

Eco 8 REASONS to choose Eco Gloves Biodegradable Nitrile Gloves

8 Don't wait until it's too late

Don't wait until there is demand in the market or even a global warming event before you make a change. The more you purchase, sell, and encourage usage of eco-friendly products, the more you keep our earth clean today and for the future.

7 Help to slow down global warming

As climate change and environmental sustainability become a growing concern, consumers and companies need to examine their eco-friendly approach. Fighting against GHG emissions and carbon emissions remains a top priority to help slow down global warming. Thus, supporting eco-friendly products helps us all move in the right direction.

6 Reduce greenhouse gas emissions

The use of bio-based biodegradable materials instead of traditional materials lessens the amount of greenhouse gas (GHG) emissions. Lowering GHG emissions in landfills is a priority, but focus should also be put on the energy recovery. The biodegradation process helps with this as it releases 15 billion kWh of renewable energy per year meeting the annual energy consumption of 1.3 million households in the United States.⁴

1 Imagine all the waste being created

Imagine all of the traditional non-biodegrading gloves accumulating in landfills and sitting around for hundreds of years leaching toxins into the environment. Studies carried out by Gillen et al. (1996)¹ suggest that elastomers (including nitrile rubber) take several dozen of years to degrade, if at all. They further block drains, harm animals, and directly and indirectly leave a negative impact on the environment.

2 We're running out of space

Globally, about 37 percent of waste² is dumped or disposed in some form of a landfill. Global waste is expected to grow to 3.4 billion tons by 2050, which is more than double the population growth over the same period. With all this waste created, how much space will we really have left?

3 Glove incineration has its impact

While glove incineration remains an end-of-life solution for some disposable gloves, incineration still emits more toxins and pollutants³ that harm local air quality than those that remain in landfills.

4 A sustainable end-of-life solution for nitrile gloves

Eco Gloves Biodegradable Nitrile Gloves contain an organic additive which makes the gloves a desirable food source for microbes in landfills allowing the gloves to break down faster leaving behind only natural biogas, water, and inert soil to revitalize the environment around it. This is the end-of-life solution that we should be moving toward.

5 Minimize waste and create space

Efforts should be made to limit the environmental impact during the disposal stage of gloves. Eco Gloves Biodegradable Nitrile Gloves achieves this by being biodegradable via anaerobic decomposition. This accelerated biodegradability process allows Eco Gloves Biodegradable Nitrile Gloves to breakdown within a matter of years, rather than sticking around and taking up space.



References

¹Science Direct, COVID-19 discarded disposable gloves as a source and a vector of pollutants in the environment.
²The World Bank, Trends in Solid Waste Management

³ClientEarth, The Environment Impacts of Waste Incineration

⁴ASCE Library, Life Cycle Analysis of Energy and Greenhouse Gas Emissions from Anaerobic Biodegradation of Municipal Solid Waste

Did you know that an estimated 100 billion pairs of gloves are thrown away each year? As a result, gloves ending up in landfills are sticking around for decades (and in some cases, centuries) taking up space and leaching toxic chemicals into the environment.

The advanced technology in our Eco Gloves Biodegradable Nitrile Gloves (BNG) is one of our latest green initiatives in helping to create a better environment. It comprises of an organic additive used to accelerate the biodegradation rate of gloves in biologically active landfills. It is our contribution to provide an end-of-life solution for nitrile gloves.

Eco Gloves Biodegradable Nitrile Gloves are not only help to provide an end-of-life solution for gloves being thrown out, but they are helping to reduce carbon emissions and meet net-zero emission goals to preserve the environment.

What is Accelerated Biodegradable Technology?

Eco Gloves Accelerated Biodegradable Technology™ (ABT) utilizes a drop-in method to integrate innovative accelerated biodegrading technology into the existing manufacturing process without compromising product quality.

In this process an organic bio-agent additive is added to accelerate the biodegradation rate of the gloves in biologically active landfills and anaerobic environment.

How do Eco Gloves Biodegradable Nitrile Gloves Work?

In an active landfill, Eco Gloves Biodegradable Nitrile Gloves become an attractive "food source" for microbes especially found in landfills. This biodegradation process is strictly enzymatic.

Once the microbial bacteria consume the biodegradable nitrile material, they excrete an enzyme that dissolves and de-polymerizes the polymer chain, allowing the microbes to break down the remaining polymers naturally. [Figure 1]

Product Attributes



Not made with natural rubber latex



Ambidextrous



Chlorinated



Fingertip textured



Powder free



Standard cuff



Biodegradation Rate & Testing

1. Validated Biodegradation Rate Testing

Eco Gloves Biodegradable Nitrile Gloves biodegrading efficacy has been verified by independent lab studies using ASTM D5526 and ASTM DD5511 methods. [Table 1]

No.	Test Method	Purpose of Testing	Result Summary
1	ASTM D5536	To determine the degree and rate of anaerobic biodegradation of materials in accelerated landfill conditions. This is a long term test that replicates the landfill environment of low heat, high pressure, limited oxygen, no light and low moisture.	21% biodegradation in 41 days.*
2	ASTM D5511	To determine the degree and rate of anaerobic biodegradation of materials in high-solids anaerobic-digestion conditions, which replicates the anaerobic digester or landfill bioreactor environment.	90% biodegradation in 490 days." <i>(Above results are based on a real-time study.)</i>

Table 1: Biodegradation test results based on ASTM D5526 & ASTM D5511.
*The actual biodegradation rates will vary depending on the landfill conditions and the biological activity of microorganisms surrounding the nitrile gloves.

2. Proven to Retain Glove Properties

Eco Gloves Biodegradable Nitrile Gloves will not biodegrade prior to disposal. The unique formulation only allows the biodegradation process to begin once the gloves are surrounded by microbes present in a landfill environment.

Real-time shelf life study results prove that the physical properties of Eco Gloves Biodegradable Nitrile Gloves remain unchanged up to 3 years, which is the same as with traditional nitrile gloves.

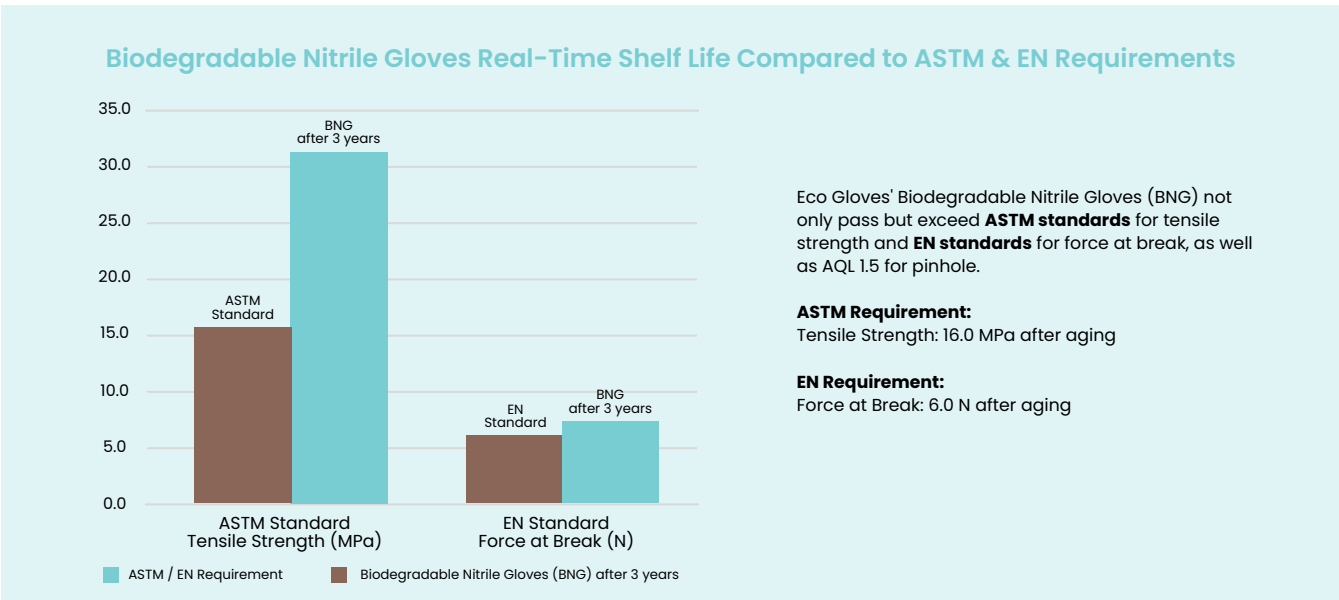


Chart 1: Biodegradable Nitrile Gloves (BNG) real-time shelf life.

3. Tested Safe for Biocompatibility and Food Contact

Eco Gloves Biodegradable Nitrile Gloves have been proven safe for use against skin according to ISO standards, as well as with food handling according to U.S. FDA, Japan Food Sanitation, European regulation (EU) No 10/2011, (EC) 1935/2004 and BfR XXI German Recommendation. [Table 2]

	ISO 10993-5	ISO 10993-10	ISO 10993-10	Food Contact	Food Contact	Food Contact
Test	Cytotoxicity Test	Primary Skin Irritation	Dermal Sensitization Study	21 CFR 177.2600	Japan Sanitation Law	EN 1186, EN 13130 & CEN/TS 14234
Result Summary	Non-cytotoxic at 10% extract	Non-irritating	Non-sensitizing	Pass	Pass	Pass
Compliance	✓	✓	✓	✓	✓	✓

Table 2: List of biocompatibility and food contact test results for Eco Gloves Biodegradable Nitrile Gloves

Eco Gloves Biodegradable Nitrile Glove Specifications

3.0 mil		
	ASTM	EN
Features		
Powder free, fingertip textured, ambidextrous		
Physical Dimensions		
Length (mm)	≥ 230	Median ≥ 240
Palm (center of palm) (mm)	0.07 ± 0.02	Median 0.07 ± 0.02
Finger (13mm ± 3mm from tip)	0.10 ± 0.02	Median 0.10 ± 0.02

Suitable Industries



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