

Expancel Microspheres

The world's favorite secret ingredient



Expancel 

Nouryon



PARK

RESTAURANT

Cafe

STREET

The secret ingredient in competitive advantages



Lighter. Stronger. Faster. Cheaper. More attractive. Longer lasting. Better performing. More sustainable. Today's products have a lot to live up to. And with increasingly tough competition in many industry areas, product developers need every advantage they can get.

This is the world Expancel was created for. Since 1980, this unique ingredient has helped developers and manufacturers reduce weight and cut costs while improving quality, adding functionality and enabling innovation.

Our three promises to you

Expancel is not just an ingredient – it's also our promise of continuous innovation for a better and more sustainable world. It stands for new possibilities, more effective processes, and expertise applied to keep you ahead.



1. We give you the best

Quality makes your product – and your reputation. When you choose Expancel, you choose the gold standard. Accept no imitations!



2. We do more for you

We do everything possible to ensure Expancel is optimally implemented into your process and delivers its full potential. Our technology expertise is unmatched, and it's at your disposal.



3. We're in your future

We have a proven track record and a deep commitment to sustainable business. Wherever you want to go next, we'll be here for you.

The secret ingredient that expands your horizons

Expancel came about as part of a research collaboration in the mid-1970s. The team created microspheres that could expand to up to 60 times their original size without increasing in weight. Today we are a world leader in thermoplastic microspheres.

WU/DU Composites
Add volume with reduced weight and increased stiffness.
Low binder demand.

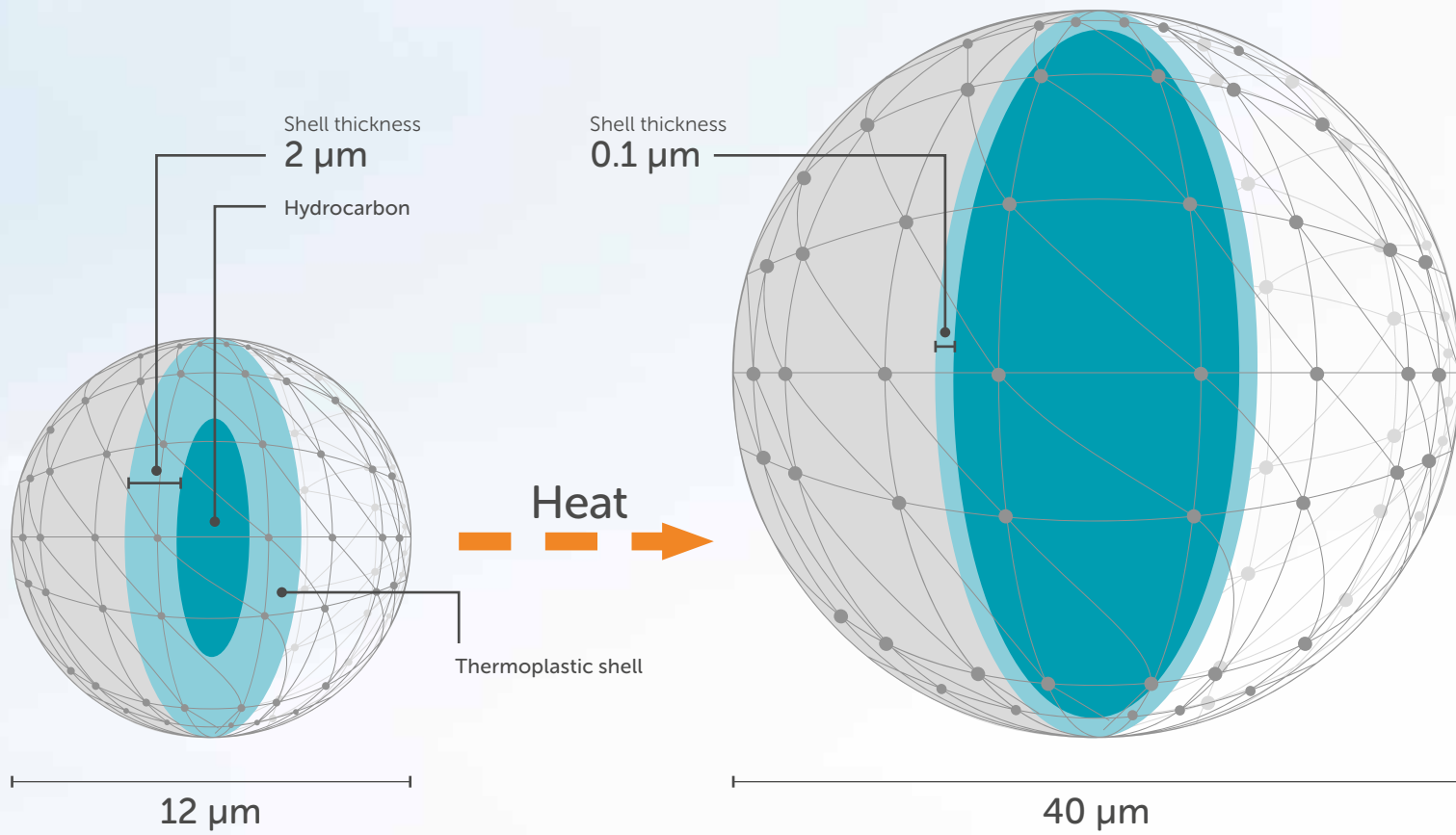
For almost 40 years, we have continuously pioneered new products and new usage areas for Expancel Microspheres. You'll find them in a huge array of products around the world – from the paint on your walls to the car you drive, the shoes you walk in and the packaging that protects your food.

Expancel is the secret ingredient that gives leading products the edge. If something looks better, feels better or performs better, it might well contain Expancel.

From small sphere to big idea

It's a simple concept – a small thermoplastic sphere encapsulating a gas. Add heat and the gas expands while the shell softens. The result is a dramatic increase in volume and billions of new possibilities.

Expancel has dual functionality as both a lightweight filler and a blowing agent. When you need to cut manufacturing costs, reduce weight, create attractive textures, protect against damage or shield against the elements, Expancel delivers.



1980

The first order of Expancel Microspheres is shipped

High-temperature microspheres launched 1991

2005 Fourth generation of Expancel Microspheres launched

Food packaging products introduced 2011

2009 Start of Expancel production in China

1988 First US office established, later followed by a production unit

FG Food Packaging

High compressibility, no shrinkage, no moisture absorption. Approved by regulations authorities.

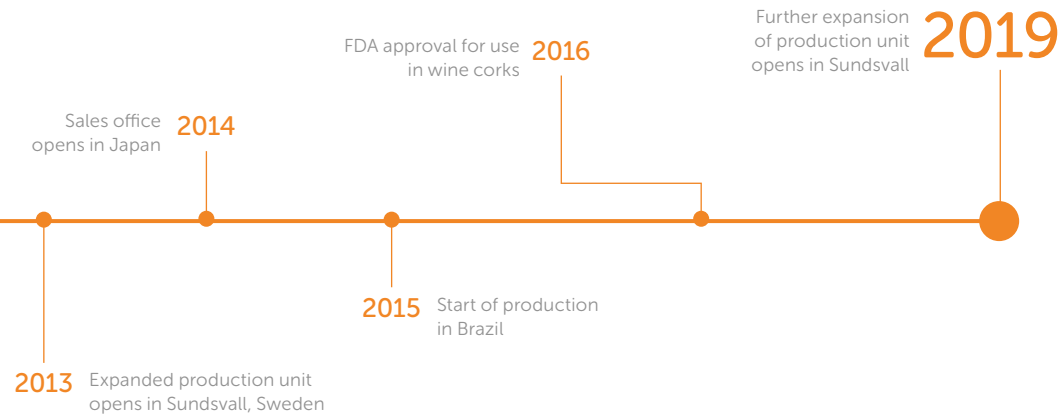
WE/DE Elastomeric cool-roof coatings

Superior reflectance and elasticity. Reduces cost and weight.

WE Genuine leather

Outstanding filling capacity, low shrinkage and good buffing properties.





 **4**
production sites covering the world

 **15** sales offices

Sweden, Germany, Poland, the Netherlands, Russia, Italy, China, Singapore, Japan, India, USA, Brazil, Colombia, Argentina and Mexico.



DU/MB Shoe soles
Low weight, durability, shock absorption.



DU/DE Automotive
Reduce weight, dampen sound, improve sealing.

Expanding where it counts

Expancel Microspheres are marketed all over the world via our headquarters in Sweden where we also have R&D and production. We have 15 sales offices across the world and, in addition, a worldwide network of distributors that enables us to meet the demand wherever it arises. To efficiently cover the American and Asian markets, we have production units in Duluth, USA; Jundiá, Brazil, and Suzhou, China.



A variety for every need

Expancel is available either expanded or unexpanded. Both types can be supplied in wet or dry form. We also have Masterbatch. This means Expancel works in systems with or without heat or water. We offer a variety of chemical compositions to give expansion at different temperatures.

A range of particle sizes makes it possible to achieve numerous surface effects, including matting, smoothness and roughness. The very low density gives a significant weight reduction even at small dosages.

WU Wind turbines

Add bulk without adding weight. Increase stiffness and reduce the need for binder.

The 7 forms of Expancel



Expancel DU
Dry, unexpanded microspheres



Expancel WU
Wet, unexpanded microspheres



Expancel MB
Masterbatch, unexpanded microspheres mixed with a carrier



Expancel SL
Slurry, unexpanded microspheres dispersed in water



Expancel DE(T)
Dry, expanded microspheres



Expancel WE
Wet, expanded microspheres



Expancel FG
Microspheres for food packaging applications



Lightweight filler and blowing agent in one

Expancel is a lightweight filler and blowing agent all in one. Its high performance in these two functions opens up a world of surprising possibilities. Using Expancel improves the properties of your product, and also enables considerable savings in the cost of materials, production and finishing, handling and transportation. For manufacturers, it means economy, consistency and control. For consumers, it means quality and satisfaction.

DE(T) Cultured marble

Reduced weight, less risk of cracks during production, improved machinability.

25 kg/m³

Our standard expanded microspheres (Expancel DE(T) and WE) have densities as low as 25 kg/m³.

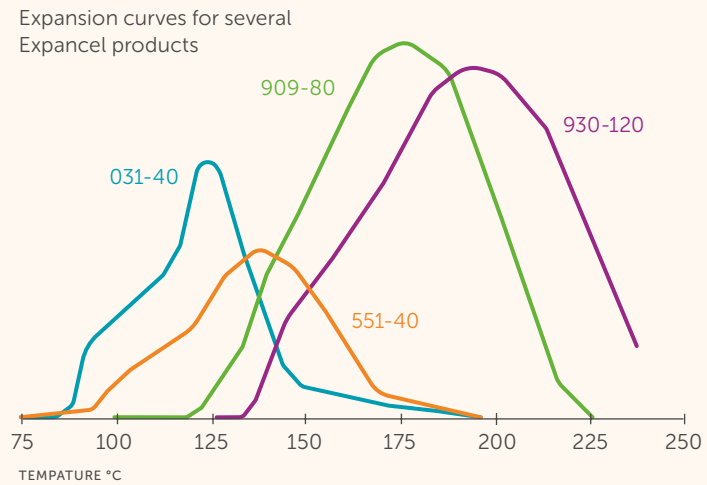
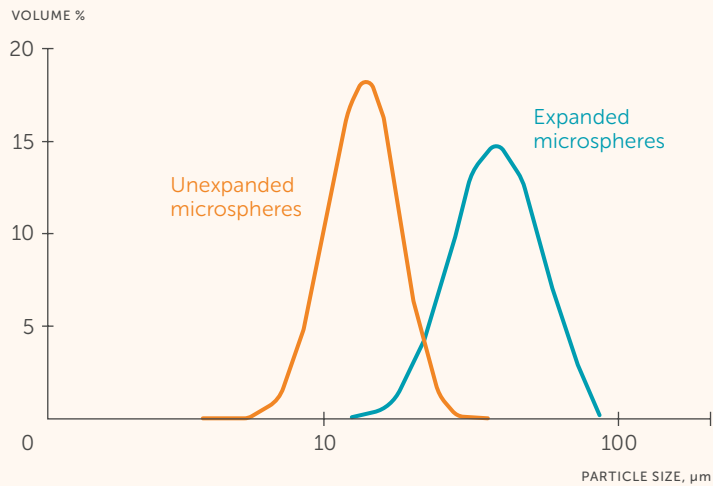
The lighter side of performance

Expancel can significantly reduce the weight of a product while creating the look and feel needed for an attractive product.

As a lightweight filler, it can achieve very low densities. Our standard expanded microspheres (Expancel DE(T) and WE) have densities as low as 25 kg/m³ depending on product. This is much lower than, for example, glass microspheres. Even small proportions of Expancel will reduce the density of the end product to a significant degree.

Binder demand is low, so the amount of binder in the end product can be reduced with no loss of desired properties. Reducing binder also saves costs.

Expancel is used as a lightweight filler in many applications today, including elastomeric cool roof coatings, paint, cultured marble, underbody coatings and sealants, polyester putties and many more. Its many benefits include cost reduction, low density, flexibility, sandability and a smoother surface with no pinholes.



Your ingredient. Your choice.

Expancel is a product with truly unique properties. It is delivered in a variety of forms: wet and dry, expanded and unexpanded, slurry and masterbatch.

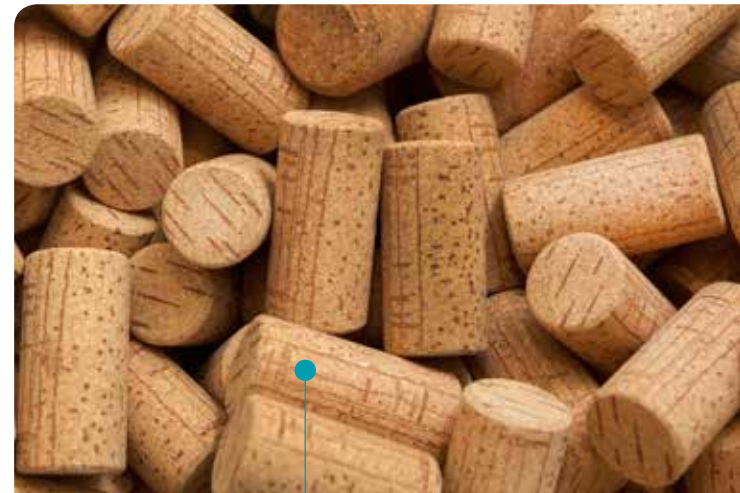
85–230°C

Different products of Expancel are available with expansion temperatures in the range of 85°C to 230°C (185–446°F).



WU/DU Printing inks

Create a variety of surface effects like 3D, velvet and matt finish.



FG Microagglomerated cork

Excellent compressibility, ultimate seal, optimal granule structure.

Perfecting the structure

Unexpanded Expancel is an excellent blowing agent that gives highly controlled foaming, resulting in a fine and uniform cell structure. You can avoid the use of chemical blowing agents and achieve excellent performance at low viscosities. Expancel can also be combined with chemical blowing agents if required.

Expancel is used as a blowing agent in many applications today, including shoe soles, wine stoppers (plastic and agglomerated), printing inks, wallpaper and weather strips for cars.

As a blowing agent, Expancel delivers many essential benefits, including a fine cellular foam structure, outstanding stability during processing, shorter cycle times and an attractive surface finish.

One ingredient. Unlimited possibilities.

Lightweight filler



Application	BUILDINGS & INFRASTRUCTURE	TRANSPORTATION	CONSUMER GOODS	INDUSTRIAL / OTHER	Description
Cultured marble	•				Reduced weight, less risk of cracks during production, improved machinability, lower resin consumption
PU foams		•			Reduced weight, controlled and uniform foam structure
Model-making board			•		Cost savings, weight reduction, improved machinability
Polyester putties	•				Low volume cost, easy to apply, extraordinary sanding properties, reduced shrinkage
Underbody coatings		•			Improved stone chip resistance and sound damping, low UBC weight helps cut fuel consumption
Sound-damping coatings		•			Reduced noise and vibrations
Interior panels for car roofs/sides		•			Low weight, improved flexibility
Body fillers		•			Low weight, better sandability, good surface appearance, non-irritable dust during sanding, reduced cracking and shrinkage of the dried material, easier to apply, low hardness, low impact on curing parameters
Paper & Board		•			Improved bulk, bending stiffness, thermal insulation. Coated applications can give soft touch and anti-slip
Porous ceramics		•		•	Controlled and uniform pore structure
Silicone rubber	•				Cost savings, reduced weight, uniform and closed cell structure, dry surface
Cable-filling compound				•	Reduced dielectric constant, reduced water penetration, cost reduction, reduced weight
Composites		•			Reduced weight, reduced cost / lower resin consumption, increased stiffness
Crack filler	•				Sandability, easy to apply, sanding dust less irritating than with glass MS
Modeling clay			•		Easy to shape, low shrinkage upon drying
Paint	•		•		Reduced weight, better applicability, higher water vapor permeability, matting effect, low emission of VOC, lower transportation cost for producer
Sealants	•				Cost savings, weight reduction, reduced volume shrinkage during drying
Genuine leather		•	•		Outstanding filling capacity, very low shrinkage, very good buffing properties, good flexibility, soft touch feeling
Elastomeric cool roof coatings	•		•		High solar reflectance and thermal insulation, enhanced durability and weather resistance

Blowing agent



Application					
Microagglomerated cork			•		Excellent compressibility, ultimate seal, optimal granule structure
Synthetic cork			•		Reduced weight, density control, better elasticity
Food packaging			•		Excellent seal, no shrinkage, no water absorption
PU foams			•		Reduced weight, controlled and uniform foam structure
Thermoforming			•		Thinner sheets, shorter heating time
Wood-plastic composites	•				Reduced weight, easier to saw and drill
Shoe soles			•		Reduced weight, matt surface, improved wearing comfort due to unique cell structure
Underbody coatings		•			Improved stone chip resistance and sound damping, low UBC weight helps cut fuel consumption
Sound-damping coatings		•			Reduced noise and vibration
Interior panels for car roofs/sides		•			Low weight, improved flexibility
Gaskets for automatic gear boxes		•			Improved sealing effects, improved compression set, fills voids between matching surfaces
Expandable adhesives for cars		•			Low weight, improved stiffness, improved compression set, fills voids between matching surfaces, creates inner pressure and better sealing
Floor mats for cars		•			Low weight, anti-slip effect, matting effect, elasticity, more rubberlike appearance
Weather strips for cars		•			Low weight, cost savings, uniform closed cell structure, better sealing properties, narrow specification along profile compared to CBA, more stable foaming process, better surface appearance
Lightweight foam			•	•	Good absorbance and recovery
Nonwoven for composites		•		•	Cost savings, reduced weight, good insulation, increased dimensional stability, increased bulk and thickness
Paper & Board				•	Improved bulk, bending stiffness, thermal insulation. Coated applications can give soft touch and anti-slip
Porous ceramics		•		•	Controlled and uniform pore structure
Printing ink for wallpaper, fabrics and textiles			•		3D effects, matting, peach or suede look
Sheets, boards & profiles	•	•		•	Closed cells, foam stability, reduced weight, cost saving potential
Silicone rubber	•				Cost savings, reduced weight, uniform and closed cell structure, dry surface
Thermal release material				•	Debonding at elevated temperatures
Artificial leather		•	•		Surface modifications such as suede and nubuck effects

The secret ingredient in product development

Expancel is more than a microsphere. It's a commitment to continuous improvement and business success for the long term. Because every product – and every process – has unique demands. That's why we strive to be an expert product development partner, not just a supplier.

Our sphere of expertise

Expancel thermoplastic microspheres were invented in the mid-1970s. Since then, we've been refining the most effective ways to make them work in diverse applications across numerous industries.

Achieving the full potential of microspheres demands the best brains in the business. Brains that understand business goals in addition to chemistry and processes. We know how to achieve the best results for your production

process and your business. You can be assured of all the advice, support and hands-on technical assistance you need to make things run smoothly and profitably.

Bringing Expancel closer to your business

As a product development partner, we are constantly searching for new ways to make Expancel work better for your business. We aim to make it a seamless and cost-effective part of your operation.

One of the innovations this has led to is our unique on-site expansion system. This patented, high-capacity system makes it simple to expand Expancel on your own premises. It gives you greater flexibility and significantly reduces your purchase and shipping costs, helping ensure that Expancel is the best solution from every perspective.

Contact your local representative to learn more about our microspheres and on-site expansion system.

Expancel plays a key role in our products. Without it, we could not have developed the offering we currently have.

Dominique Tourneix, CEO Diam Bouchage

The secret ingredient in sustainability

Expancel Microspheres not only come with several benefits for various applications – they also provide sustainable solutions to a world that needs them.

Reflecting a brighter future

With Expancel Microspheres, it's possible to create elastomeric cool roof coatings that are both protective and environmentally beneficial. They have excellent capacity for total solar reflectance, especially in the near-infrared region. In warmer climates, air conditioning alone can account for up to 70% of residential energy consumption in total. By applying an Expancel-formulated coating to the metal roof of a large, one-story commercial building, cooling energy consumption was reduced by 40%. In addition, an elastomeric cool roof coating with Expancel Microspheres makes an excellent water proofing coating with increased durability in all types of weather. All in all, our microspheres make a great contribution to doing more with less.

Innovation close to our customers

When heated, Expancel Microspheres can increase in volume by up to 60 times. This capability is one of its key attributes. As part of our effort to make Expancel a seamless and cost-effective part of the production process, we have developed a unique on-site expansion system. Our patented, high-capacity system makes it simple for customers to expand Expancel Microspheres on their own premises, radically reducing transportation costs, reducing emissions and fuel consumption. It's an innovation that creates value for customers while supporting our commitment to a sustainable future.



40%
energy reduction

A coating with Expancel can reduce energy consumption from air conditioning by more than 40%.

Cutting kilos from cars

Lighter vehicles result in less fuel consumption. Expancel's low density and closed cell structure makes it a valuable component in expandable adhesives and sealant materials. Which includes underbody coatings that protect against stone chips, water, salt and other road hazards. Adding Expancel Microspheres creates lightweight alternatives that have all the protective properties of heavy-duty coatings whilst extending lifespan and contributing to weight reduction. Just one more simple example of how Expancel can expand sustainability.



Which improvements do you want for your product?

Whether you want to reduce weight, improve consistency, create a better look and feel or make manufacturing more effective, Expancel could be just the ingredient you need.

Discuss your product and your needs with us. And, let our experts guide you towards the right solution for your business.

Contact us and discover for yourself why Expancel is the world's favorite secret ingredient.

Learn more at:
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Expancel

Expancel® Microspheres is the world's favorite secret ingredient. You can find it in all your everyday essentials – your car, your shoes, the cork that protects your wine. It helps product developers worldwide expand their business, enabling them to reduce weight, cut costs, improve quality and create unique finishes. Expancel has dual functionality as a blowing agent and lightweight filler. The microspheres consist of a thermoplastic shell encapsulating a gas. Add heat and they expand dramatically, up to 60 times their original volume. The product is supported by unmatched technology know-how, ensuring smooth integration into any process. Expancel is a trademark within Nouryon – a world leading provider of expandable microspheres.

expancel.nouryon.com

Nouryon

We are a global specialty chemicals leader. Industries worldwide rely on our essential chemistry in the manufacture of everyday products such as paper, plastics, building materials, food, pharmaceuticals, and personal care items. Building on our nearly 400-year history, the dedication of our 10,000 employees, and our shared commitment to business growth, strong financial performance, safety, sustainability, and innovation, we have established a world class business and built strong partnerships with our customers. We operate in over 80 countries around the world and our portfolio of industry leading brands includes Eka, Dissolvine, Trigonox, and Berol.

nouryon.com