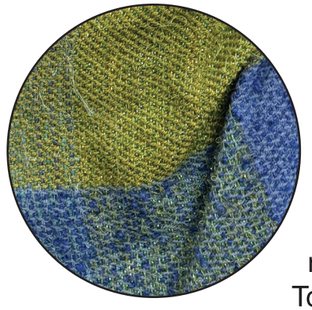
Shine and Sustainability

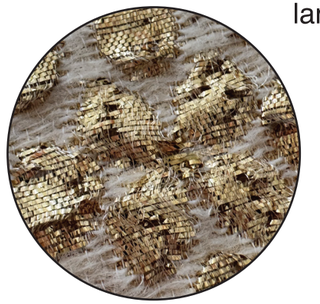
All That Glitters… explores the use of reflective materials in modern fashion, focusing on what they are made from and how museum collections conserve them for long-term storage.

Producing fashion is energy-and resource-intensive. According to the European Environment Agency, the textile sector was the third largest in terms of water degradation and land use in 2020. Use this guide to match the magnified images to their exhibition objects, and learn more about the environmental challenges associated with reflective materials in fashion and contemporary research and innovations that may help to resolve them.

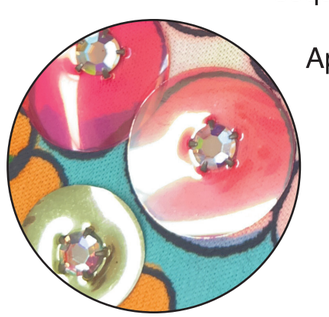


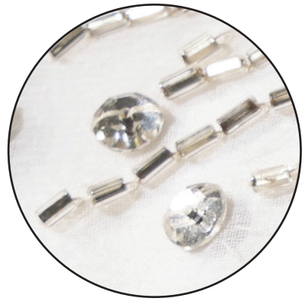
LUREX is a shiny synthetic fiber made of aluminum-coated plastic, popularized in the mid-twentieth century by American textile designer Dorothy Liebes. On average, aluminum foil takes up to 80 years to biodegrade, while most plastics are non-biodegradable. However, aluminum may be recycled indefinitely without losing its quality. Today, the Lurex brand manufactures a line of yarn produced with post-consumer recycled polyester or pre-consumer polyamide or rayon that are Global Recycled Standard (GRS) certified.

Historically, **LAMÉ** is a fabric woven from thread produced by twisting a flattened, thin strip of metal, typically gold, silver or gilt, around a silk core. Since the mid-twentieth century, lamé made of genuine metal threads is rare. Today, imitation lamé is manufactured using flat metallic yarns like Lurex, or aluminum or Mylar wrapped around a cotton or synthetic—often polyester—core. Polyester is non-biodegradable, is made using fossil fuels, and is prone to contaminating soil in landfills. Worldwide, 80% of plastics are never recycled. However, imitation lamé created from recycled aluminum and recycled synthetic fibers may be eligible for GRS certification.



SEQUINS are small, usually shiny discs stitched onto fabric to create a glimmering surface. Today, they are often made of polyethylene terephthalate (plastic), modified regenerated cellulose (plant material), mica, or synthetic mica, and coated with aluminum or other synthetic materials. The process of punching out sequins leaves behind tiny punched circles and leftover film known as “punchinella.” Approximately 30% of the film used to punch out sequins goes unused. Some sequin manufacturers are starting to offer consumers “punchinella” to purchase on their websites, rather than sending it to landfills.

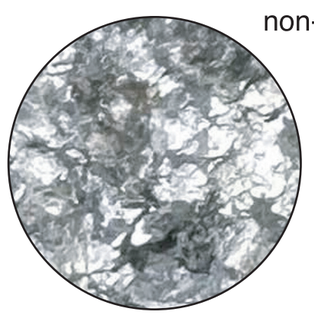




Named after the rock crystals of the River Rhine in Europe, **RHINESTONES** are human-made gems often manufactured from acrylic or glass, with the most common raw material being quartz sand. A study from South China shows that crystal rhinestone workers are at higher risk of developing silicosis due to constant exposure to silica dust during the cutting, grinding, polishing, and buffing processes, revealing the need for more effective dust control measures and health surveillance. Eco-friendly developments in rhinestone production include some companies such as ECO Gem, which uses recycled glass and crystal rocks.

POLYURETHANE, or **PU**, is a synthetic material often used in fashion as a coating for its durability, water resistance, and ability to mimic leather. Like most plastics, PU is derived from fossil fuels and requires highly energy-intensive production. However, PU is often considered to be more environmentally friendly than most plastics because it is highly resistant to wear and does not change the pH of soil and water. Currently, there are efforts to develop bio-based PU made from vegetable oils rather than fossil fuels.

MICA is a raw mineral commonly used in cosmetics for a shimmery effect. Mica mines often use child labor and have poor health and safety standards. India and Madagascar are the top producers of mica–an estimated 10,000 children in Madagascar work in mica mines. Currently, there is no certificate for ethical mica. However, the Responsible Mica Initiative is a non-governmental organization working to eliminate child labor and unsafe working conditions in the mica industry by mapping the supply chain and encouraging legal frameworks which provide better conditions for the workers.



The Sustainability of Glitter

Commercial glitters for cosmetics and apparel are usually made of plastic with an aluminum layer and typically measure around 5mm or smaller, which puts them in the category of “microplastics.” Studies show that glitter has a greater presence in aquatic and terrestrial habitats when compared to “microbeads,” which measure less than 1 mm and have been banned in the U.S. since 2015.

In recent years, several manufacturers have taken steps toward producing biodegradable glitter. However, a 2020 study has shown that some common alternative forms of glitter, such as modified regenerated cellulose, mica, and synthetic mica, leach toxic chemicals into the environment, affecting surrounding plant life and revealing the need for more research and innovation in this area.

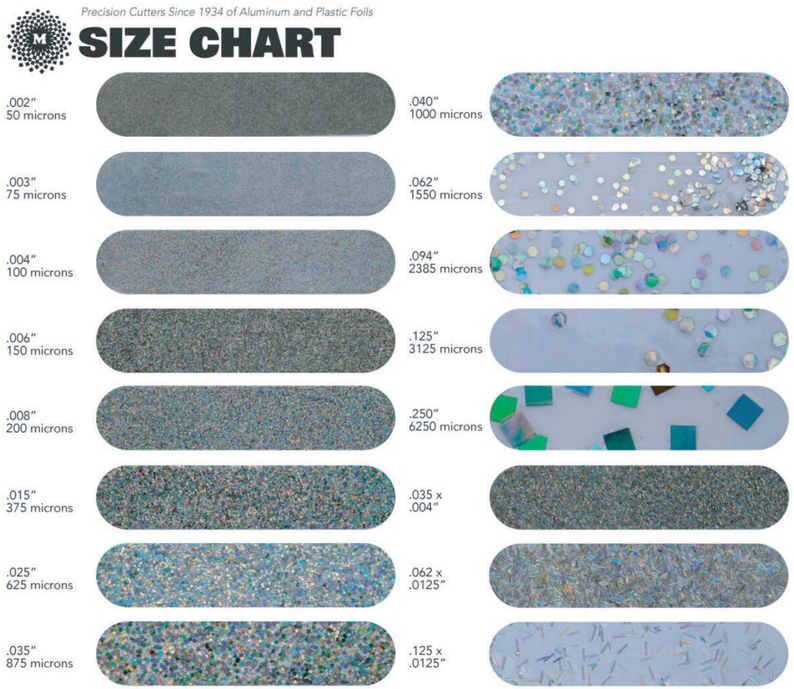


Image courtesy of MEADOWBROOK INVENTIONS INC.

Glitter Ban

In 2023, the European Union enacted a ban on glitter. Critics of the ban described the environmental bias against glitter as “gotcha environmentalism,” citing that glitter makes up about 0.1% of microplastics in the ocean, compared with the 35% generated by clothing production and care.

Shine in fashion has existed as a form of expression long before the development of unsustainable practices. Nicole Seymour, a professor of environmental cultural studies, says that “the environmentalist bias against glitter could be sent to encode, or at least serve, homophobic, transphobic, misogynist[ic], effeminate-phobic, racist, nationalist, xenophobic, fascist, and classist values.”

With all this taken into consideration, what do you think the benefits and drawbacks of banning glitter are? Do you think sustainable and ethical production of shiny materials is possible?

Local Recycling Resources

Check out these NYC organizations to learn how you can contribute to a more sustainable fashion and textile industry.

FABSCRAP is a nonprofit organization in Brooklyn which collects textile waste from businesses and private citizens for recycling, reuse, and reselling. Volunteers are invited to sort textiles in exchange for free and discounted fabric.

Green Tree Textiles provides recycling services for used clothing, shoes, and accessories. Green Tree offers pickup services or bins to install in a local community.

Wearable Collections is a waste management company which installs bins around NYC for locals to drop off gently used clothing for recycling and reuse.