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TECHNICAL DATA SHEET

S4FE-D™ Hand & Body Soap

CBRN Decontamination Surfactant • Powered by the Bind-It™ formulation

S4FE-D™ Hand & Body Soap is a skin-safe thick lotion-style hand soap built on the same Bind-It™ surfactant chemistry as the rest of the S4FE-D™ product line, formulated for personnel decontamination of the hands and body. Designed to replace routine hand soap at every sink in nuclear medicine departments, nuclear pharmacies, radiopharmaceutical production sites, and research labs, it removes trace contamination during every wash — turning routine handwashing into a low-friction layer of contamination control. For known skin contamination, the same soap delivers a higher level of decon performance when used with a longer dwell time. Originally developed by Laboratory Technologies, Inc. as part of the Bind-It™ formulation family, it has been in active use at university health physics programs, hospital nuclear medicine departments, and radiopharmaceutical production facilities for decades.

PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Off-white, opaque
Odor	Mild almond scent
pH (as supplied)	~8.0 (mildly alkaline, in line with conventional hand soaps)
Density at 20 °C	~1.03 (relative density)
Viscosity	Thick, similar to honey — dispensed from a standard or touchless pump
Boiling point	100 °C (212 °F)
Flash point	Greater than 100 °C — not flammable
Water solubility	Completely miscible

COMPOSITION

S4FE-D Hand & Body Soap is a proprietary thick-lotion-soap formulation built on the same Bind-It™ surfactant chemistry as the rest of the S4FE-D™ line, adapted for direct skin contact. The complete regulatory composition disclosure is provided in the current S4FE-D Soap Safety Data Sheet (available from LTI or at www.labtechinc.com). Specific surfactant chemistry is trade-secret protected and is not disclosed beyond what regulatory requirements mandate in the SDS.

MECHANISM OF ACTION

S4FE-D™ Hand & Body Soap uses the same bind-and-lift mechanism as the rest of the S4FE-D™ line, formulated for skin. The lather binds contamination on the skin into the soap matrix, where it stays until it is rinsed away, so it goes down the drain instead of being spread across the skin. Nothing reacts on the skin and no harsh chemistry is involved. The same mechanism works on chemical, biological and radiological contamination.

APPLICATION

Ready to use. No dilution. Dispense one or two pumps onto wet or dry hands, lather thoroughly for 20 seconds, and rinse. For routine departmental handwashing, this is a drop-in replacement for any institutional hand soap — operators get the same handwashing experience plus trace decontamination on every wash. For known skin contamination, lather and dwell for 30 to 60 seconds before rinsing; repeat as needed. Survey afterward if departmental procedure requires.

Where to install it. Install at every sink where personnel work with hazardous or radioactive material — hot lab dispensary sinks, syringe shielding prep stations, radiopharmacy dose-draw sinks, isotope receiving, decon shower stations, and the

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staff restrooms used by the same personnel. The point of the product is that operators don't have to remember a special "decon wash" — every routine handwash becomes a layer of contamination control. Touchless wall-mounted dispensers (LTI bundles available) reduce the temptation to skip a wash and keep contamination off the dispenser body itself.

Application methods:

- **Routine handwash —** one or two pumps onto wet hands, lather thoroughly for 20 seconds, rinse with water. The active chemistry stays in contact with the skin throughout the lather and removes trace contamination as part of the rinse. Same workflow as any institutional hand soap — that is the design intent.
- **Known skin contamination —** dispense two to three pumps and lather thoroughly over the affected area. Allow the lather to dwell for 30 to 60 seconds before rinsing — the extended dwell gives the binding chemistry time to lift the contamination into the soap matrix. Rinse with warm water. Survey the area after rinsing; repeat the lather-dwell-rinse cycle if contamination is still detected.
- **Whole-body decon shower —** for showering after a significant contamination event, the Hand & Body Soap can be used as the primary cleansing agent over the entire body. Apply to the affected areas, lather thoroughly, allow to dwell, rinse, and repeat as needed. Survey before exiting the decon shower per facility procedures.
- **Final rinse on skin —** routine tap-water rinse is appropriate for skin — no need for DI or distilled water rinse on personnel.

MATERIALS COMPATIBILITY

Material	Compatible	Notes
Routine skin contact	**Yes**	Primary use case. The Hand & Body Soap is formulated for repeated daily skin contact at every handwash.
Sink fixtures (stainless, chrome)	**Yes**	No pitting or etching on standard sink fixtures, faucets, or drain plumbing.
Dispenser components (plastic, stainless)	**Yes**	Compatible with standard lotion-pump bottle bodies, refill cartridges, and touchless wall-mount dispensers.
Open wounds	**Avoid**	Avoid use on open wounds or broken skin — defer to facility medical procedures for wound decontamination.
Eyes	**Avoid**	Avoid contact with eyes. If contact occurs, flush with water for at least 15 minutes and seek medical attention if irritation persists.
Hair / scalp	**Yes**	Compatible — can be used as part of a whole-body decon shower including hair. Not formulated as a daily shampoo; rotate with normal shampoo for routine personal grooming.
Frequent daily use	**Yes**	Designed to replace routine hand soap; tested for the wash-frequency profile of hot-lab and radiopharmacy operators. Like any hand soap, very high-frequency use (dozens of washes per day) can dry skin — pair with departmental hand lotion as needed.
Surface decon	**Verify**	The Hand & Body Soap is not the right tool for surface or equipment decontamination — for that, use the S4FE-D™ Ready-to-Use Spray, the Concentrate, or the Decontamination Wipes.
Sensitive skin / dermatitis	**Verify**	As with any hand soap, individuals with pre-existing skin conditions (eczema, contact dermatitis, allergies to common surfactants) should patch-test before adopting for routine use. Discontinue if irritation develops. Pair with departmental hand lotion to offset drying for very high-frequency wash schedules.

EFFECTIVE CONTAMINANT RANGE

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S4FE-D™ Hand & Body Soap removes chemical, biological and radiological contamination from skin. On the radiological side, it is effective across the radionuclides encountered in personnel-handling work — the same range as the rest of the S4FE-D™ product line. The binding chemistry is not isotope-selective — it captures dispersed contamination regardless of nuclide identity. The categories below are representative examples, not an exhaustive list; in more than 30 years of Bind-It™ use the chemistry has performed on every isotope it has been applied to.

- **Common nuclear medicine isotopes —** Tc-99m, F-18, I-131, I-125, Ga-68, Lu-177, Co-57, and similar
- **Calibration sources —** Cs-137, Na-22, Co-60, Ba-133, and others used routinely in health-physics work
- **Actinides —** uranium, plutonium, americium, neptunium, thorium and their decay products. Binding chemistry is particularly important for actinide work, where redeposition risk on metal substrates is real and the surface microstructure can be permanently compromised by dissolving-chemistry approaches.
- **Beta emitters —** including high-energy beta emitters such as P-32, Sr-90/Y-90

STORAGE AND SHELF LIFE

Storage temperature	5 °C to 30 °C (40 °F to 85 °F) recommended. Avoid freezing and prolonged exposure to extreme temperatures.
Storage location	Cool, dry, well-ventilated. Keep containers tightly closed and labeled.
Light sensitivity	None significant under normal indoor storage.
Shelf life from manufacture	48 months (4 years) from date of manufacture
After opening	Stable for the full 48 months once opened, provided the dispenser is kept capped and stored at standard indoor temperature.

DISPOSAL

Rinsate from routine handwashing goes to normal facility drainage. For decon-shower rinsate with significant contamination, the facility's procedures for that contaminant apply, whether chemical, biological or radiological. Dispose of unused product in accordance with applicable federal, state and local regulations.

AVAILABLE FORMATS

H-0016-S	16 oz lotion-pump bottle — drop-in replacement for any standard sink-side hand soap
S-0032-CV	32 oz refill, rigid bottle — for the LTI stainless-steel touchless wall-mount dispenser

For other S4FE-D formats — Concentrate, Ready-to-Use Spray, Decontamination Wipes, and pre-staged response kits — see the S4FE-D Product Family Summary or visit www.labtechinc.com.

SAFETY DATA SHEET

Hazard classification: H319, causes serious eye irritation (Eye Irritation 2A, signal word Warning). Eye protection is recommended; no special skin measures are required. Refer to the current S4FE-D Hand & Body Soap Safety Data Sheet (SDS) for complete regulatory composition disclosure, hazard classification, exposure controls, transportation information, and toxicological data. The SDS is available from LTI on request — contact sales@labtechinc.com — or download from www.labtechinc.com.

This Technical Data Sheet provides general guidance on S4FE-D™ Hand & Body Soap. Specific applications and personnel-decon protocols should be validated by the end user against their own facility procedures and any applicable medical-safety oversight. LTI is available to consult on application engineering for non-standard use cases — contact sales@labtechinc.com.