



Sustainable Approach To Plastics

About TOSAF

For over three decades, Tosaf has been developing and manufacturing high quality additives, compounds and color masterbatches for the plastics industry.

With the aim of providing for our customers' every need, we have continuously grown and developed our offering, production capacity and worldwide reach, becoming a truly global organization that remains close to the markets we serve.

Tosaf CEO Amos Megides established the company in Israel in 1986, and still stands at its head, leading and inspiring his team to uphold the following four pillars in all we do:

Service

- Learning each client's industry, processes, technology and needs, so that we can select the most suitable solution – or even create one from scratch.
- Having salespeople and warehouses on the ground, ready to deliver anywhere, anytime.
- Offering a full laboratory service of analysis and testing.

Quality

- Investing in the latest machinery and technologies to ensure we achieve the highest standards.
- Continuously learning, to anticipate our clients' future needs.

Innovation

- Developing solutions to complex challenges and ever-changing market demands - 80% of our products were developed in the last five years.
- Developing and implementing new low-energy production processes in-house.
- Developing a full range of recyclable products

Sustainability

- Using resources in a more efficient, economic and ecological way.
- Recognizing plastic waste as a valuable resource that can - and should - be handled just like metal, paper or glass.
- Making every effort to develop environmentally-friendly, non-polluting, recyclable products for use in the plastics industry.



Sustainability begins at home

With a firm belief that sustainability begins at home, we take a holistic approach to our own operations, ensuring that we use resources in a more efficient, economic and ecological way. Driving a perceptual change within our organization, at Tosaf we take measures and implement initiatives that reduce our own carbon footprint in three core areas:

Energy Reduction

Monitoring water and electricity levels, we ensure that machine motors consume energy economically even during standby hours, while using alternative energy technologies throughout our facilities, including rooftop solar panels at our main manufacturing plant.

Wastewater Management

We reduce and reuse wastewater in our operations, while also ensuring that the wastewater leaving our facilities meets the highest safety standards.

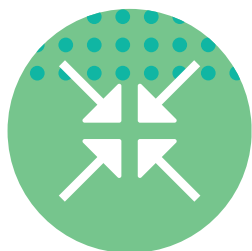
Waste Reduction

We purchase packaging materials that comply with efficient recycling procedures, streamline our own recycling efforts by classifying and sorting waste into categories, designating materials for reuse where possible and recycling electronic waste such as computers and printers.

The R⁴ - The Tosaf Approach to Sustainability

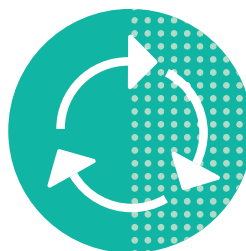
Our vision is to leave behind a better world for the next generation, by achieving our mission of creating advanced solutions that support long-term sustainable change, and enable a circular economy in which plastic is not waste.

The Tosaf approach to facilitating greater sustainability in the wider plastics industry can be summed up as The R⁴:



Reduce

Using less raw materials and energy, and creating less waste in the production of plastics



Reuse

Facilitating the creation of new, high-quality products from used plastic



Recycle

producing fully recyclable solutions. Ensuring that plastics pass smoothly through the recycling process



Return (biodegradability)

Enabling the return of materials into the environment

Facilitating sustainable plastic production

Beyond our own business, we recognize the global demand for more sustainable practices in plastics manufacturing. By developing environmentally-friendly, non-polluting, recyclable products, we support efforts throughout the plastics industry to produce sustainable plastic products.



In terms of sustainability, less is often more. That's why, over the years, Tosaf has invested in developing products which reduce raw material consumption and waste production energy input.

Reducing raw material consumption

- **Foaming agent**

By introducing gas into the product, our foaming agent masterbatch can reduce the raw material required by 30% or more, while also eliminating sink marks and, providing unique properties.

- **Sustainable fillers**

Sustainable fillers – such as used coffee grounds and eggshell – have been successfully incorporated into bio-based, compostable and recycled polymers in place of quarry-sourced minerals, without affecting performance. This is an evolving product line, as our experts collaborate with customers to identify specific sustainable fillers that support their product and sustainability goals.

Reducing energy input

- **Nucleation additive**

Our nucleating masterbatch improves nucleation and crystallization of the polymer, which in turn enables reduced cycle time & increased throughput with lower energy input. Additional benefits of the additive include reduced warpage, meaning less waste, and enhanced mechanical and optical properties.

- **Processing aids**

Our processing aids reduce production downtimes, and therefore energy input, by enhancing the processability of plastics such as films, pipes, tubes and cables. This solution also improves productivity and quality and reduces production costs.

Reducing production waste

- **Purge and shutdown compounds**

Where manufacturers use a variety of raw materials, polymers, additives, pigments and more in the production of thermoplastic products, the extrusion and molding machines must be cleaned in between production runs, or before shutdown, for example over a weekend.

Rather than cleaning the machines with virgin materials that end up being wasted, Tosaf's high-quality purge compounds can be used – and in lower amounts - to achieve more thorough cleaning. Additional benefits include simplified machine maintenance, more efficient operations due to reduced machine downtimes and start times, enhanced product quality, and increased overall production output.



By improving the properties of recyclable materials, we enable low-cost, environmentally-friendly recycled plastics to be used to create a vast range of consumer products. We can combine any number of our wide range of products and services into a single solution that meets all your needs. These include:

- **Melt flow control solutions for polyolefins (PP/PE) and polyesters (PET/PBT/PETG PLA etc.)** – to improve the processability of recycled raw materials, without compromising on mechanical properties or costs.
- **Antioxidants** – to improve process and long-term thermal stability.
- **Compatibilizers** – to enhance compatibility, homogeneity and properties of products made from recycled polymer blends.
- **Odor control solutions** – to absorb and eliminate the unpleasant odors that develop in recycled materials throughout storage and processing.
- **Desiccants** – to eliminate internal moisture.
- **Color upgrading** – to ensure the recycled material has the required color for the specific application.



To optimize the recycling of plastic products, every element must be suited to the standard recycling processes. However, certain elements create a challenge for sorting and recycling, with the result that huge volumes of recyclable plastic actually end up being sent to landfill.

Our additives enhance the recyclability of your plastic products – such as food packaging, construction, and consumer goods - while retaining their high performance - and at no extra cost.

Mono-material Product Range

The incorporation of different materials into products can enhance performance. However, to promote recycling, there is a global trend to replace multi-layer films made from different materials with mono-material films. Our mono-material product range includes colors and additives that enhance properties and performance of plastics, in a single material that can be easily sorted and recycled.

Near IR (NIR) Detectable Color Masterbatches (Black/ Silver)

Carbon black pigment provides excellent color strength and scattering quality, but it completely absorbs the near-IR (NIR) radiation used in recycling plants to detect and sort plastics. Our NIR-detectable color additives offer strong color, without compromising detection during the sorting process, ensuring that products are fully recyclable.

Non-Halogen Flame Retardant Additives

Our family of flame retardant additive masterbatches uses non-halogen additives that are not harmful to the environment and can be recycled. Using premium-quality active ingredients and innovative formulations, we help customers to achieve high-level product performance, while supporting resource efficiency and environmental protection.



RETURN (biodegradable)

With growing consumer concern for the environment on a global scale, there is increasing regulatory and market demand for manufacturers to use biodegradable and compostable polymers that break down quickly and safely into compounds that do not harm the environment.

Compostable masterbatches

Our standard and custom-made color masterbatches and compounds are compatible with all biodegradable carriers, including PLA, PHA/PHB, PBS and PBAT, and support a wide range of product applications - flexible and rigid, durable and disposable, transparent and opaque. They also offer the added value of enhanced performance, properties, processability and resin stability.

UN Carrier for Biodegradable Plastic Products

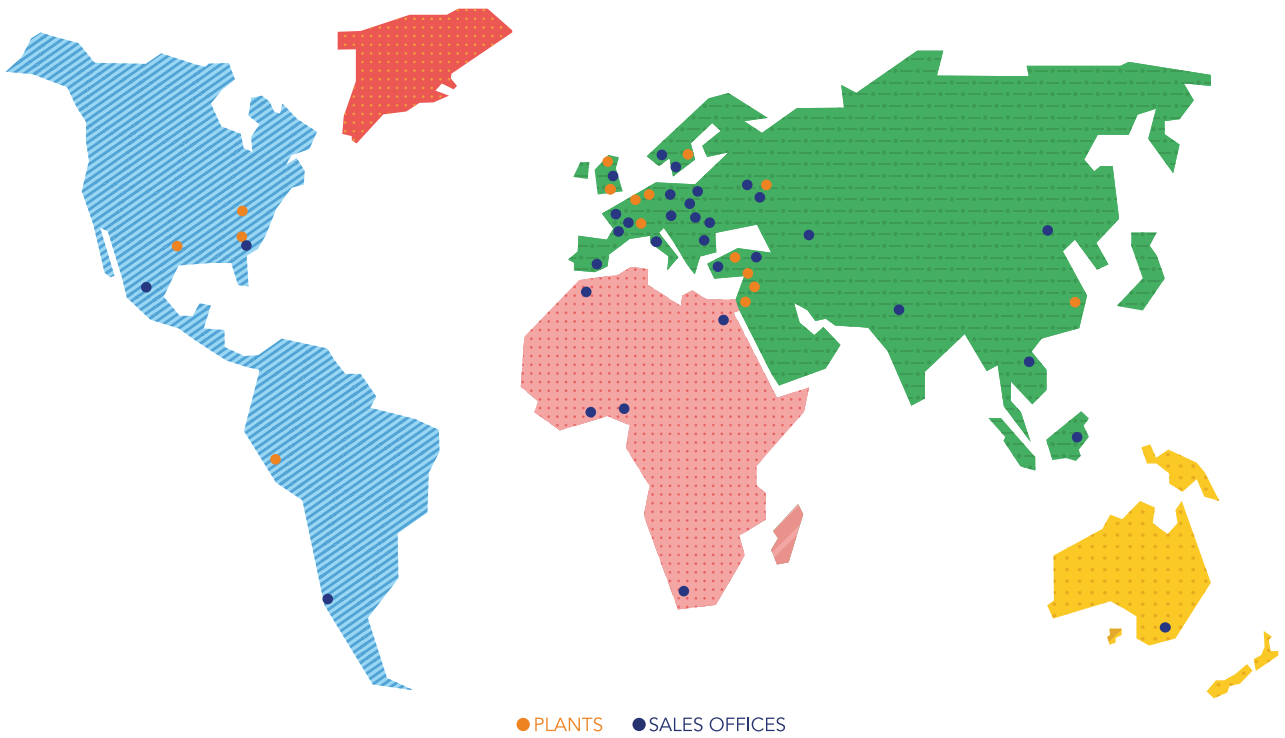
Certified according to the latest biodegradability and composability regulations, our UN carrier is suitable for coloring different biodegradable polymers. Enabling easy incorporation of color masterbatch at low temperatures, and color customization, this is a cost-effective carrier system that delivers very homogeneous coloring.

Tosaf's specialists would be happy to consult you about how to become more sustainable, save time and money, and improve your overall processes and product quality.

To find out more, see www.tosaf.com



TOSAF - GLOBAL REACH



www.tosaf.com