, 2011, and these filters had many spots of radioactive materials when measured using an imaging plate (IP). To date, we have identified six such Cs-bearing particles in the filter.

The finding of such Cs-bearing spherical particles suggests the following implications; understandings of the accident and health effects for the radioactive materials emitted at the early stage of the accident and estimations of the current and future environmental radioactivity contaminated by the particles.

Reference: Adachi K., Kajino M., Zaizen Y., and Igarashi Y., Emission of spherical cesium-bearing particles from an early stage of the Fukushima nuclear accident, Scientific Reports, 2013, 3, Article number: 2554.

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