



QDS

RT
Technologies

QUICK DECON SOLUTION



BENEFITS



**SIGNIFICANT
REDUCTION IN
CRITICAL PATH
TIME & DOSE**



**NON-TOXIC,
ENVIRONMENTALLY
FRIENDLY & SAFE
ON HUMAN SKIN**



**SIMPLE & COST
EFFECTIVE
ALARA SOLUTION**

Main Features

- **Safe & quick** ionic-focused solutions for removal of contamination
- Effective on **63 different elements**
- **~80%-90% reduction** on 1st pass*
- **Non-Toxic**, Environmentally friendly
- **FDA approved** for use on intact human skin
- **Water-based and "Resin Bed friendly"**
- **Cost effective**
- Available in **Field Ready kits** or **Pre-moistend wipes** for emergency response
- **10 year Shelf Life**

CONTACT US for samples or additional information

**shown in independent tests. Results may vary based on surface type and source term mix*

Description

The Quick Decon Solution (QDS) family of products can significantly reduce time and personal dose associated with ALL decontamination efforts and tasks.

The core technology is called the "Mass Effect" influence. When our proprietary solutions are introduced to a contaminated surface, the radioactive material is lifted from the surface and suspended in the solution, where it can be easily wiped up or rinsed away as radioactive waste.

Our products are currently in use in Department of Energy sites, nuclear tool decontamination facilities, commercial nuclear power plants, nuclear waste facilities, and medical facilities. In commercial nuclear power applications, QDS has a proven track record of significantly reducing time and dose on critical path tasks such as Cavity Decon.

Each formulation is ion-specific and specially prepared to address a specific chemical group.

- Transition Metals (TM)
- Actinides (A)
- Halogens (H)

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NUCLEAR POWER USE CASE

REACTOR CAVITY DECONTAMINATION

The QDS™ GEL is sprayed on Reactor Cavity walls following Cavity Drain Down

RESULTS

- ✓ Significant time and dose savings
- ✓ Impressive decontamination factors obtained

QDS is available in two (2) solution types: Liquid Solution & GEL

The QDS Gel is designed to optimize time on vertical surfaces to improve first-pass decontamination results

Suggested Steps for Reactor Cavity Decon using QDS™ GEL

1. Start decontamination of the cavity as you drain the water from the cavity.
 - a. Use pressurized garden sprayers containing the undiluted Transition Metal™ solution
 - b. Use “scrubbies” or equivalent cleaning tools as needed
 - c. Use appropriate safety clothing and equipment as needed
2. As the water recedes from the cavity, exposing the “bathtub ring” or other residues, use the Quick Decon GEL solution with a cleaning rag/scrubbie, etc to scrub away the residues. Remember, the GEL is not a soap, some scrubbing may be necessary
3. Rinse away the scum residue with water (spray on with a hose or pressure washer) and possibly add additional Quick Decon GEL™ solution to the rinse as needed; continue spraying the walls down as the water recedes
4. Rinse away the Quick Decon GEL™ solution with water
5. After the cavity is drained, a final spray with Quick Decon GEL™ and rinse should complete the cavity decon

QDS is formulated without soaps or surfactants; therefore eliminating concerns that it will plug up or harm the wastewater resin beds.

QDS is an aqueous-based solution; FDA approved for direct application to the skin

Reactor Cavity Survey Results using QDS TM GEL

**BEFORE
QDS TM GEL**

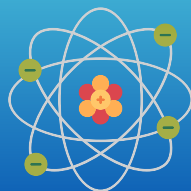
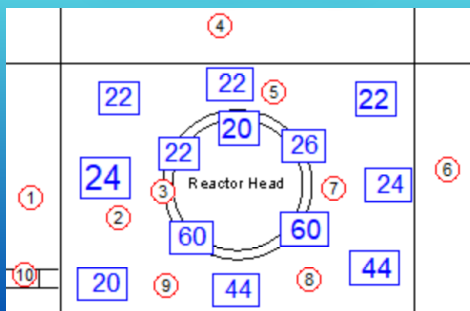
1	Smear	2	β 1,000,000	dpm/100 cm ²	WALL
		4	α 48.9	$\overline{\text{dpm}}/\overline{100 \text{ cm}^2}$	
2	Smear	2	β 10,000,000	dpm/100 cm ²	FLOOR
3	Smear	2	β 4,000,000	dpm/100 cm ²	FLANGE
4	Smear	2	β 800,000	dpm/100 cm ²	WALL
		4	α 23.47	$\overline{\text{dpm}}/\overline{100 \text{ cm}^2}$	
5	Smear	2	β 30,000,000	dpm/100 cm ²	FLOOR
6	Smear	2	β 800,000	dpm/100 cm ²	WALL
7	Smear	2	β 12,000,000	dpm/100 cm ²	FLOOR
8	Smear	2	β 99,999,999	dpm/100 cm ²	FLOOR
		4	α 0	$\overline{\text{dpm}}/\overline{100 \text{ cm}^2}$	
9	Smear	2	β 30,000,000	dpm/100 cm ²	FLOOR
10	Smear	2	β 2,000,000	dpm/100 cm ²	
		4	α 50.3	$\overline{\text{dpm}}/\overline{100 \text{ cm}^2}$	

**AFTER
QDS TM GEL**

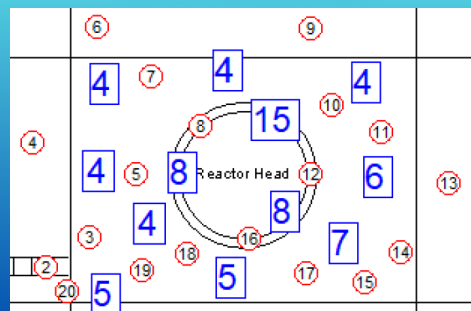
1	Smear	N/A	β/γ 5K	dpm/100 cm ²	LADDER
2	Smear	N/A	β/γ 12K	dpm/100 cm ²	LADDER
3	Smear	N/A	β/γ 60K	dpm/100 cm ²	
		N/A	α <20	$\overline{\text{dpm}}/\overline{100 \text{ cm}^2}$	
4	Smear	N/A	β/γ 7K	dpm/100 cm ²	WALL
5	Smear	N/A	β/γ 15K	dpm/100 cm ²	
6	Smear	N/A	β/γ 10K	dpm/100 cm ²	WALL
7	Smear	N/A	β/γ 80K	dpm/100 cm ²	
		N/A	α <20	$\overline{\text{dpm}}/\overline{100 \text{ cm}^2}$	
8	Smear	N/A	β/γ 50K	dpm/100 cm ²	
		N/A	α <20	$\overline{\text{dpm}}/\overline{100 \text{ cm}^2}$	
9	Smear	N/A	β/γ 20K	dpm/100 cm ²	WALL
10	Smear	N/A	β/γ 15K	dpm/100 cm ²	
11	Smear	N/A	β/γ 25K	dpm/100 cm ²	
12	Smear	N/A	β/γ 3K	dpm/100 cm ²	HEAD
13	Smear	N/A	β/γ 3K	dpm/100 cm ²	WALL

INSTRUMENTS USED: LUDLUM-177 FRISKER, LUDLUM-9-3 ION, LUDLUM-2000 SCALER

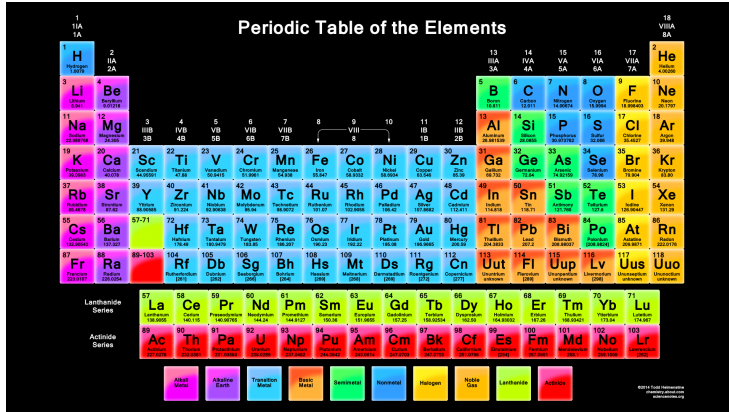
BEFORE QDS TM GEL



AFTER QDS TM GEL



WHICH QDS Solution to use for WHAT element?



TRANSITION METALS (TM)		ACTINIDES (A)				HALOGENS (H)
BARIIUM	LITHIUM	ACTINIUM	IRIDIUM	PRASEODYMIUM	TERBIUM	ARSENIC
BERYLLIUM	MAGNESIUM	AMERICIUM	LANTHANUM	PROTACTINIUM	THORIUM	ASTATINE
CALCIUM	MANGANESE	CADMIUM	LUTETIUM	RADIUM	THULIUM	BROMINE
CESIUM	NICKEL	CERIUM	MERCURY	RHENIUM	TITANIUM	CHLORINE
CHROMIUM	POTASSIUM	DYSPROSIUM	MOLYBDENUM	RHODIUM	TUNGSTON	FLUORINE
COBALT	RUBIDIUM	ERBIUM	NEODYMIUM	RUTHENIUM	URANIUM	IODINE
COPPER	SODIUM	EUROPIUM	NIOBIUM	SAMARIUM	VANADIUM	PHOSPHOROUS
GALLIUM	STRONTIUM	GADOLINIUM	OSMIUM	SCANDIUM	YTTERBIUM	SELENIUM
INDIUM	THALLIUM	GOLD	PALLADIUM	SILVER	YTTRIUM	SULFUR
IRON	ZINC	HAFNIUM	PLATINUM	TANTALUM	ZIRCONIUM	
		HOLMIUM	PLUTONIUM	TECHNETIUM		

NUKE AWAY Decontamination Spray Bottle

Any of the QDS Solutions (Transition Metals, Actinides, or Halogens) are available for use in the Nuke Away dual sprayer

The spray bottle dispenses two liquids at the same time at a predetermined, fixed dilution ratio. This makes it ideal for decontaminating surfaces where the radioactive source term is unknown.



- Advantages**
- Safe & quick ionic-focused solution for radiation removal
 - Cost Effective
 - Safe surface radiation isotope remover
 - First line for safe radiation defense
 - Can be used on intact human skin
 - Environmentally friendly
 - Far superior to Radiacwash or any other similar product
 - Effective on 63 different elements