The Sustainability **Difference**

ZOTEFOAMS

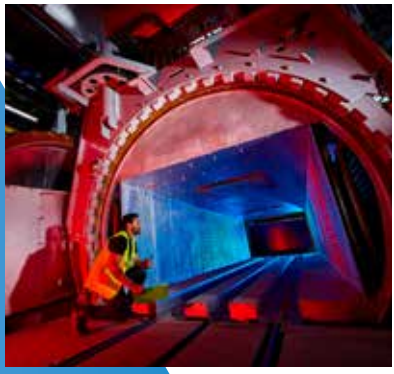
Optimal material solutions for the benefit of society

At Zotefoams, we are driven by our purpose, to create optimal material solutions for the benefit of society

Foams designed for sustainability

Our unique three-stage manufacturing process, refined and perfected over the course of a century, produces high-performance, closed cell, crosslinked foams from polyolefin and engineering polymers using temperature, pressure and nitrogen borrowed from the atmosphere.

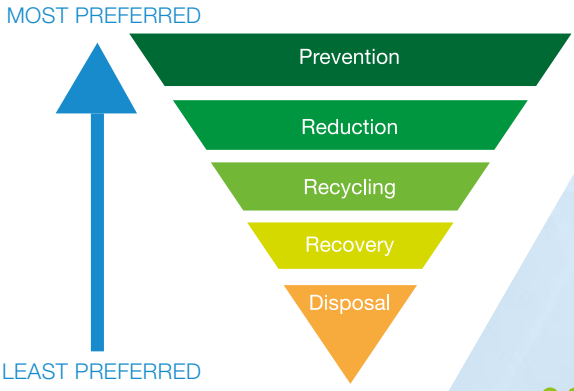
The resulting materials are valued by our customers for their consistency and durability. Our foams also offer a superior performance to weight ratio which allows for weight savings to be made compared to chemically expanded foam, silicon or rubber by using a lower density product. This in turn reduces the amount of polymer required to make the final product and can contribute to fuel and energy savings during transport and use.
Zotefoams' process provides further desirable qualities: foams which are low in odour and VOCs and exhibit isotropic mechanical properties, i.e. there is no directionality in performance.



Saves costs and energy

Free from chemical blowing agents

The Sustainability **Difference**



The hierarchy of waste

underpins our approach to sustainability - we prioritise reducing virgin material entering the value chain, reusing it where possible, enabling full recycling and only where there is no alternative, ensuring our products are suitable for responsible waste management.

Reduce

We play a key role in reducing polymer usage across the supply chain, by creating materials which provide equivalent or better performance at lower densities than our competitors and by replacing traditionally heavier materials such as solid silicone rubbers or fibre-reinforced composites with lighter Zotefoams materials. **This provides weight savings of up to 70%.**

Reuse

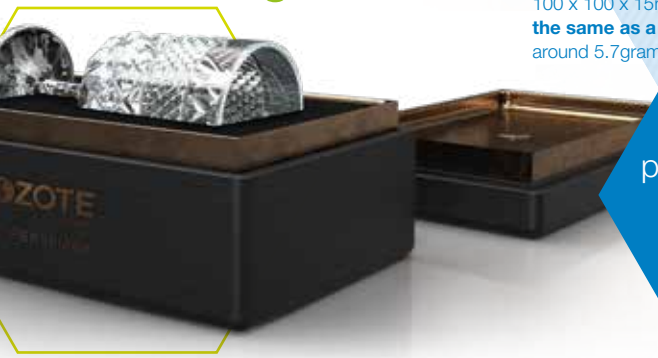
Our foams are durable and ideal for long-term use for applications such as industrial, construction and product protection.

Recycle

We're working on increasing the use of recycled materials in our foam, like Ecozote® LDR, a closed cell, crosslinked low-density polyethylene foam which contains 30% pre-consumer waste. We've also recently launched Ecozote PE/R which incorporates 30% post-consumer recycled LDPE. Additionally, our foam products can be re-purposed for agglomerate or rebound applications.

Better performance to weight ratio

For example a piece of **ZOTEK F 38 HT** measuring 100 x 100 x 15mm **weighs the same as a US quarter**, around 5.7grams



eco ZOTE®
Sustainability+ **foams**

Superior performance with **30% recycled content**

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Zotefoams' compares AZOTE® polyolefin foams against heavier competive foams

The tests

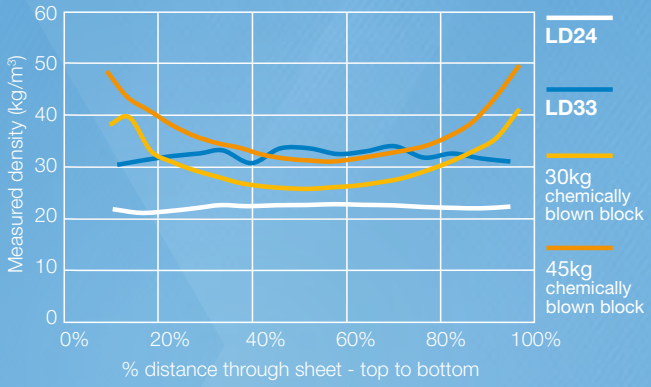
Density profile
A demonstration of the density variance across the thickness of the foam sheet.

Tensile strength
Measures the force required to pull a test piece of foam apart.

Compression stress
Measures the compressive force required to compress the foam.

Compression set
Measures the extent of recovery after a compressive force is removed from the foam.

Density profile without skins

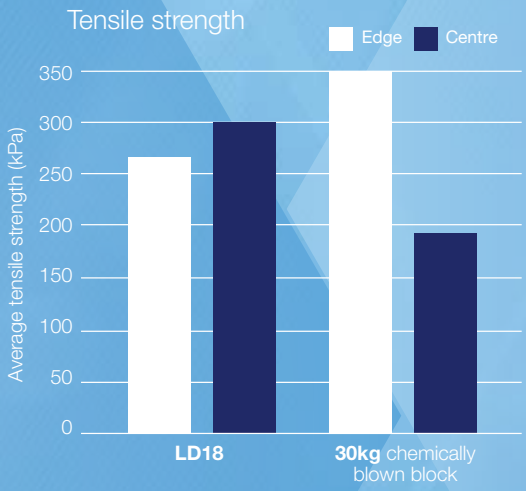


The straighter the line, the more consistent the foam

Results

Zotefoams materials are more consistent across the entire sheet, whereas competing foam varies by almost 50%

As part of wider sustainability testing initiatives, Zotefoams compared the most popular grades in Zotefoams' AZOTE® polyolefin foams range against heavier competing chemically blown block and laminated roll foam material.

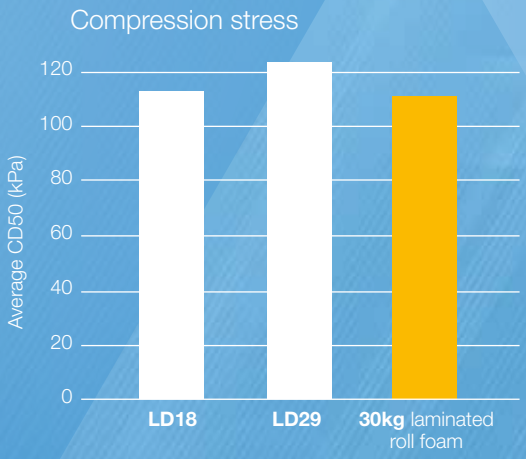


The closer the bars are together, the more consistent the strength of the foam piece

Results

Zotefoams' Plastazote® LD18 has a flatter density profile, meaning it's more consistent and is therefore easier to process

LD18's average strength is similar to a 30-kilo competitor chemically blown block foam, meaning customers could use a lighter material and achieve the same performance, using less virgin polymer and enabling cost savings



The higher the bar, the more stress needed to compress the foam piece

Results

Both LD18 and LD29 outperform the competitor chemically blown 30 kilo foam, with a greater force needed to compress the foam piece

This shows that customers can swap to lighter Zotefoams material without compromising on quality or reducing strength

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The lower the bar, the better the foam recovery

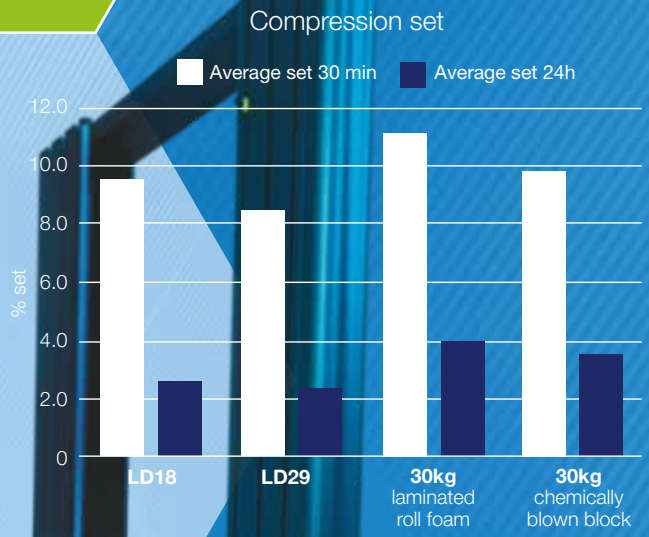
The test continued

Compression set

Measures the extent of recovery after a compressive force is removed from the foam.

Results

Zotefoams materials recover quicker when compared to the chemically blown competitor foams.



Consistent density profile

More consistent mechanical properties through the block;
More consistent processing;
Less waste during conversion;
More economical conversion.

But what does this mean practically?

For converters

Saving time, energy and reducing costs
Our material can be processed faster and generates less waste and fewer rejects.

Ease of use
They can be cut anywhere to achieve the same result.

For customers

Weight savings without compromise
Choosing a lower density Zotefoams foam, instead of chemically blown material, enables immediate weight savings without affecting performance.

Reduce virgin polymer further
Already lower virgin material requirements can be improved by including recycled content. All of this has has a direct positive impact on reducing carbon emission.

Consistent density profile

Enhances the predictability of physical performance; Impact absorption, Compression set, Tensile strength.

No chemical blowing agents

Enables functional additives to be incorporated at optimum levels; Greater colour intensity; No staining or corrosion potential; Better long-term size and shape stability; Low odour.

Controlled cell size

Gives enhanced physical performance with a higher strength to weight ratio.

Low in-built stress

Flatter blocks for easier, quicker conversion; Less waste during conversion; More economical conversion; Less distortion of finished part.

High purity

Low odour and toxicity allow good skin and cleanroom usage compatibility, as well as best in class automotive interior ratings.

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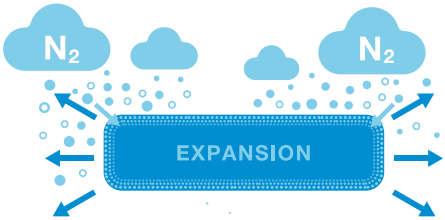
Four aspects of our business will enable us to thrive in a lower carbon economy



Our nitrogen-based process

- Our core high-pressure autoclave foaming process uses nitrogen borrowed from the atmosphere
- Energy and raw material become the only environmental impact
- Process becoming more efficient as we invest

Efficient use of raw material

- Our technology delivers foam products with better performance per unit of weight
- Less material, with the integrity and durability to necessitate less frequent replacement

Our products' role in avoiding emissions

- Zotefoams products are typically used in ways that reduces emissions and conserves resources
- These include thermal insulation, protecting products in transit adding minimal additional weight, replacing heavier alternative materials

New product development

- We have developed lighter, more efficient, less wasteful, longer life products – including the world's lightest closed cell crosslinked foam
- We have set out to improve post-consumer recycling rates of single-use packaging by designing ReZorce® mono-material barrier packaging for full compatibility with HDPE recycling (stream 2)

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To learn more visit **www.zotefoams.com**