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RADIOISOTOPE

Life Science/Faculty of Science/ Radioisotope Research Center

<http://www.ocha.ac.jp/radioisotope/top.html>, http://jglobal.jst.go.jp/detail.php?JGLOBAL_ID=200901084203540857&t=1&d=1&q=%28205%29%3D5000102016



■ Researcher information

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Major

Analytical Chemistry, Radiation Measurement, Environmental toxic substance(radioactivity)

■ Research topics

A New Wiping Device for Removable Radioactive Contamination Check

Keywords

Plastic scintillator, A new wiping device, Radioactivity, Surface contamination, Non-liquid scintillation cocktail

Contents

■ Overview (background, goal, detail)

By the Fukushima Daiichi catastrophe, the artificial radioactive substances exist in our environment. The knowledge of the radioactive contamination level is very important because of evading or being lower of the public radiation exposure. It is prefer not to produce any radioactive waste for contamination check. We invented a new wiping device like the figure which produces little waste.

A wiping material wraps around the cylindrical plastic scintillator (PS), and attaches it to the roller, then wipes off the surface of contamination. Push the both side of the metal of the wipe device, take off the PS wrapped. With wiping material, and then put it in a 20 mL glass vial made in low potassium glass for liquid scintillation counter.

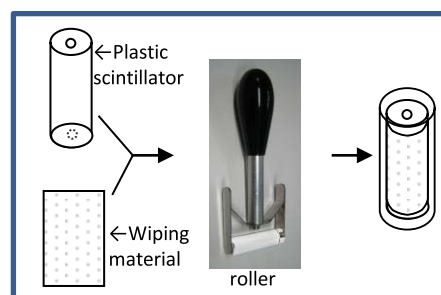
The superior points of the PS method are as follows:

1. possible identification of the contaminated radionuclides even when their maximum energies are very close,
2. reduction of the individual difference of wiping efficiency,
3. Drastic reduction of liquid scintillation cocktail use and vastly shorten the postprocessing time.

For the PS method, the double stick tape (Scotch 3M; 2in width) and the NUC-Wipe™ (National Diagnostics; NW-300) are suitable as wiping material. Because PS does not contact with contamination directly, reuse of the PS is possible and expendables are only the wiping materials.

■ Potential (applications, future goals)

The new wiping device was invented for removable contamination check in institutions and facilities dealing with unsealed radioisotopes. However, a liquid scintillation counter can measure more than 100 samples automatically. So, now, it is useful for the environmental contamination check.



Intellectual properties (Patents, computer programs), productization, publications and social/industrial contributions

The device was not applied for the patent. The roller has been discussed to be made as a manufacture in a few companies from April, 2011.

Potential of social/industrial contribution

■ Joint research

If someone propose a new wiping material which is more easy to wrap around and take off, it becomes a cooperated new study; it should clarify a wiping efficiency and so on.