

RADAWAY

Decontamination Efficiency Report

1. Introduction:

RADAWAY is a concentrated or ready to use solution designed for cleaning radioactive contamination, binds the radioactive particles on the surfaces and allows them to be cleaned with water. It wraps around radioactive metals and radioactive organic compounds and allows them to be removed from the environment by washing with water. RADAWAY consists of different chemicals with various properties such as detergent, surfactant, emulsifier, chelating agent, complexer, solvent. RADAWAY is designed to remove radioactive contaminations caused by radioisotopes on surfaces and does not contain silicate, enzyme, borate, aluminate, carbonate, phosphate, chromate. RADAWAY can be used for cleaning metal, plastic, glass, porcelain and epoxy surfaces.

2. Product Information:

ERS RADAWAY 1 L Bottle (ERS-RDS-1LB)

ERS RADAWAY 1 L bottle can be applied by diluting 10% with water on the surface where there is contamination. 10 units of volume Radaway can be applied by mixing with 90 units of volume water. It can be used in higher concentrations depending on the type and level of contamination. Apply the solution with a cloth, brush, sponge or spray. If the surface to be cleaned is porous, use a brush. Rinse with water. Dry with a dry paper towel. Check and repeat the process if necessary.

ERS RADAWAY 1 L Spray Bottle (ERS-RDS-1LSB)

ERS RADAWAY 1 L spray bottle is applied by spraying directly on the surface where there is contamination. Apply the solution with a cloth, brush or sponge. If the surface to be cleaned is porous, use a brush. Rinse with water. Dry with a dry paper towel. Check and repeat the process if necessary.

ERS RADAWAY 5 L Drum (ERS-RDS-5LD)

ERS RADAWAY 5 L drum can be applied by diluting 10% with water on the surface where there is contamination. 10 units of volume Radaway can be applied by mixing with 90 units of volume water. It can be used in higher concentrations depending on the type and level of contamination. Apply the solution with a cloth, brush, sponge or spray. If the surface to be cleaned is porous, use a brush. Rinse with water. Dry with a dry paper towel. Check and repeat the process if necessary.

3. Decontamination Application

3.1 The radioisotopes used in decontamination tests are as follows.

^{99m}Tc , ^{131}I , ^{125}I , $^{68}\text{Ge}/^{68}\text{Ga}$, ^{137}Cs , ^{57}Co , ^{60}Co , ^{133}Ba , ^{152}Eu , ^{22}Na , ^{177}Lu

3.2 The material surfaces used in decontamination tests are as follows.

Stainless Steel, Plastic, Glass, Epoxy, Ceramic

3.3 Application Method

In decontamination studies, each radioisotope was dropped approximately 10 μL on different material surfaces. The amount of activity dropped on the surfaces varies between 10 μCi and 100 μCi . The dripped radioactive liquid was allowed to dry on the surface of the material. Surface dose rate was measured with a dose rate meter 5 cm away. 10 mL of ERS Radaway radiocontamination solution was applied to the drop point and waited for 1 min. The contaminated surface was cleaned with one-sided movements with a cloth. Surface dose rate was measured again with a dose rate meter 5 cm away. Dose rate values before and after decontamination were compared.

Note: During the decontamination process, 10% Radaway decontamination solution was used.

3.4 Test Results

Surface dose rates were measured after contamination and decontamination of each different material surface with the specified radioisotope and the results are given in the table below.

The decontamination efficiency of Radaway radiocontamination solution has been evaluated in the table below.

Radaway Decontamination Efficiency																
		Material Surfaces														
		Stainless Steel			Plastic			Glass			Epoxy			Ceramic		
		1*	2*	3*	1*	2*	3*	1*	2*	3*	1*	2*	3*	1*	2*	3*
Isotopes	^{99m} Tc	16,00	0,14	99%	14,00	0,03	100%	16,00	0,08	100%	16,00	0,70	96%	14,00	0,03	100%
	¹³¹ I	22,00	0,30	99%	21,00	0,40	98%	22,00	0,40	98%	21,00	0,90	96%	20,00	0,20	99%
	¹²⁵ I	4,00	0,04	99%	5,00	0,03	99%	4,00	0,03	99%	4,00	0,05	99%	5,00	0,03	99%
	⁶⁸ Ge/ ⁶⁸ Ga	30,00	4,00	87%	32,00	5,00	84%	33,00	4,00	88%	31,00	4,00	87%	32,00	4,00	88%
	¹³⁷ Cs	8,00	0,20	98%	7,00	0,10	99%	8,00	0,20	98%	9,00	0,20	98%	8,00	0,20	98%
	⁵⁷ Co	18,00	0,20	99%	18,00	0,30	98%	17,00	0,20	99%	18,00	0,20	99%	17,00	0,20	99%
	⁶⁰ Co	7,00	0,10	99%	7,00	0,20	97%	7,00	0,20	97%	6,00	0,10	98%	7,00	0,20	97%
	¹³³ Ba	5,00	0,04	99%	5,00	0,03	99%	5,00	0,04	99%	5,00	0,04	99%	5,00	0,03	99%
	¹⁵² Eu	4,00	0,04	99%	3,00	0,03	99%	3,00	0,04	99%	3,00	0,03	99%	4,00	0,04	99%
	²² Na	15,00	0,10	99%	16,00	0,20	99%	15,00	0,20	99%	15,00	0,10	99%	16,00	0,10	99%
¹⁷⁷ Lu	8,50	0,70	92%	5,50	0,10	98%	7,60	0,15	98%	8,20	0,20	98%	9,80	0,20	98%	

1*	Surface dose rate after contamination (mR/h)
2*	Surface dose rate after decontamination (mR/h)
3*	Decontamination efficiency (%)

Notes

1. Perform the decontamination process in accordance with the instructions for use.
2. Decontamination efficiency may depending on the chemical structure of the radioisotope.
3. Dose rate measurements were carried out using a calibrated Ludlum brand 14C model survey meter.
4. Decontamination measurements were performed using Radaway at 10% concentration.

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