Sileather® Sustainability Report 2021

Introduction:

At Sileather®, we recognize the significance of climate change and the consumption of natural resources that poses the greatest impact on future generations.

We are committed to doing what is right in minimizing our impact on the environment. Our approach to providing sustainable values is divided into multiple dimensions throughout the entire process of the production and operation of Sileather® products:

1. **Clean production process**

·Solvent-free manufacturing technique

·Low waste emissions

·Reuse production materials

·Low energy conservation

·Land use

·Lean logistics management

·Plant certifications

2. **Safety of materials**

·Safety of silicone coating

·Eco-friendly backing options

·Recycled content

·Recyclable materials

·Environmentally friendly pigments

·Chemically safe

3. **Healthy and safe products**

·Clean air quality

·Hypoallergenic and healthcare grade

·Safety of Combustion

·Prolonged life expectancy

·Heat dissipation

4. **Social accountability**

·Humane production

1. Clean and low energy consumption production process

·Solvent-free manufacturing technique

Unlike traditional coated textiles (PVC and polyurethane) and leather manufacturing that often involves toxic solvents, butanone, and plasticizers, Sileather® adopts a solvent-free technique that ensures a safe and clean production process and environment. With no solvents being used, we further limit our waste emissions.

·Low-waste emissions

While many traditional leather manufacturers produce large amounts of wastewater and emissions from tanning, wet bass, and other production processes, the advanced production process that creates Sileather® fabrics produces virtually no wastewater.

Accordingly, there is no water pollution and zero solvent emissions in the production of our silicone fabrics. Sileather® does not decrease water quality, and only a small amount of waste gas is discharged after being safely treated via RTO combustors, activated carbon absorption, and UV photolysis.

·Reuse production materials

During the manufacturing and operation process, we reuse leftover raw materials for other production, recycle silicone waste rubber into monomeric silicone oil, reuse packaging materials including cardboard and polyester bags, and repurpose production materials such as using spent release paper for packaging.

·Low energy conservation

As there is no need to apply solvents, flame retardants, adhesives, or topcoat treatments, all of which are common methods to enhance upholstery performance and texture, the production of Sileather® has considerably low energy consumption in the industry.

·Land use

All Sileather® facilities do not create competition for, or deplete, food/medical resources. The majority of our of production materials are locally sourced to minimize our carbon footprint.

·Lean logistics management

Sileather® has implemented a lean approach to materials management and logistics that aims to achieve synergies and efficiencies that reduce both costs and our environmental impact, including CO2 emissions, energy use, water consumption, and waste. As part of our approach, our North America and European staff are all working remotely, and much of the work is completed by using online teamwork programs with paperless communications to increase efficiency and reduce our environmental footprint. In addition, we use multiple sub-contracted warehouses in different locations to keep products that meet the specific demands locally. We conducted analyses at our

markets and customer preferences, and strategically track and plan our inventory distribution to minimize transportation distance and time, and to support local deliveries and pick-ups. These approaches allow us to simplify logistics and administration processes, minimize land use and energy, and reduce fuel and carbon emissions.

·Plant certifications

Our manufacturing facilities strives to meet the highest standards and are in the process of obtaining quality and sustainability certifications including - IATF16949, ISO9001, ISO14001 and ISO45001.

2. Safety of materials

·Safety of silicone coating

Promoting the safety of materials is to reduce overall human and environmental health and safety risk through reducing inherent hazards. The composition of Sileather® is amazingly simple and therefore safe: 100% silicone coating and a textile substrate.

From its simple beginning as simple quartz sand, it is most abundantly available and can be found everywhere in the world. It requires no petroleum or petroleum-based products to produce the silicon compound unlike many other textile coatings. Once it is processed, silicone becomes a familiar material that has been proven safe to use everywhere: baking mats, oven gloves, pacifiers, eye contacts, medical devices, and now, Sileather®: 100% silicone coated fabrics.

·Eco-friendly backing options

Concerning the backing materials of Sileather®, we offer a variety of recycled, recyclable, and renewable materials that are strategically sourced as our textile options.

·Recycled content

The recycled content for polyester backing can be up to 100%. Using recycled silicone coating with recycled backing, the total recycled content of Sileather® can reach up to 90%. Renewable and biodegradable materials such as organic cotton can be utilized as a more environmentally friendly option.

·Recyclable

The process for recycling Sileather® can be attained by separating the silicone from the backing textiles and recycling the two parts individually. Another option is to upcycle Sileather® with local partners by turning the scraps into accessory products.

·Environmentally friendly pigments

To further ensure the safety of the material, all pigments are strictly sourced according to eco-friendly standards, many of which are food-grade. Sileather® has referenced the DIN 54231 standard and

does not use carcinogenic dyes, allergenic dyes and other dyes prohibited by the EU.

·Chemical safe

Coated fabrics are often produced with hazardous chemical additives and flame retardants to achieve higher performances such as hydrolysis resistance, cleanability, softness, and flame resistance. These products continuously release hazards into the air over time that cause health concerns to humans and the overall environment. Leading hospitals have launched the Healthier Hospitals Safer Chemicals Challenge to promote healthy interiors by eliminating the use of formaldehyde, perfluorinated compounds, polyvinyl chloride (PVC), antimicrobials, and all flame retardants. Sileather® materials meet all the requirements of their goal and contain no biocides, antimicrobials, plasticizers, formaldehyde, mercury, PFCS, BPA, or the other harsh chemicals. Sileather® is inherently flame resistant and does not require the use of flame retardants. Sileather® materials are compliant with RoHS, REACH, California Prop 65, CAL 01350, and AB2998, and qualifies for these international and domestic environmental programs: LEED v4, GREEN GLOBES, BREEAM, BREEAM INTERNATIONAL, LIVING BUILDING CHALLENGE, CHPS, US EPA FEDERAL PURCHASING

View our indoor advantage gold certificate

RoHS - Detection is mainly concerned with heavy metals (lead, mercury, cadmium, hexavalent chromium) and some flame retardants (polybrominated biphenyls and polybrominated diphenyl ethers).

REACH - Detection is mainly for heavy metals, dyes intermediates, perfluorinated compounds, flame retardants, pigments, anti-ultraviolet agents, chemical solvents, and other toxic substances (currently 169 items).

California Prop 65, & CAL 01350 - The exposure of a listed chemical poses “no significant risk level” for cancer causing chemicals or “no observable effect level” for chemicals causing birth defects or reproductive harm.

California AB-2998 – Prohibiting Flame Retardants in Juvenile Products, Upholstered Furniture and Mattresses.

3. Healthy and sustainable products in use

·Clean air quality

We take a long-term approach when considering the production of Sileather® and want to do our part to minimize the impact on environment while providing a high-performance product as the alternative solution to traditional coated fabrics.

The philosophy of Sileather® is "made with simplicity," which includes a solvent and additive-free production process that promotes good air quality with ultra-low volatile organic compounds (VOCs).

Effects of having VOCs can be shown from this example: when a room reaches certain concentration

of VOCs, the air and environment in it can cause headaches, nausea, vomiting, fatigue, and other symptoms, including severe convulsions, coma, damaging to the liver, kidneys, brain, and nervous system, resulting in memory loss and other serious consequences.

Comparatively, PVC and polyurethane fabrics may and, oftentimes, do contain odors that are caused by plasticizers and other chemicals that often are caused from solvents (DMF, methyl ethyl ketone, formaldehyde), finishing agents, fatliquors, and flame retardants. Waterborne polyurethane also remains as polyisocyanates and amines. As Sileather® fabrics do not contain many of these odor causing chemicals, our products are odorless and have been tested with ultra-low VOCs and certified as Indoor Advantage Gold. It is among the healthiest fabrics, making it perfect for use around children, hospitals, hotels, boat cabins, trains, and enclosed spaces.

·Hypoallergenic and healthcare grade

Sileather® silicone fabrics are made with the same material as pacifiers and are safe and gentle enough even for babies' skin. Other applications of silicone include catheters, contact lens, swimming ear plugs, baking molds, among many other medical device grade and food grade devices. Sileather®™ has been tested for the biocompatibility tests that are typically required by healthcare and medical devices: CYTOTOXICITY (MEM ELUTION) [ISO-10993-5] with a passing score; and SKIN IRRITATION [ISO-10993-10] as a negligible irritant. Both tests were conducted in compliance with the US FDA Good Laboratory Practice (GLP) regulations, as directed in 21 CFR PART 58. This means that prolonged exposure to Sileather® fabrics will not cause irritation to skin and is hypoallergenic.

·Safety of combustion

Upholstered furniture flammability testing is designed to ensure that the materials meet standards and regulations to help mitigate the intensity of household and commercial building, transportation vehicle fires. Without using flame retardants, Sileather® materials have passed and exceeded a wide range of flammability tests from households, commercial buildings including offices, hospitals, hotels, restaurants, and public transportation such as trains, cruise ships, and automotive. Besides a natural low smoke density, Sileather® contains low combustion gas toxicity. The combustion products from silicone coating are simply water, carbon dioxide, and silica; whereas the combustion products of PVC and PU coatings are highly toxic and suffocating. The typical combustion products of PVC coating includes: HCl, dioxins, carbon dioxide, benzene ring compounds, and the combustion products of PU coating often includes hydrogen cyanide, cyanophosphoric acid, co2, and phosphorus-containing compounds.

·Heat dissipation

In hot weather, upholstered furniture using Sileather® provides a cool and dry touch compared to traditional faux leather seating. This not only helps users to stay cool and comfortable, but also helps limit the usage of air conditioner, which further helps to reduce greenhouse emissions. The mechanism behind is due to the silicone properties.

Silicone has a much higher thermal conductivity of than that of PVC and polyurethane (PU). In addition, the production of PVC and PU coated fabrics usually adopt a foaming method in pursuit of a soft texture: by adding a thin foam layer in between the substrate and top coating, it provides a cushion to enhance the softness of the fabrics. This foam layer itself is a heat-insulating material, which further reduces the thermal conductivity of PVC and PU coated fabrics. Therefore, when placed in an air-conditioned environment, Sileather® cools faster than other coated fabrics as well as genuine leather.

·Prolonged life expectancy

As Sileather® is naturally resistant to salt spray, high and low temperatures, UV aging, and the other weathering properties, it does not encounter the common problems of traditional coated fabrics. Polyurethane coated fabrics often have hydrolysis issues, whereas vinyl (PVC coated fabrics) will eventually crack due to the migration of plasticizers inside of the coating. In addition, silicone is inherently easy to clean and resistant to many harsh sanitizers, making Sileather® ideal for environments that require higher standards such as marine, commercial, and high traffic seating, and healthcare applications. These applications can quickly wear out upholstery and lead to a short lifespan of products. A short turnover means extra production and operation cycles which involve chained environmental impacts. By extending the life of its use, Sileather® helps reduce the environmental footprint.

4.Social accountability

·Humane production

Sileather® is committed to creating a environmentally friendly as well as humane products with non-discrimination and disciplinary practices throughout the manufacturing and operation sites. Our manufacturing facilities have on site have been audited and certified by third party organizations and we do not engage in or support the use of forced labor or child labor.