

Plastics make it possible...
ENSO makes it responsible.



ENSO RESTORE

RESTORING NATURAL BIODEGRADATION TO PLASTICS



ENSO RESTORE™

ACCELERATING THE NATURAL BIODEGRADATION OF PLASTICS



ENSO RESTORE's leading edge technology accelerates the natural biodegradation of plastics, offers a simple and effective solution to an enormous environmental challenge.

Available in pellet, powder and liquid forms, RESTORE is a drop-in technology; integrating seamlessly into existing manufacturing methods, making expensive infrastructure changes unnecessary. It is a viable solution for companies of all sizes.

ENSO RESTORE supports your sustainability initiatives without compromising your product's quality. Brand owners will benefit from increased brand loyalty, and leverage a steadily growing market for green products.

“Using as little as 1% ENSO RESTORE, your final product will be biodegradable for just a fraction of its manufacturing cost.”

Important California Notice: California law prohibits the sale of plastic packaging and plastic products that are labeled with the terms 'biodegradable', 'degradable' or 'decomposable', or any form of those terms, or imply in any way that the plastic will break down, biodegrade or decompose in a landfill or other environment. These restrictions apply to all sales in or into the state of California, including such sales over the internet.



What Is Sustainability?

Sustainability is more than simply “going green” and it is no longer sufficient to run status quo. Today's market is dynamic, educated and the expectations of your customers are high. Providing sustainable solutions demands experts that understand the performance, design and disposal of your product to encompass the “3 R's” - REDUCE, REDUCE, REDUCE.

Reduce Cost: Our goal is to reduce your costs, because we understand bottom line is that your bottom line must be sustainable, and all environmental decisions must be balanced with expense. Our solutions are designed with efficiency and cost as a determining factor which allows ENSO to remain the leader in competitive pricing and leading edge solutions for plastics sustainability.

Reduce Materials: ENSO solutions allow you to reduce the amount of material used in your applications, compared to alternative green solutions. Our biodegradable solutions are used in very thin films and light-weighted packaging without loss in performance and properties, many manufacturers find increased performance and the ability to further lightweight materials when using ENSO solutions.

Reduce Waste: There are two primary forms of waste; scrap during manufacturing and product waste after use. ENSO has eliminated the historical high scrap rate due to processing difficulties and material incompatibility with alternative plastics. With ENSO you received fine tuned solutions that easily integrate in your machines and processes.

ENSO Plastics is the expert in plastic sustainability, providing the knowledge and experience to evaluate your materials and create tailored solutions ideal for your product performance needs and sustainability goals.

“ENSO remains the leader in competitive pricing and leading edge solutions, creating a balance between environmental solutions and material costs.”



Solid End-Of-Life Solution

ENSO RESTORE is used in a variety of applications worldwide – from bags and bottles to packaging and durable goods, ENSO RESTORE is trusted by hundreds of brand owners to provide a solid end-of-life solution.

ENSO Restore can be used at varied load rates to achieve your desired rate of biodegradation. Load rates of 1% will produce plastics with the controlled biodegradation needed for the ideal utilization of landfill gas to produce clean, inexpensive energy and extend the useful life of landfills.

“With ENSO RESTORE, biodegradation occurs only when placed in a waste environment by microorganisms naturally occurring in the landfill. The end products resulting from the biodegradation process are natural materials such as inert humus, methane and CO2.”

Conserving Our Resources

ENSO Plastics supports the protection of our natural resources and recycling of plastics whenever possible. We engineer our solutions with recycling in mind and design them to integrate with recycling initiatives.

ENSO RESTORE can be utilized in both virgin and post-consumer recycled plastics. Additionally, products made with ENSO RESTORE can be recycled with standard plastics depending on your load rate and usage.

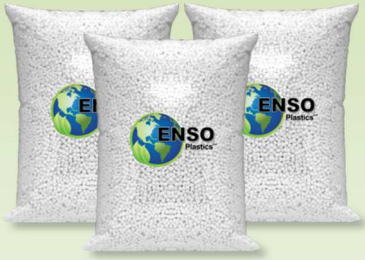


Scientifically Proven Solutions

ENSO sets the standard for validating the claims of biodegradable plastics, and we take transparency seriously. In fact, ENSO is the first company in our industry to openly provide testing data and information about our technology to the public, consumers, and manufacturers.

ENSO stands behind our biodegradable claims because we have solid scientific testing validating what our material will do in landfills. We test our materials in independent laboratories using internationally recognized ASTM test methods created to validate biodegradability of plastics.

Understanding testing, validation and new technologies can be difficult at times. ENSO understands that education is an important step toward change, so we teach people about the benefits of biodegradable plastics, and how they are best utilized to make a real difference in the plastic waste problem. It's important for all consumers and businesses to be knowledgeable about the products they buy, and to be able to ask tough questions of companies providing biodegradable and other eco-friendly products.



Accelerate Your Responsibility

Call us today and see how quick and easy it is to have your plastic product provide an environmental solution.

US Toll Free: (866) 936-3676
Telephone: 1 (602)639-4228
Email: sales@ensoplastics.com

“ENSO sets the standard for validating biodegradable plastics - we take transparency seriously.”

FDA/EU Compliant For Food Packaging
REACH Compliant Materials
No Heavy Metals
Non-Hazardous
ASTM Validated



Proven Biodegradation Solution

ENSO RESTORE accelerates the natural biodegradation of plastics in biologically active landfills and anaerobic digesters as validated by independent certified laboratories using ASTM International test methods. Independent third party testing has shown up to 32.7% biodegradation in 10 months in optimized conditions.

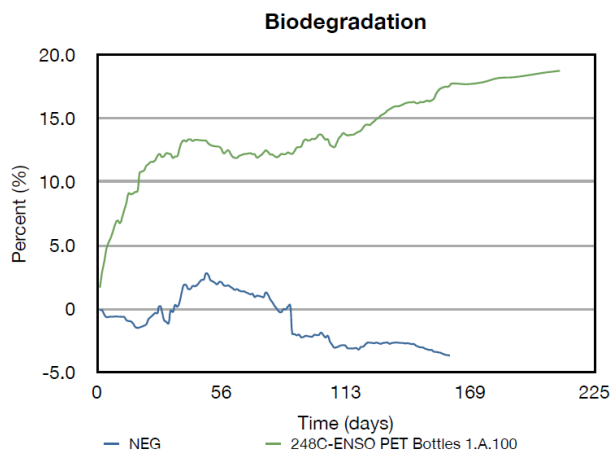
It is important that claims are accurate and identify the types of environments your packaging will end up in. All claims should be backed by scientifically valid testing performed at third party facilities with testing that references your products customary disposal.

ENSO RESTORE uses the following ASTM test methods to validate accelerated biodegradation:



ASTM D5511

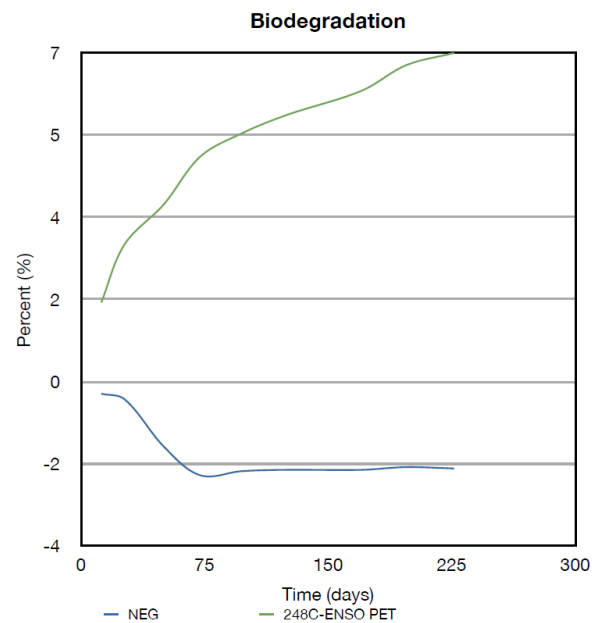
Provides quick results in an anaerobic environment. This test is used to validate if a material is biodegradable and replicates the environment found in an anaerobic digester. Results can be seen in as little as 15 days, and can be continued until biodegradation completes.



** Actual rate of biodegradation will vary dependent upon environmental conditions and the biological activity of microorganisms surrounding the plastic.

ASTM D5526

Provides realistic results of biodegradation rates of the material in modern landfills. This is a long term test that replicates the landfill environment. Results are much slower than those of the ASTM D5511 and is typically ran for up to one year, however it can be ran until biodegradation completes.



Solutions For Every Product

ENSO RESTORE product family includes multiple blends applicable to most common manufacturing processes and resin types including PET, HDPE, LDPE, PE, PP, EVA, PS, nitrile, rubber and latex.

ENSO also offers customized blends for unique applications.

- Bags
- Bottles
- Packaging
- Durable Goods
- Containers
- Rubber
- Latex
- Fibers
- Automotive
- Medical
- Personal Care
- Textiles

	ENSO RESTORE PET	ENSO RESTORE LDPE	ENSO RESTORE EVA	ENSO RESTORE RL
Injection Molding	✓	✓	✓	
Blow Molding	✓	✓		
Extruded Film	✓	✓		
Foams		✓	✓	
Rubber				✓
Extrusion	✓	✓		
ISBM	✓			
Latex				✓
Nitrile				✓

**ENSO also provides customized formulations for specialized applications.

Shelf Stable Solutions

Products made with ENSO RESTORE maintain the same physical characteristics as traditional plastic. ENSO RESTORE accelerates the biodegradation of your plastics in waste environments through naturally occurring microbial activity, and are not affected by light, heat, moisture, UV rays or oxygen.

Product	ENSO RESTORE™	Oxo-degradable	PLA
Shelf life	Indefinite	6 mo -2 yrs	1-6 mo
Breakdown Process	Biodegradation	Fragmentation	Industrial Composting
Landfill Biodegradable	YES	No	Seldom
Heat Tolerant	YES	No	No
Moisture Resistant	YES	Yes	No
UV Light Durable	YES	No	Yes
Recyclable	YES	No	No
Remnants	Soil & Gases	Heavy Metals, Salts, Plastic Particles	Soil & Gases



Solutions Demanded by Consumers

Today's consumers are savvy, and they're interested in making a difference. Studies show that 85% of consumers buy green products, and of these shoppers, 84% consider the product's packaging before purchasing.



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Green products occupy significant retail space, and the trend is only going to grow. Increasing political pressures, more green incentives, diversified alternative energy resources, and a growing sense of urgency is driving consumers to make eco-friendly choices.

“ENSO RESTORE's leading edge technology offers competitive advantages for companies manufacturing plastics for virtually any application.”

The eco-friendly market is growing by leaps and bounds, resulting in higher instances of green-washing, so companies that can substantiate their green claims have a leg up in an increasingly competitive market, and can set their brand apart from the rest.

Eco-conscious consumers are notoriously loyal to products they believe in, and support those they can trust. ENSO's commitment to transparency and rigorous verification ensures that our products always deliver what we promise.



Trusted Environmental Solutions

ENSO Plastics was created with a vision of making the world a cleaner place through plastic solutions that are better for the environment. Our goal is to end plastic pollution by developing earth friendly plastic solutions.

We believe that a true environmental approach requires working together to find solutions that lead us to achieving the right environmental long-term goals. Our long-term goals include developing renewable and sustainable plastics which are made from non-food sources. Our future products will not only address plastic pollution but will also assist in reducing our dependency on unsustainable resources such as petroleum.



ENSO™

“ENSO Plastics: The most influential global leader for innovative environmental plastic solutions, renowned as a highly ethical and profitable organization.”





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