Reduced Carbon Footprint EPDMs

LOWER ENVIRONMENTAL IMPACT EPDMS WITH NO PERFORMANCE COMPROMISE

Next-Generation EPDMs

Innovative reduced carbon footprint EPDMs with uncompromised performance

Across global industries, manufacturers are under increasing pressure to advance sustainability by reducing resource consumption, minimizing greenhouse gas emissions and embracing responsible sourcing throughout the product lifecycle. Achieving these ambitious goals while maintaining the uncompromising performance standards customers rely on means rethinking material choices and production processes to significantly decrease environmental impact.

As a sustainability leader in the industry, the unsurpassed R&D excellence of Trelleborg Sealing Solutions is enabling the transition to a low-carbon society. We continually innovate to reduce the environmental impacts of our solutions and processes.

REVOLUTIONARY MATERIALS

At a solutions level, we are investing in new developments designed to make our products more environmentally sustainable. Due to their renewable non-fossil feedstocks, our reduced carbon footprint ethylene propylene diene monomers (EPDMs) mark a step change in sustainability.

While maintaining the excellent performance characteristics of traditional EPDMs, two new compounds – the 70 Shore A E7T11 and the 80 Shore A E8T12 – achieve up to a 61 percent reduction in carbon footprint in compound form.* This in turn enables a potential 55 percent reduction in product carbon footprint (PCF)** for a manufactured gasket.

* For the E8T12 80 Shore A EPDM compound, mixed by Trelleborg Industrial Solutions Forsheda.
** Powered by Sphera Solutions, Inc. ©2025. Calculated using an E8T12 plate heat exchanger (PHE) gasket manufactured by Trelleborg Sealing Solutions Czechowice. DEKRA certification of methodology pending.

LOWERING OUR CUSTOMERS' ENVIRONMENTAL FOOTPRINT

Reduced carbon footprint EPDMs empower customers to lower their environmental impact without compromising on performance. Serving a broad spectrum of industrial sectors, our compounds offer a more sustainable path forward to meet our customers' challenging requirements.

KEY FEATURES & BENEFITS

- **Reduced carbon footprint:** Achieves up to a 55 percent reduction in PCF for final components
- **Materials with lower environmental impact:** Formulated with renewable, non-fossil feedstocks and increased recycled content
- **Versatile product range:** Available across a wide selection of products, including O-Rings, gaskets and custom-engineered components
- **Broad industry application:** Perfectly suited for all general industrial segments, from automotive and transportation to energy and manufacturing
- **Uncompromised performance:** Delivers equivalent performance to traditional EPDMs, ensuring reliability and quality

FIND OUT HOW WE CAN HELP YOU

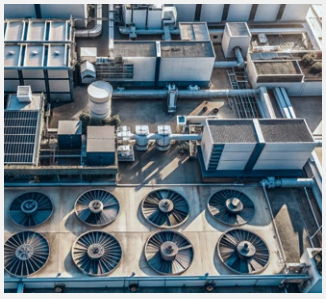
Contact your local Customer Solution Center to find out how our reduced carbon footprint EPDMs materials can solve your engineering challenges.

Click here to see more.

INDUSTRIES AND APPLICATIONS

Reduced carbon footprint EPDMs can be utilized across a wide range of industrial sectors, including automotive, processing industries, manufacturing and automation, energy and agriculture, construction and mining equipment. Applications include engines, doors, pumps, valves, line connector seals, household appliances, air cylinders, solar panels, marine hatches and doors, and an array of functions for heating, ventilation, air conditioning, freezing and refrigeration.






E7T11

E7T11 is a black 70 Shore A EPDM suitable for compression and injection molding, making it ideal for creating complex geometries. It contains renewable non-fossil feedstocks which reduce its carbon footprint. The material retains all the essential characteristics required for general industrial applications.

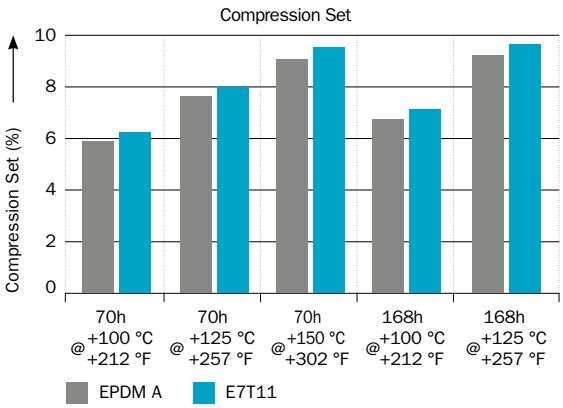
In compound form its carbon footprint is 51 percent lower than that of a traditional EPDM; as a typical molded seal it features a reduction in PCF of up to 33 percent*.

* Powered by Sphera Solutions, Inc. ©2025. Calculated using an E7T11 O-Ring manufactured by Trelleborg Sealing Solutions Tewkesbury, UK; compared to our traditional, fossil-based EPDM O-Ring. DEKRA certification of methodology pending.

MATERIAL PROPERTIES

Alongside its significantly reduced environmental impact, E7T11 matches the physical and mechanical properties of a traditional, comparable EPDM (EPDM A).

We evaluated key characteristics including hardness, compression set, aging in both air and water, and elongation. Our extensive tests, conducted across a broad spectrum of temperatures and durations, confirm that E7T11 delivers performance equivalent to traditional EPDM materials.



Properties	Test Method	E7T11	EPDM A	Unit
Hardness	ASTM D 2240	71	74	ShA
Tensile strength	ASTM D 412	13.1/1906	12.8/1856	MPa/psi
Elongation at break	ASTM D 412	151	174	%
100% Modulus	ASTM D 412	7.2/1049	7.6/1096	MPa/psi
Tear resistance Die C	ASTM D 624	22.9/131	20.1/115	kN/m/ppi
Air Aging (70h @ +125 °C/+257 °F)				
Change of hardness	ASTM D 573	+1	+1	ShA
Change of tensile strength	ASTM D 573	-5.5	-4.5	%
Change of elongation	ASTM D 573	-4.3	-3.7	%
Water Immersion (70h @ +100 °C/+212 °F)				
Change of hardness	ASTM D 471	-1	0	ShA
Change of volume	ASTM D 471	+0.1	+0.5	%

E8T12

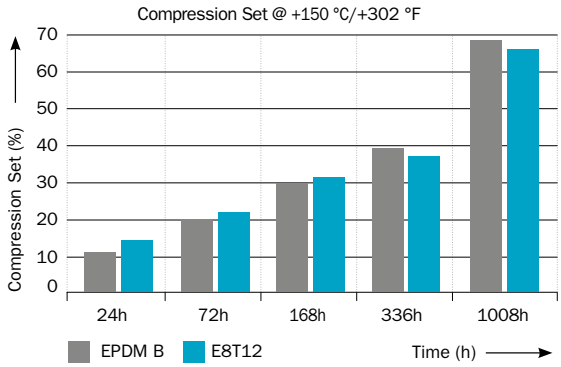
E8T12 contains non-fossil feedstocks which significantly reduce its carbon footprint, yet it retains all the essential characteristics required for general industrial EPDM applications. The 80 Shore A material is suitable for compression molding.

Compared to a traditional EPDM compound, E8T12 has a reduction in carbon footprint of 61 percent. As a finished molded seal it has a potential PCF reduction of 55 percent.

MATERIAL PROPERTIES

E8T12 combines a significantly lower environmental impact with performance characteristics identical to a traditional, comparable EPDM (EPDM B).

To ensure this, we conducted extensive testing across a broad spectrum of temperatures and durations. The results confirm that E8T12 delivers performance equivalent to traditional EPDM in key areas including hardness, compression set, elongation and aging in both air and water.



Properties	Test Method	E8T12	EPDM B	Unit
Hardness	ISO 48	75	76	ShA
Tensile strength	ISO 37	13.9/2016	14.8/2147	MPa/psi
Elongation at break	ISO 37	252	221	%
100% Modulus	ISO 37	4.6/667	6.3/914	MPa/psi
Tear resistance Die C	ISO 37	31.8/182	30.9/176	kN/m/ppi
Air Aging (72h @ +125 °C/+257 °F)				
Change of hardness	ISO 48	+1.3	0	ShA
Change of tensile strength	ISO 37	+8	+6	%
Change of elongation	ISO 37	-5	+3	%
Water Immersion (168h @ +150 °C/+302 °F)				
Change of hardness	ISO 48	-0.5	+0.4	ShA
Change of volume	ISO 37	+5	+4	%

Proven Reductions in Environmental Impact

Bio-circular feedstocks derived from renewable inputs achieve a lower PCF

Our reduced carbon footprint EPDMs, represent a major step forward in lowering the environmental impact of elastomer components.

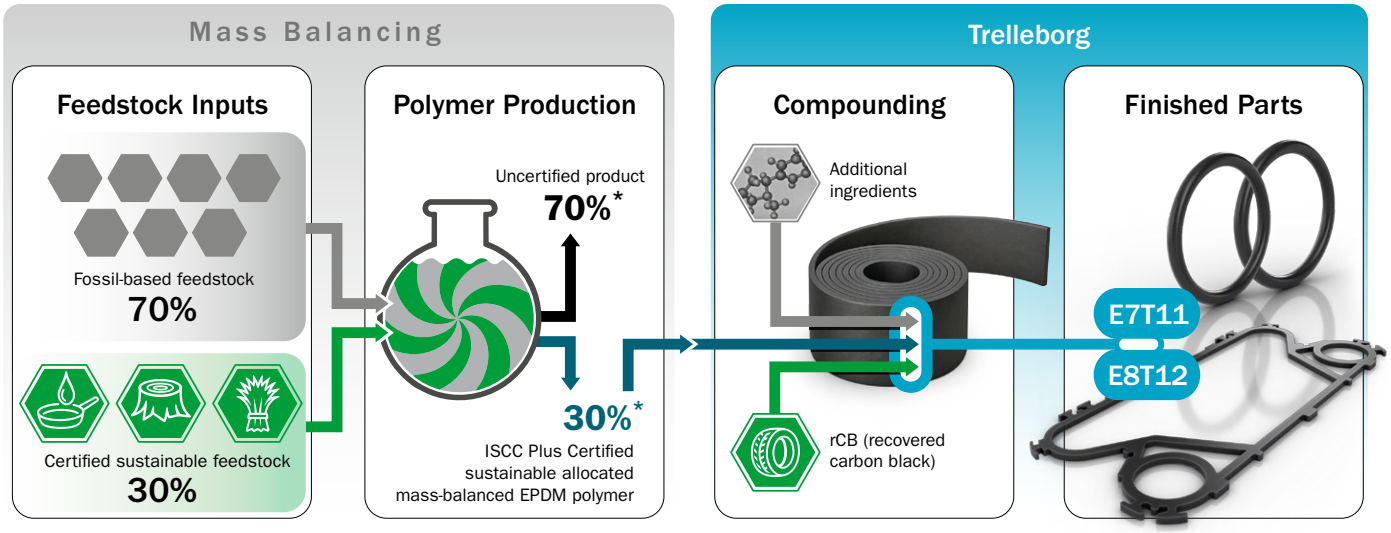
Made with ARLANXEO's Keltan® Eco-BC polymers, they feature a substantially reduced carbon footprint compared to traditional materials yet retain equivalent performance characteristics. This is achieved by creating the polymer from bio-circular ethylene and propylene made from non-fossil sources. Those sources are derived from renewable inputs such as used cooking oil, straw, forestry residue and tall oil.

The environmental benefits come from the bio-circular feedstocks, creating elastomers that are identical to traditional materials from fossil-based raw materials in terms of characteristics and performance in real-world applications.

ARLANXEO Performance Elastomers

From Feedstock to Finished Seals

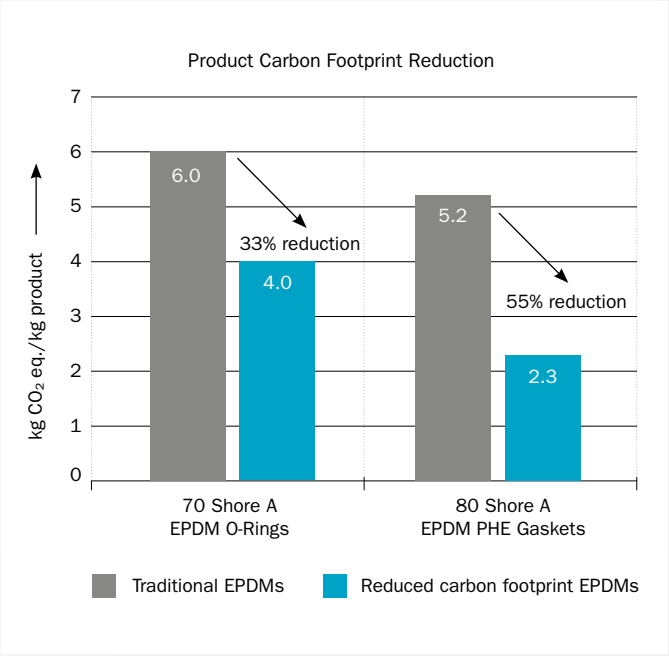
How fossil-based and bio-circular materials become reduced carbon footprint EPDM components



* Loss unaccounted, 100% yield. The physical product is one mixed material. The values represent certified allocation, not physical composition.

METHODOLOGY VERIFICATION

In partnership with Sphera, we conducted a cradle-to-gate life cycle assessment to calculate the product carbon footprint of our EPDM formulations. The new materials were evaluated against our traditional industrial grade EPDMs. Our methodology for calculating the PCF values of the new EPDMs is in the process of being validated by DEKRA, an internationally recognized certifying authority.



This chart compares the climate change impact, measured in CO_2 equivalents, for producing one kilogram of our EPDM products. It clearly shows the lower PCF of our new EPDM materials compared to traditional grades. The results for our reduced carbon footprint EPDMs represent indicative GWP and account for biogenic carbon uptake.

SUSTAINABILITY TERMINOLOGY

Product carbon footprint (PCF) is the total amount of greenhouse gases (GHGs) – mainly carbon dioxide (CO_2) – that are emitted throughout the life cycle of a product. In our cradle-to-gate approach, this includes emissions from raw material extraction, transportation to production site, manufacturing and packaging.

Global warming potential (GWP) is a metric that acts as a conversion factor, translating the impact of various GHGs into a single CO_2-equivalent value. To understand a product's climate impact, we use both GWP and PCF. The PCF represents the total climate change impact of a product, calculated by applying these GWP factors to all relevant emissions throughout its defined life cycle stages.

The **Mass Balance Approach** makes it possible to track the amount and proportion of non-fossil feedstocks in the value chain and attribute it based on verifiable bookkeeping. It ensures that the total amount of sustainable material used in the production process is accurately accounted for and attributed to the final product, even if it's mixed with conventional fossil-based materials.

ISCC PLUS is a sustainability certification system designed for companies that use bio-based, circular (recycled) and renewable raw materials. ISCC PLUS helps businesses prove their commitment to sustainability, meet consumer and regulatory expectations, and reduce environmental impact. The EPDM polymer used in our compounds is ISCC PLUS certified.

Bio-Circular Materials are non-fossil feedstock derived from waste and residues of biological origin, including those from agriculture, forestry, fisheries, aquaculture and the biodegradable fraction of industrial and municipal waste. These materials reduce reliance on fossil-based feedstocks.

Trelleborg is a world leader in engineered polymer solutions that protect essential applications in demanding environments. Its innovative solutions accelerate performance for customers in a sustainable way.

Trelleborg Sealing Solutions combines deep materials and applications expertise with close customer collaboration to fulfil our mission as a leading provider of precision seals, bearings and custom polymer components. We focus on meeting the most demanding needs of aerospace, food and beverage, semiconductor and general industrial customers.

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