

## Frequently Asked Questions About SmartCells Fall Protection Mats and Flooring Products

**Question:** *With the cells on the underside of the SmartCells mat or flooring, does this not create infection control issues?*

**Answer:** While it is reasonable to be concerned with the surface area that is potentially exposed to pathogens, infection control concerns relating to SmartCells flooring products have been extensively addressed. Here are the supporting findings:

1. Each infection control team who has evaluated the SmartCells line of products has concluded their evaluation with the recommendation and authorization of SmartCells mats and flooring products to be utilized within their hospital facilities.
2. While the structure of the SmartCells surface presents potential for exposure, the material used in SmartCells products is non-porous and incapable of absorbing liquid, unlike the typical foam or sponge-based products created of cellular structures which contain more surface area for contamination. With foam-based products, the exposure greatly increases once the product is ruptured or if the coating or protective cover is worn, damaged, or torn, causing the foam-based material inevitably to be exposed, and allowing unwanted pathogens and odors to be absorbed. The foam or sponge products are often discarded after only a few months of utilization, thus warranting additional replacement costs.
3. The concept of an enclosed bottom has been proposed and prototypes have been made. While it may appear to provide logic, the application is not practical. Experimentation has shown that the modification not only adds significantly to the product price, but if the proposed underneath sealed membrane is breached, (even by a single pin hole), the ability to disinfect the underneath surface is eliminated. There would be no access to appropriately clean the “now exposed” inner surface, due to the remainder of the underside being sealed and non-accessible.
4. SmartCells wall to wall flooring, instead of mats, is an option often selected. The concern of infection control with SmartCells being exposed is now eliminated. The “wall to wall” SmartCells application is sealed off entirely by the utilization of vinyl flooring installed over the entire SmartCells tiles and transitions. The completed flooring system is now similar to the flooring utilized throughout the facility, being properly cleaned and maintained for infection control purposes in the exact same manner as the standard rooms in other locations. The SmartCells wall to wall application provides the appearance of a standard room, and yet delivers protection and comfort throughout the entire room as only SmartCells products can provide.

- The following infection control results were included as part of a Canadian-based flooring trial and is also available as a separate document. The “flooring base” in the test below was a SmartCells tile, whereas the “flooring laminate” was a commercial sheet floor covering over a SmartCells tile.

### **Protocol**

The second tier of a quantitative carrier test (QCT-2), a standard of ASTM International was used to determine the bactericidal activity of a test formulation containing 0.5% hydrogen peroxide. To simulate the presence of body fluids, each 340 µL of a suspension of *Staphylococcus aureus* (ATCC: 6538) was mixed with 35 µL 5% yeast extract (Difco, Detroit, MI), 25 µL 5% bovine serum albumin (Sigma, St. Louis, MO), and 100 µL 0.4% bovine mucin (Sigma), all in 0.3 mmol/L potassium phosphate buffer, with 0.05% MgSO<sub>4</sub>. One cm<sup>2</sup> square cutouts of the flooring components (base and laminate) were used while stainless steel disks (1 cm diameter; 0.7 cm thick) acted as prototypical hard environmental surfaces. Each surface was contaminated with 10 µL test bacterial suspension.

The inocula on the disks were first air-dried for 20 minutes in a laminar flow cabinet and then for at least 2 hours under vacuum in a desiccator. One disk each was then placed, with contaminated side up, at the bottom of a sterile 20 mL glass vial, covered with 50 µL of the disinfectant and held for the desired contact time at room temperature. Control disks received an equivalent volume of normal saline with 0.1% Tween 80 (Saline-T). At the end of the incubation time, the action of the disinfectant was stopped by the addition of 9.95 mL neutralizer (see below). The contents of the vials were vortexed for 3 to 5 cycles of 30 seconds each to elute the inoculum from the surface of the disks. The eluates and several washes of the vials with Saline-T were passed through a membrane filter (Millipore Corp.; 47 mm diameter; 0.2 µm pore size). Each filter was then placed on the surface of an appropriate agar recovery medium. The plates were incubated at 36°C ± 1°C; CFU were counted at 2 days and again at day 5, and log<sub>10</sub> reductions in bacterial titres were calculated.

### **Results**

<b>Condition</b>	<b>Input in 10 µL (CFU)</b>	<b>After Drying (CFU)</b>	<b>After Exposure to Disinfectant (CFU)</b>	<b>Log Reduction</b>
<b>Flooring Base</b>	4x10 <sup>6</sup>	2.5x10 <sup>6</sup>	0	6.39
<b>Flooring Laminate</b>	4x10 <sup>6</sup>	3.0x10 <sup>6</sup>	0	6.47
<b>Stainless Steel</b>	4x10 <sup>6</sup>	2.4x10 <sup>6</sup>	0	6.38

### **Conclusions**

The flooring base and laminate acted in a similar way to that of stainless steel in terms of recovery of the microbe from the surface. Disinfection was also easy to perform also with results similar to that of stainless steel. Thus, the flooring meets requirements for infection control as it is cleanable without being damaged by a regularly used cleaning agent.

**Question: *How are SmartCells Fall Protection mats cleaned?***

**Answer:**

1. General Guidelines: Clean up spills as soon as possible. Note that some fruit juice, vinegar, alcoholic drinks, or other similar drinks or foods may discolor the grey or the brown mats if the spilt items are allowed to remain on the mat surface for an extended period of time. Disinfect the SmartCells surface as you would normally disinfect a standard floor, following the chemical compatibility guidelines for the SmartCells material.

For “disinfectant cleaning” we recommend an appropriate dilution of TASKI NDC, (or similar product) which is a concentrated pH neutral detergent/disinfectant cleaner formulated to provide one-step, no-rinse cleaning. This product provides exceptional cleaning performance and is an EPA registered hospital grade disinfectant that provides protection against bacteria, virus, fungus, and mildew. It is also appropriate to use a diluted bleach (Sodium Hypochlorite) solution, or an alcohol-based solution. The use of an autoclave is appropriate, provided it is limited to 2 hours or less, and no more than 250 degrees F.

2. Method: Since SmartCells bedside mats are designed to remain stable and in place for caregiver activities like standing, walking, wheeling, transferring, etc., they are by definition heavier than typical unstable foam-based mats, and generally do not need to be moved. For regular cleaning, there is no lifting necessary. We recommend that one end of the mat be “rolled” toward the middle of the mat, providing access to the floor and the underside of ½ of the mat. Unroll into place after cleaning. Repeat from the other end. SmartCells mats may also be removed as needed, and cleaned outside, or in appropriate commercial cleaning equipment.
3. Wall to wall Flooring: Due to the SmartCells structure being sealed entirely under a flooring surface installed over the SmartCells tiles, the flooring surface can be cleaned and maintained for infection control purposes following the standard protocol currently performed for established floors throughout the facility. (Please note: automated, mechanically driven floor machines should not be used on a SmartCells surface.)

**Question: *Are there any special cleaning considerations or methods of which maintenance or environmental services personnel should be aware?***

**Answer:** Some cleaning and or infection control procedures employ the use of easily detachable micro fiber mop heads which are intended to be used on slippery-when-wet surfaces, similar to standard non-cushioned floors. These cleaning tools and procedures should work well on standard SmartCells fall protection mat(s) with applied cleaning fluid. The SmartCells fall protection mat surface has been treated with a ‘silk finish’ to enable smooth wiping.

**Question: *The mats can be heavy, if needed, how can the mat be moved?***

**Answer:** SmartCells products provide protection and comfort during typical caregiver activities of standing, walking, wheeling, transferring, etc., without requiring movement of the mat(s). In the event it is necessary to move the mat we recommend the following steps: Roll the mat up from one end, stand the mat up onto the rolled end, place a tie of some sort around the mat to avoid unrolling, slip the plate of a dolly or hand truck under the mat, lean the dolly or hand truck back, and wheel the mat away. Reverse the process to restore the mat to its desired location.

**Question:** *How is SmartCells affected by rolling loads?*

**Answer:** The force required to roll objects on SmartCells products is dependent upon the size of the wheels or casters, the weight of the object being rolled, and the type of floor covering placed over the SmartCells tiles, as is common in wall-to-wall installations. Heavily weighted objects may “settle” into the SmartCells. The initial force to move a settled object will be higher than sustained forces to keep the object moving.

It is recommended that beds and heavy objects use “load spreaders” under each wheel or floor contact point. During the SmartCells wall to wall installation, “stiffened zones” located under the bed can be implemented to ease initial push-pull forces when temporarily moving the bed for cleaning or for other purposes. Rooms where beds are moved frequently during a day, or during a week, may not be a suitable application for SmartCells fall protection floors.

Wheeled objects that weigh less than 200 pounds, with wheel sizes equal to or greater than 1” wide by 3” diameter, can generally be rolled without difficulty. Smaller wheels or greater weights may require two people to move the object without difficulty. Rolling loads greater than 400 pounds are not recommended, especially if wheel sizes are smaller than 1” wide x 5” diameter.

**Wheel Chairs**

Traditional wheel chair designs with larger rear wheels and smaller front wheels, will roll successfully on the SmartCells floors. Power assistance is recommended with loads greater than 300 lbs.



Loaded wheel chairs, left in place for several minutes, or if the chair load may be especially heavy, may “settle” slightly as the SmartCells appropriately respond, making it more challenging to create the initial momentum to easily roll. If this is the case, it is recommended, easier, and safer to PULL the wheelchair backwards several inches BEFORE pushing. This takes advantage of the weight distribution on the larger rear wheels, which allows the smaller front wheels of the chair to overcome any surface settling before moving forward.

**Patient Lifts:** If non-powered lifts are used, it is recommended that more than one person should be involved in moving the loaded lift. Otherwise, ceiling lifts or lifts with powered wheels are recommended.

**Question: How slippery is the SmartCells fall protection mat in the presence of liquid?**

**Answer:** SmartCells surface friction testing in the presence of liquid has been determined to be acceptable. Friction test results are available upon request.

**Question: How much do SmartCells Fall Protection solutions cost?**

**Answer:** Bedside fall protection mats range from \$200 - \$400 (USD), depending on the color and size of the mat. SmartCells Fall Protection mats present preferred value in the marketplace with their **effectiveness, positive impact on infection control, dual functionality** for the caregiver as well as patient, along with an **8-year warranty**.

A typical value comparison includes:

	Price	# of at-risk persons	Warranty Years	Weeks / Year	Day / Week
SmartCells	\$400	1	8	50	7
Other Mat	\$200	1	1	50	7

	Price / at-risk person	Price / at-risk person / Year	Price / at-risk person / Week	Price / at-risk person / Day
SmartCells	\$400.00	\$50.00	\$1.00	\$0.14
Other Mat	\$200.00	\$200.00	\$4.00	\$0.57

Wall-to-wall SmartCells fall protection flooring pricing depends on the specific area to be covered. We provide a customized quotation for your specific needs and application. Pricing generally ranges from \$20 to \$40 per square foot; price factors include room size, transitions, finished floor covering selection, and installation costs.

**Question: *How do SmartCells compare with other fall protection mats?***

**Answer:** SmartCells has unmatched technology providing multiple features not available with other products in today's market.

SmartCells:

- Available in various rubber formulations, not foam
- Becomes softer, "cushioning" upon impact, not harder like foam or sponge
- Incapable of absorbing liquid, reducing infection control concerns
- Stable surface for standing, walking, wheeling, and transferring, yet providing comfort while standing and or walking
- Also available as wall to wall flooring or custom configuration
- Provides an 8-year warranty

**Question:** *If SmartCells is covered by another finished flooring surface, how does that effect cushioning?*

**Answer:** Depending upon the stiffness and thickness of the covering, typically the 'point elastic' cushioning properties are not significantly degraded with resilient floor coverings, such as sheet vinyl or carpet tiles.

**Question:** *How is SmartCells fire rated?*

**Answer:** SmartCells is a Class I fire rated material when covered with Sheet Vinyl or vinyl-backed Carpet Tile.

**Question:** *Are there any chemicals that should not be used on SmartCells bedside mats?*

**Answer:**

DO NOT USE Quaternary ammonium compounds outside dilution recommendations.

DO NOT USE HYDROCARBON SOLVENTS SUCH AS PAINT THINNER.

DO NOT USE OIL-BASED CLEANING SOLUTIONS SUCH AS MURPHY'S OIL SOAP or PINESOL.

DO NOT USE PASTE WAX.

DO NOT USE VINYL CLEANERS SUCH AS ARMORALL.

**Question:** *Does SmartCells contain latex?*

**Answer:** No.

The term latex is most generally used to refer specifically to natural rubber. Occasionally skin contact with a natural rubber latex will produce a type 1 allergy. SmartCells products are made from synthetic rubber not natural rubber, and therefore these allergies have not been reported with SmartCells use.

**Question:** *Do SmartCells Fall Protection Mats have an odor?*

**Answer:** A slight odor has been associated with new rubber, and usually dissipates within a few days or weeks. Circulating air allows the odor to dissipate more rapidly becoming unnoticeable. The odor can be blocked if a covering or coating is placed on the mat as in wall-to-wall flooring installations. As stated good air circulation assists to dissipate any rubber smell.

**Question:** *Do SmartCells Bedside Fall Protection Mats come in different colors?*

**Answer:** Yes, black, brown, or grey colors are available.