

CLEAN IMPACT TEXTILES™ FAQ

INDUSTRY FIRST – 100% POST-CONSUMER RECYCLED BIODEGRADABLE POLYESTER

- Biodegradable (Under ASTM D5511) – enables anaerobic digestion in landfill conditions*
- Designed and manufactured for recyclability
- Bi-circular Textile Economy Model
- Meets or exceeds the ACT performance guidelines
- NSF/ANSI 336 – Sustainability assessment for commercial interiors textiles, and carries the Facts Gold certification mark
- Could contribute to LEED points for recycled content and materials and resources

What makes CLEAN IMPACT TEXTILES™ biodegradable?

There is a biopolymer catalyst additive mixed with the recycled polyester chips at the extrusion step. The mix is made at the molecular level to create food for microbes. To biodegrade it needs to be exposed for a long time with moisture in an anaerobic condition like landfill, wastewater treatment systems, or the ocean.

How long does it take to biodegrade?

Based on the ASTM D5511 test done with the same component (PET) polyester, 91% biodegradability was achieved after 1,278 days. Compared to a standard polyester yarn without the biocatalyst additive, after the same period, it had biodegraded only at 6%.

What is exactly the ASTM D5511 test?

The D5511-02 test method was designed by the American Society of Testing and Measurements (ASTM)** and is used globally to determine the biodegradability of plastic materials. As with most tests, it is widely accepted as an accelerated representation with respect to actual environments.

Is it available in both piece dye and yarn dye products?

Yes – available for both piece dye and yarn dye products.

How does the performance compare to current product offerings?

These have the same performance as current standard polyester products. All Biodegradable CLEAN IMPACT TEXTILES™ meet or exceed the ACT performance guidelines for heavy duty upholstery which include abrasion, flammability, crocking, colourfastness, and physical properties testing.

These fabrics are assessed and certified for the NSF/ANSI 336 standard for commercial furnishings fabric and carry the Facts Gold certification mark.

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TEST RESULTS ASTM D5511

*CLEAN IMPACT TEXTILES™ Biodegradable rate and extent of decomposition into elements found in nature is 91% after 1,278 days based on the results of laboratory testing of the same biocatalyst additive and the same component (PET) polyester under ASTM D5511 (Anaerobic Biodegradation of Plastic Materials Under High Solids Anaerobic Digestion Conditions). Further decomposition was not documented or tested. 12/19.

Background

CLEAN IMPACT TEXTILES™ was developed utilizing recycled biodegradable polyester*, targeting the commercial interiors market. This paper will address the technology that was used to create these high-performance fabrics that are long-wearing in commercial interiors, but that can safely biodegrade in anaerobic disposal situations (i.e. landfill conditions) at a rate similar to that of natural fibers like wool (tested under ASTM D5511).

ASTM D5511 Test and Methodology

D5511-02 Standard Test Method for Determining Anaerobic Biodegradation of Plastic Materials Under High-Solids Anaerobic-Digestion Conditions.

ASTM D5511 is a test method utilized for anaerobic biodegradability, and the preferred method since it is most applicable for fabrics used in commercial interiors that are typically not laundered, and that would likely be landfilled at the end of their life cycle.(1)

This test method consists of selection and analysis of material for testing, obtaining a concentrated anaerobic inoculum from an anaerobic laboratory-scale digester, exposing the material to an anaerobic-static-batch fermentation at more than 20 % solids, measuring total carbon in the gas (CO₂ and CH₄) evolved as a function of time, and assessing the degree of biodegradability.

The percentage of biodegradability is obtained by determining the percent of conversion of carbon from the test material to carbon in the gaseous phase (CO₂ and CH₄). This percentage of biodegradability will not include the amount of carbon from the test substance that is converted to cell biomass and that is not, in turn, metabolized to CO₂ and CH₄.

This procedure has been developed to permit the determination of the rate and degree of anaerobic biodegradability of plastic products when placed in a high-solids anaerobic digester for the production of compost from municipal solid waste.

Interpretation

The test method calls for plastic samples to be placed in sealed fermentation vessels filled with a required amount of inoculum derived from a mix of composted solids and active wastewater treatment plant sludge. The product test is run in triplicate and compared to a positive control, a negative control, and an inoculum control. The fermentation vessels are connected to collection devices that measure waste gas produced by bacterial metabolic processes.

This collected gas is regularly sampled and placed in a gas chromatograph instrument for highly accurate composition analysis. The test method calls for Methane (CH₄) and Carbon Dioxide (CO₂) levels to be carefully measured and recorded, as these are carbonaceous gases commonly produced as waste by-products during the process of biodegradation of organic materials. At the end of the test the exact carbon-weight of the gasses collected is calculated and recorded.