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# THE ZOTEFOAMS DIFFERENCE

## The Zotefoams Difference

SEE THE DIFFERENCE, FEEL THE DIFFERENCE, SMELL THE DIFFERENCE.

Zotefoams manufactures a wide range of closed cell, cross-linked, block foams using a unique, three-stage, nitrogen expansion manufacturing process.

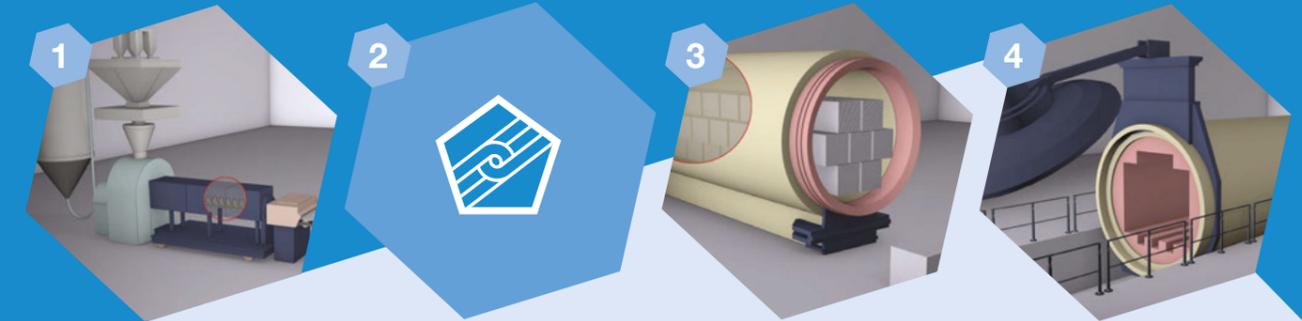
This process gives the foam an exclusive combination of beneficial properties that differentiate Zotefoams materials from all other foams.

Zotefoams is able to foam a variety of polymers, some of which cannot be foamed by any other production method. Foam properties can be varied in the level of cross-linking in order to control durability and thermoformability.

## How Zotefoams manufactures foam

THE PROCESS COMPRISES FOUR MAIN STAGES:

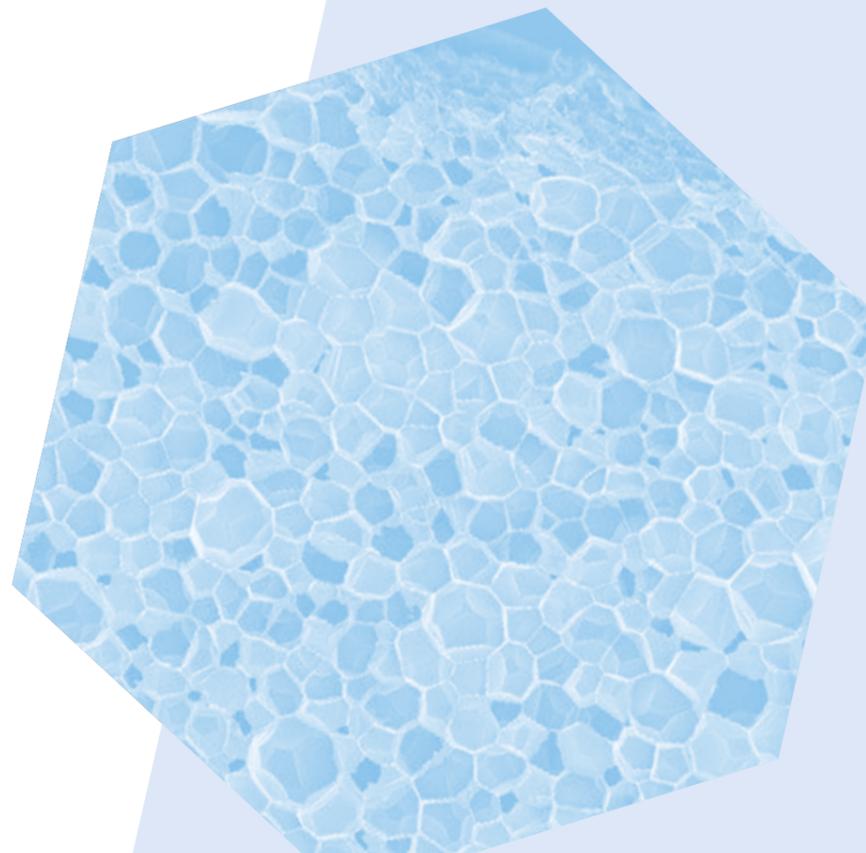
1. Extrusion into solid sheet form
2. Cross-linking
3. Nitrogen saturation at high temperature and pressure
4. Unconstrained physical expansion



## Zotefoams foams are different

The Zotefoams manufacturing process is unique, producing a host of beneficial features:

- **CONSISTENT, CONTROLLED CELL SIZE**
- **HIGH PURITY**
- **LOW IN-BUILT STRESS**
- **CONSISTENT DENSITY PROFILE**
- **NO SOLVENT BLOWING AGENTS**
- **CROSS-LINKED**



## Controlled cell size

### BENEFITS:

- Enhanced physical performance, with higher strength to weight ratios
- Greater aesthetic appeal
- Cells maintain integrity for less surface marking
- More isotropic mechanical performance
- Fine cell and large cell grades

## Low in-built stress

### BENEFITS:

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

Large cell Plastazote LD24 was created to give cushioning protection and enhanced aesthetic appeal to a new range of luxury packaging applications.

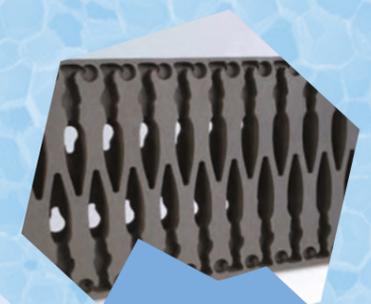
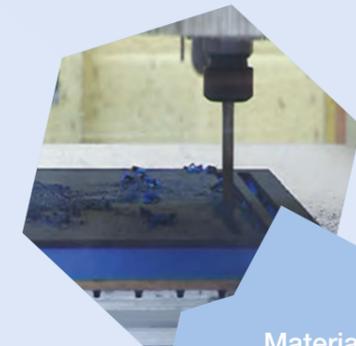
Weight saving potential is valued in many applications. Formers used in FRP boat building benefit from the combination of lightweight and excellent physical performance.

Consistent cell size is critical for laminated, thermoformed components for the automotive industry, to maintain regular colour, appearance and performance.

Finished components, produced from AZOTE® foams, maintain their shape better. They have little tendency to warp or deform during manufacture, storage and use.

Complex precise forms can be machined more accurately, cuts are crisper. Parts are more consistent.

Material can be processed faster and generates less waste and fewer rejects. This makes Zotefoams premium foams competitive with cheaper foams in overall cost terms.



## Consistent density profile

### BENEFITS:

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

Used in sports equipment, where its consistent density profile enhances the predictability of physical performance: impact absorption, compression set, tensile strength...



EV50 is the material of choice for power tumbling mats due to the consistent nature of the material and its high wear resistance.



AZOTE® is the preferred material for industrial kneepads due to its excellent consistent compression recovery and wear resistance.

## No solvent blowing agents

### BENEFITS:

- 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

Used by a leading Swiss watch manufacturer for parts packaging, to avoid risk of staining associated with chemically blown foams.



Utilised for in-transit protection, archival storage and display of valuable artifacts. Used by major museums and galleries, due to AZOTE® inert, acid-free, stain free properties.



Flame retardant, conductive and static dissipative variants are produced for special applications such as aviation and electronics.



## High purity with no solvent blowing agents

### BENEFITS:

- Mechanical properties unimpaired by corrosive foaming agents
- Good skin compatibility
- Low odour and low toxicity
- Food safe grades
- MRI/X-Ray/CT Lucent
- No VOCs introduced in processing
- Low emissions and fogging
- Reduced flammability potential



AZOTE® is more x-ray lucent than chemically blown foams. This makes it ideal for supports in medical scanning applications including MRI & CT.

In medical packaging and especially surgical instruments, purity is essential. Cell integrity ensures no particulate contamination and fine cells offer optimum surface protection.

Low odour properties are highly prized, or even essential, in a wide range of applications, especially luxury retail and display packaging.



## Cross-linked

### BENEFITS:

AZOTE® and ZOTEK® sheet and block foam benefit from Zotefoams unique process & cross linking capability.

- Improved physical properties
- Improved thermoformability



# We dare to compare

## CHEMICAL RESIDUES

Foam properties and performance unimpaired by corrosive foaming agents and no residual odour.

## TENSILE STRENGTH

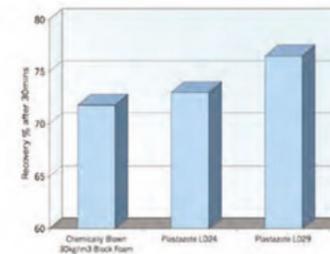
The stress at which a material breaks.

## COMPRESSION STRESS

The applied stress which results in compaction deformation (strain).

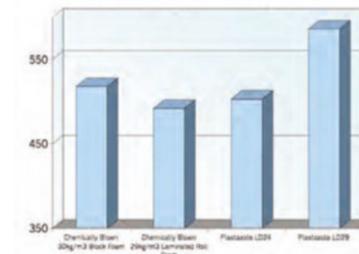
Foams produced by the Zotefoams method outperform other foams manufactured from the same polymers, expanded using chemical blowing agents.

### COMPRESSION SET/RECOVERY



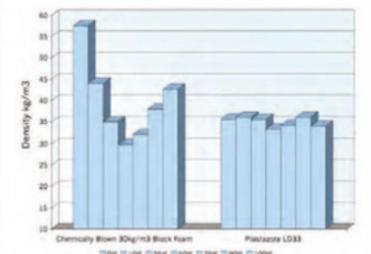
22hrs at 50% compression  
Higher values = More recovery  
compared to competitor  
30kg/m³ products

### TENSILE STRENGTH



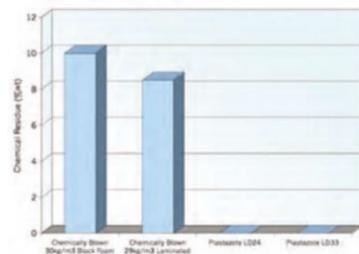
Tear strength (N/m)  
Higher values = Stronger  
compared to competitor  
30kg/m³ products

### DENSITY



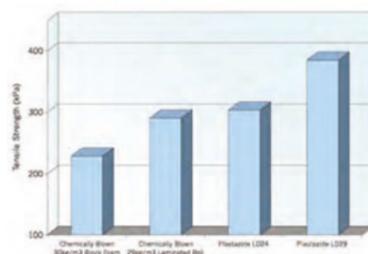
Density at intervals through a single sheet  
(2mm "skins" removed from each side)  
compared to a competitor  
30kg/m³ product

### CHEMICAL RESIDUES



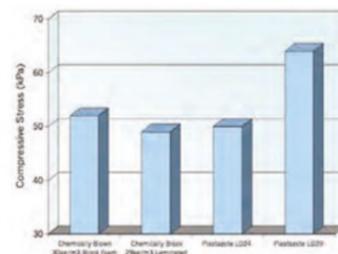
Chemical residue (%wt)  
compared to competitor  
30kg/m³ products

### TENSILE STRENGTH



Tensile strength (kPa)  
Higher values = Stronger  
compared to competitor  
30kg/m³ products

### COMPRESSION STRESS



25% Strain (mechanical deformation)  
Higher values = Stronger and stiffer material  
compared to competitor  
30kg/m³ products

# We dare to compare

## COMPRESSION SET

The amount of recovery after a compressive force is removed from the foam.

## TEAR STRENGTH

The force required to tear a standard test piece.

## DENSITY PROFILE

A demonstration of the density variance across the thickness of a foam block or sheet.