



Environmental Impact Overview

Helen Kerr 2007

We addressed sustainability issues both during manufacture and over the lifetime of the product.

The increasing reality in a healthcare facility is the alarming rate of hospital acquired secondary infections. The current institutional protocols for furniture include chemical surface treatments that off-gas as well as a toxic brew of harsh cleaning solutions used to meet infection control regulations over the lifetime of the chair. Combined, these "preventions" may actually contribute to the development of resistant "superbugs." Existing healthcare upholstery solutions must often be cleaned with proprietary stain specific cleaning agents to be effective. Teflon, with all its problematic PFOAs and PFOSs, is a surface treatment also widely used in healthcare coverings for soil resistance and is currently under review as a carcinogen. And bromine, regularly used as a flame retardant treatment, has been implicated as a cause of neurological damage.

In contrast, we selected and developed surface coverings that are anti-microbial, anti-fungal and fully cleanable with soap and water, or steam. Our patented molded silicone covering is inherently inhospitable to bacteria, viruses and moulds due to its physical, chemical and surface structure. It also has flame resistant properties without additives of any kind. Molded silicone is inert and does not off-gas at all. Microcare is a nano-silver infused textile that kills microbes by oxygen depletion rather than chemical assault, preventing mutation. All Sittris surfaces are Teflon free, bromine free, and have no PVC or plasticizers.

We recognized that furniture in a healthcare environment sees triple the use over time compared to typical office furniture as most institutions are open 24 hours a day, 7 days a week. In addition, the facility is subjected to continuous soiling, as well as contamination with various and sometimes highly infectious bodily fluids. As with any

public seating, the chairs will be subjected to a number of assaults, in the form of adhesives (commonly used by healthcare workers), food spills, chewing gum, graffiti and general wear and tear. Nothing sticks to silicone except silicone; this combined with the other highly durable production materials such as aluminum and steel further increases the lifespan of the product.

To minimize disposal of whole chairs when they are inevitably damaged or worn, we built the chair as a component system that would allow for simple field replacement or repair of all parts. Seventy-five of the chairs in the series are built from a combination of nineteen interchangeable, re-configurable main parts with universal fastening points. Should a facility choose to redesign its space, the furniture can be re-purposed with additional or alternate parts. All joinery is mechanical allowing all parts to be fully disassembled into discrete material streams for recycling at the end of the average 20-year lifecycle. The aluminum legs are 100% recycled material, the internal foam used has a 10% soy oil composition and PA6 GF-30 is a known recyclable material.

Fewer and smaller steel tools were required to build the parts in the first place and minimal material is used in each part. Smaller parts are run on smaller presses consuming less energy. Since the same parts are used repeatedly in different combinations, inventory is streamlined. The silicone parts are molded in southern Ontario and the chairs will be assembled at the Toronto facilities of Keilhauer.

Plant worker health and safety was considered as well. No adhesives are used in assembly and manufacturing does not subject the assembly line staff to chemical off-gasing. Keilhauer has long established environmental protocols for their physical plant as well as their products and has been a leader in continuously evaluating and improving the materials and methods employed in their furniture production.