

CLEANPatch®-V

Wheelchair Cushion Fatigue Study: Determining the long-term durability of CleanPatch®-V in repairing various wheelchair cushions

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Background

Surfaces play a key role in the transmission of healthcare-acquired infections, and thorough cleaning of the healthcare environment is crucial to patient safety. Damaged soft surfaces cannot be properly cleaned and may harbor pathogens that pose a risk of cross contamination.¹ CleanPatch®-V is newly developed Health Canada and FDA registered Class 1 medical device specifically designed to restore damaged vinyl surfaces to an intact and hygienic state. **A study of CleanPatch-V on wheelchair cushions was completed to evaluate its durability and performance over a simulated 3 year period.**

Experiment Design

EC Services, a third-party laboratory that specializes in testing mattress and wheelchair surfaces, evaluated the performance of CleanPatch-V on two types of widely available healthcare wheelchair cushions. The cushions were fabricated of either polyurethane coated nylon, or vinyl coated nylon. Several ISO standards were followed, notably ISO 16840-2 Wheelchair Seating SOP No. 802.004. Different sizes of CleanPatch-V were applied to the ripped cushions at room temperature (23°C), and allowed to cure for 24 hours before beginning the test. A buttocks shaped indenter mounted on a cyclic loader in a chamber at 70°C was utilized to conduct the fatigue testing.

Results

Over a period of 5 days, there were 90,000 compressions with the indenter on the two ripped cushions repaired with CleanPatch-V. There was no loss of integrity of the patches following the test cycle, and no evidence of lifting or peeling in any way. Based on the criteria set forth by EC Services, CleanPatch-V applied to both a polyurethane and vinyl wheelchair cushion passed the fatigue test.

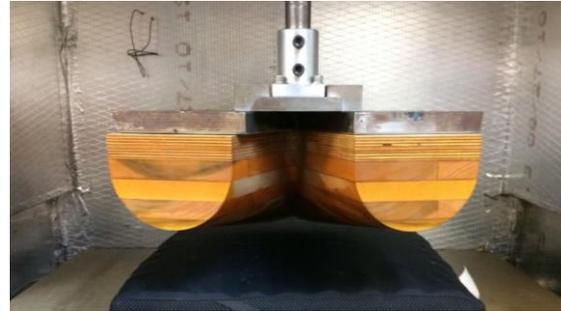


Figure 1: Cyclic Loader with Indenter

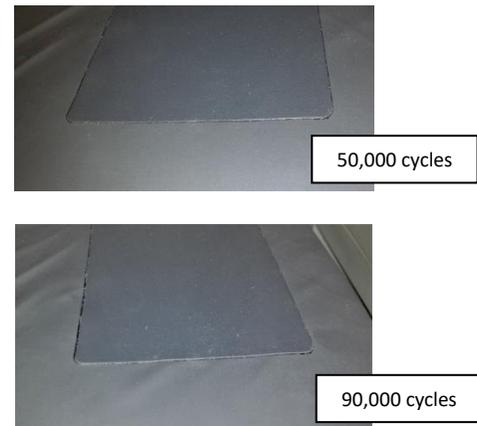


Figure 2: CleanPatch-V after 50,000 and 90,000 cycles

Conclusion

CleanPatch-V is durable in the repair of damaged wheelchair cushions after three years of simulated use.

For more information about this case study, please contact Tony Abboud, at tony@surfacemedical.ca

References:

1. FDA Safety Communication: Damaged or worn covers for medical bed mattresses pose risk of contamination and patient infection. April 19, 2013