

Ansell

MICROFLEX® 31-103 Compostable Gloves

MICROFLEX® 31-103 is Ansell's first compostable glove. This PLA blend glove is ideal for workers in food service, hospitality, and retail settings requiring hand hygiene in lower risk situations, with a reduced environmental impact.

Benefits of MICROFLEX® 31-103 Compostable Gloves

Compostable

MICROFLEX® 31-103 gloves and their polybag packaging meet EN 13432 standards, achieving 90+% biodegradation within 180 days in industrial composting facilities.

Made From Renewable Raw Materials

PLA is a bio-based polymer made from natural, renewable materials, like plant-based sugars.

Certified Protection

EN ISO 374-1 Type C and EN ISO 374-5 Virus Certification - No other PLA blend product on the market carries these certifications.

Smart Packed

Packaged with 200 gloves per compostable polybag and 4,000 gloves per recyclable case for reduced packaging waste.

Made in Europe

Manufactured in Portugal for shorter transit distances.

Better Manufacturing

Produced in a facility using 100% green energy from solar power and hydroelectricity.



Industries

- Food Services
- Hospitality
- Retail

Applications

- Food Prep
- Catering
- Serving
- Retail Checkout and Restocking

Product Information

Material	PLA/PBAT blend
Color	Blue
Shape	Ambidextrous
Cuff Style	Flat
Manufacturing / QMS Audit Standards	ISO 9001, ISO 14001, and EMAS Certified
Packaging	200 Gloves / Polybag 20 Polybags / Case 4,000 Gloves / Case
Regulatory / Standards Compliance	Category III, EN ISO 374-1:2016, EN ISO 374-5:2016

Country of Origin	Portugal
Available sizes	XS-M (6-8) and L-XXL (9-11)
Length	XS-M : 270 mm L-XXL: 280 mm
Powder Content	Powder-free
External Glove Surface	Smooth finish
Shelf Life	Use within one year of manufacturing date
Storage	Store in a cool, dry place

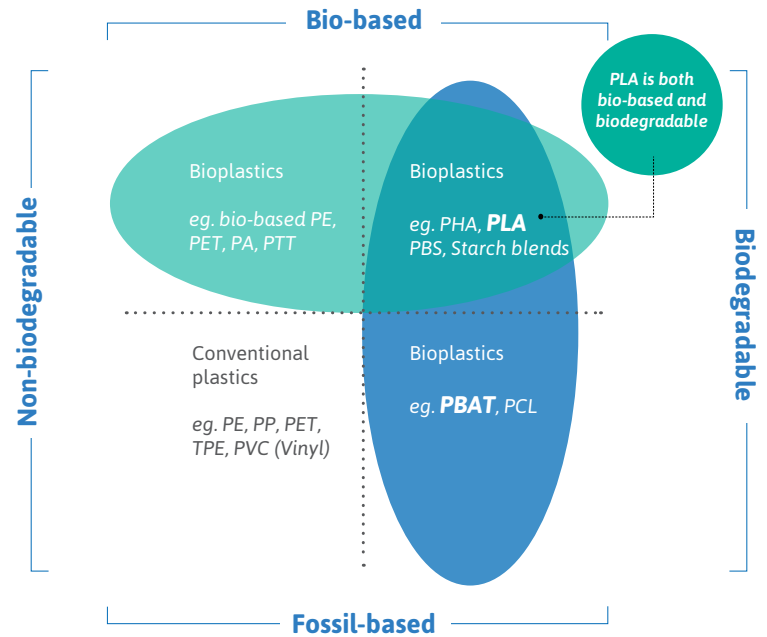
MICROFLEX® 31-103 compostable gloves combine natural, renewable resources and biodegradable elements to provide hand hygiene with a significantly reduced environmental impact versus other synthetic glove polymers.

Made with a PLA Blend

MICROFLEX® 31-103 compostable gloves are made with a PLA blend, a compostable, synthetic glove polymer made with a mixture of polylactic acid (PLA) and polybutylene adipate co-terephthalate (PBAT). It is not only biodegradable, but also compostable in industrial composting facilities. PLA is a bio-based polymer made from plant-based sugars, such as corn starch, cassava, sugar cane, soy, and sugar beet.

Pure PLA on its own isn't very strong or flexible and doesn't have a long shelf life. The addition of PBAT creates a more durable, flexible film for added protection. PBAT is oil-based, but biodegradable as well.

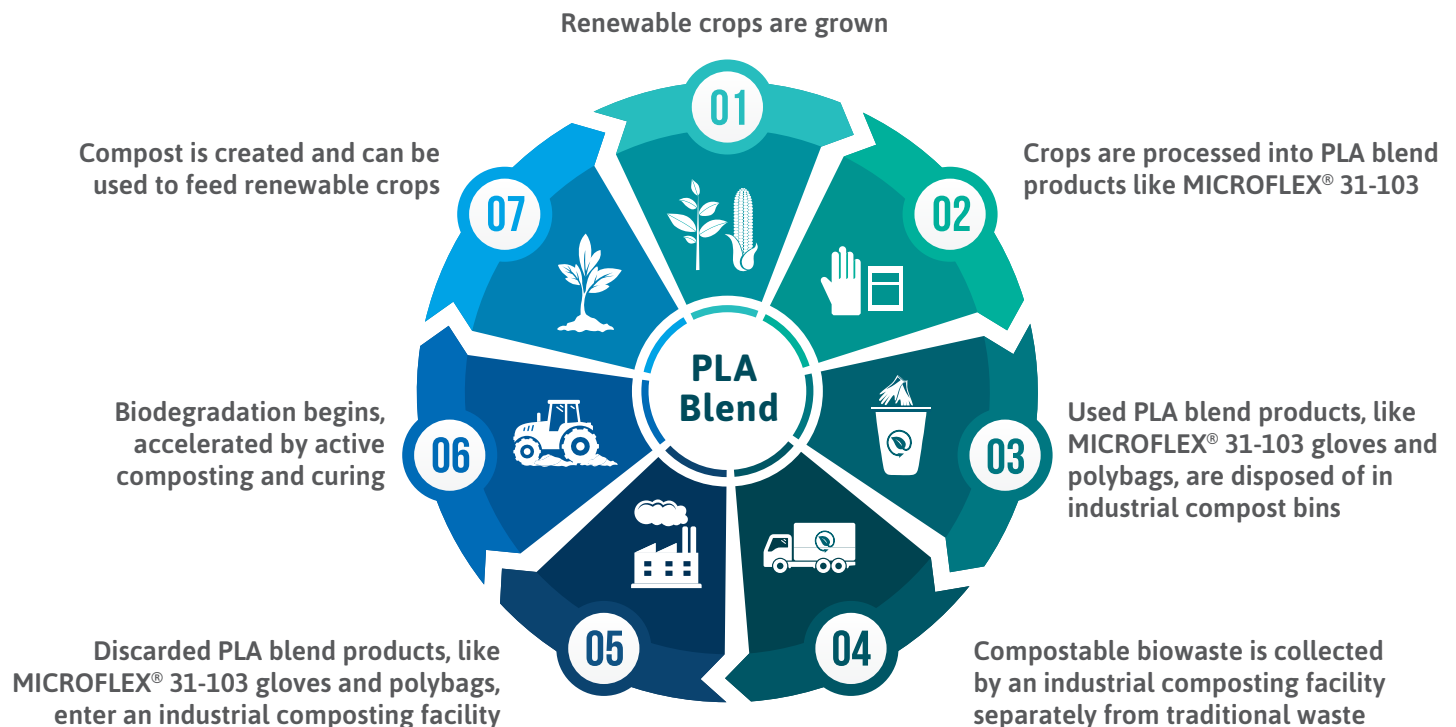
Gloves made with a PLA blend should be used within one year of the manufacturing date and high heat and/or humidity should be avoided.



Source: European Bioplastics - <http://www.european-bioplastics.org/>

Lifecycle of MICROFLEX® 31-103 Compostable Gloves

The lifecycle of PLA blend products, including MICROFLEX® 31-103 compostable gloves, starts and ends with rapidly renewable crops. These crops are used to produce the PLA blend material that can replace traditional fossil fuel-based products in a number of industries and activities. After use, the PLA blend material can be collected and sent to an industrial composting facility, where it will be actively monitored in controlled conditions to become compost for plants.



Proper Disposal of MICROFLEX® 31-103 Compostable Blend Gloves

MICROFLEX® 31-103 compostable gloves and polybags are intended for the many industrial composting facilities available in Europe. The gloves and polybags can go in the same compost stream as food waste, organic matter, and other compostable items.

Industrial composting facilities, sometimes called municipal or commercial composting facilities, are large-scale operations designed to convert biodegradable organic waste into stable compost. These facilities speed up biodegradation with controlled biotechnological processes that achieve the ideal balance of microbes, oxygen, heat, and humidity. Industrial composting facilities grind up raw waste and closely monitor the composting process as it moves through a series of steps. MICROFLEX® 31-103 gloves and polybags should not be put in recycling bins or sent to landfills.

MICROFLEX® 31-103 gloves and polybags break down into compost under industrial composting conditions. International compost standard EN 13432 assures that the final compost created from certified compostable materials, like MICROFLEX® 31-103 gloves and polybags, is safe to be used to cultivate soil. Compliance to EN 13432 requires testing for complete biodegradation and ensures neither toxins nor heavy metals are present in the final compost.

The Difference Between Biodegradable and Compostable Gloves¹

There are no official biodegradable specification standards for gloves. Some glove manufacturers promote biodegradable gloves tested to ASTM D5511 or ASTM D5526. These are test method standards that do not provide pass/fail criteria. ASTM D5511 and D5526 state: "Claims of performance shall be limited to the numerical result obtained in the test and not be used for unqualified biodegradable claims. Reports shall clearly state the percentage of net gaseous carbon generation for both the test and reference samples at the completion of the test. Furthermore, results shall not be extrapolated past the actual duration of the test."² Therefore, the percent biodegradation, the time required to achieve biodegradation, and the required environmental conditions must be documented.

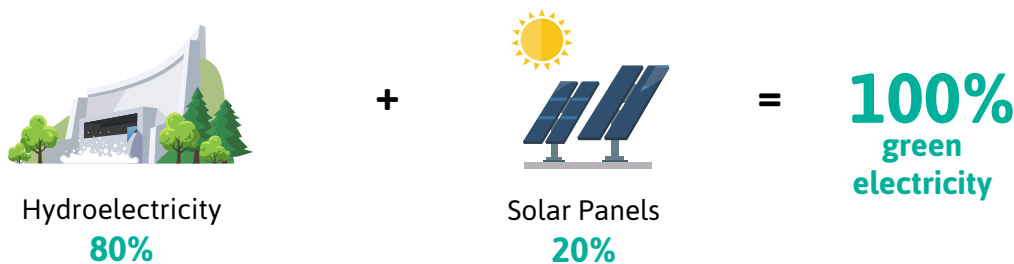
Consumers should ask if a glove is proven to biodegrade within a specific period of time without the use of extrapolated data, what percentage of the glove will eventually convert to gas, if it is biodegradable after contact with chemicals or biohazards, and what disposal scenarios are necessary in order to achieve biodegradation.

Compostable products are a subset of biodegradable products, which achieve biodegradation within a defined timeframe and specific disposal systems, as measured by the complete metabolism of polymer carbon by microorganisms using international specification standards.

MICROFLEX® 31-103 compostable gloves are fully tested and **certified** to the EN 13432 specification standard, achieving **more than 90% biodegradation in under 180 days in industrial composting facilities**. The usage and disposal requirements in order to achieve biodegradation are transparent. They should not be used for protection against chemicals or biohazards. They should not be placed in recycling bins or sent to landfills. They should be used for low-risk applications only, and sent to industrial composting facilities after use, where the ideal conditions will be met and monitored to enable the gloves to break down completely. When used and disposed of correctly, they will achieve at least 90% biodegradation in under 180 days.

Sustainable Production in Portugal

MICROFLEX® 31-103 compostable gloves are produced in Portugal at Ansell's first factory to source 100% green electricity. With the recent installation of solar panels and with our Green Power Purchase Agreement with EDP, which guarantees that all electricity purchased for the facility is from sources such as hydropower, 100% of the electricity consumed at Ansell Portugal is from renewable sources. These gloves are cut and sealed using electricity, without the use of water, and have lower energy needs than traditional glove manufacturing, which reduces the environmental footprint of MICROFLEX® 31-103 compostable glove production.



By producing MICROFLEX® 31-103 in Portugal, transit distances to customers in Europe are reduced. Additionally, the cardboard used to create the outer cartons for MICROFLEX® 31-103 gloves and polybags is made, in part, with recycled paperboard. The cardboard is sourced from responsibly managed forests that provide environmental, social, and economic benefits. After use, the cartons are recyclable.

¹ Excerpted from: Law, K.L., Narayan, R. Reducing environmental plastic pollution by designing polymer materials for managed end-of-life. *Nat Rev Mater* (2021). <https://doi.org/10.1038/s41578-021-00382-0>.
And Dos and Do Nots When Assessing the Biodegradation of Plastics. Michael T. Zumstein, Ramani Narayan, Hans-Peter E. Kohler, Kristopher McNeill, and Michael Sander *Environmental Science & Technology* 2019 53 (17), 9967-9969 DOI: 10.1021/acs.est.9b04513

² <https://www.astm.org/Standards/D5511.htm> and <https://www.astm.org/Standards/D5526.htm>

MICROFLEX® 31-103 PLA Blend Gloves in Food Service

MICROFLEX® 31-103 compostable gloves are ideal for food service applications where workers typically use PVC, PE, or Vinyl gloves. In food services, gloves are frequently changed and discarded, which generates a lot of waste. Traditional food service gloves must be disposed of as trash, rather than entering compost streams with food scraps and other biodegradable items. MICROFLEX® 31-103 gloves and polybags, on the other hand, can be composted at industrial composting facilities, without the need to be separated from food scraps and organic matter.

MICROFLEX® 31-103 compostable gloves are a great alternative to traditional food service gloves made from PE or PVC/Vinyl because they are bio-based and biodegradable, and are made from environmentally-friendly processes and green sources of energy. They are also free from phthalates, BPA, chlorine, plasticizers, ethylene, and dichloride, as illustrated in the table below.

Polymer Comparison of Traditional Food Service Gloves				
	MICROFLEX® 31-103 PLA Blend Gloves	TPE (Thermoplastic Elastomer) Gloves	PE (Polyethylene) Gloves	PVC/Vinyl (Polyvinyl Chloride) Gloves
Compostable in Industrial Composting Facilities	✓			
Made with Bio-Based Materials	✓			
Free of Phthalates	✓	✓	✓	
Free of BPA (Bisphenol A)	✓	✓	✓	
Free of Chlorine	✓	✓		
Free of Plasticizers	✓	✓	✓	
Free of Ethylene	✓			
Free of Dichloride	✓	✓	✓	



Frequently Asked Questions

Are MICROFLEX® 31-103 gloves and packaging biodegradable and compostable?

Yes. MICROFLEX® 31-103 gloves and their polybags are biodegradable and compostable in industrial composting facilities.

What are MICROFLEX® 31-103 compostable gloves and packaging made from?

MICROFLEX® 31-103 gloves and their polybags are made from a blend of bio-based PLA (polylactic acid) and PBAT (polybutylene adipate co-terephthalate). The blend is 100% compostable in industrial composting facilities. The gloves and polybags do not contain any fillers and are free from chlorine, BPA, phthalates, plasticizers, ethylene, and dichloride.

What does bio-based mean?

According to the European Committee for Standardization (CEN), a bio-based product is one that is “wholly or partly derived from biomass,” such as plants. MICROFLEX® 31-103 compostable gloves and their polybags are made from a blend of PLA (polylactic acid), a bio-based material, and PBAT.

How are MICROFLEX® 31-103 compostable gloves made?

MICROFLEX® 31-103 compostable gloves are cut and sealed using electricity, without the use of water, and have lower energy needs than traditional glove manufacturing. The facility producing the gloves sources 100% green energy and is located locally in Portugal, reducing transit times.

How should MICROFLEX® 31-103 compostable gloves and polybags be discarded after use?

MICROFLEX® 31-103 gloves and their polybags are certified for industrial composting. Both the gloves and polybags are designed to go into the same compost streams as food scraps and other organic matter intended for industrial composting facilities, readily available across Europe.

What conditions trigger biodegradation in industrial composting?

Composting requires a combination of heat, humidity, oxygen, and microorganisms to enable biodegradation into compost. Industrial composting facilities accelerate this process by grinding up the raw waste and closely monitoring the composting process as it moves through a series of steps designed to ensure biodegradation.

What is left over after composting MICROFLEX® 31-103 gloves and polybags?

MICROFLEX® 31-103 gloves and polybags are designed to break down into compost in industrial composting facilities. International compost standard EN 13432 ensures that the final compost created from certified compostable materials, like MICROFLEX® 31-103 gloves and polybags, is safe to be used to cultivate soil. Compliance to EN 13432 requires testing for complete biodegradation and ensures neither toxins nor heavy metals are present in the final compost.

Can MICROFLEX® 31-103 gloves and polybags be composted in other ways?

MICROFLEX® 31-103 gloves and polybags are intended for industrial composting facilities. They are not intended for recycling, home composting, or disposal in landfills or marine environments.

Are MICROFLEX® 31-103 compostable gloves and polybags recyclable?

MICROFLEX® 31-103 gloves and polybags are not intended for recycling and will contaminate conventional plastic recycling streams.

Can conventional plastics be composted?

No. Most conventional plastics, like TPE, PE, and Vinyl/PVC, which are commonly used to make alternative gloves, cannot be composted.



What are the storage conditions for MICROFLEX® 31-103?

Proper storage conditions for MICROFLEX® 31-103 compostable gloves require an ambient temperature of 20-23°C and a relative humidity of 50%. In places with extreme weather conditions, with high heat and humidity, the degradation process of the compostable gloves and polybags can be accelerated.

What is the shelf life of MICROFLEX® 31-103 compostable gloves and polybags?

It is recommended to use MICROFLEX® 31-103 compostable gloves within one year of the manufacturing date. While the quality may deteriorate after a year, it is unlikely that the glove or packaging will start to biodegrade on the shelf. They are intended to biodegrade only under industrial composting conditions.

Are the cartons used to ship MICROFLEX® 31-103 environmentally-friendly?

The cardboard used to create MICROFLEX® 31-103 cartons is made, in part, with recycled paperboard, and recyclable after use.

For more information on MICROFLEX® 31-103 Compostable Gloves, please reach out to your local Ansell Sales Representative or Customer Service Representative.

www.ansell.com