

FAUX LEATHER

WITH EXPANDABLE MICROSPHERES

Make artificial leather look real by replicating surface effects of nubuck and suede



OVERVIEW

Product Type

Unexpanded microspheres

Main Benefits

Create patterns
Nubuck & suede surface finishes
Print

Applications

Accessories
Garments
PU leather
PVC leather
Upholstery

Expandable Microspheres

Expandable microspheres used in different particle sizes and quantities create **different surface effects** to **replicate real leather**. Faux leather is coated with a PU or PVC paste containing unexpanded microspheres.

When heated the microspheres expand to give the desired surface finish. Expanded particle sizes of 20, 40, 80 or 120 μm in the surface layer of faux leather can be used to give a **nubuck** or **suede** effect, or a **mat** finish.

The spheres can be used in any **conventional process** used to produce faux leather; coagulation, direct coating, release paper process. Different finishes are obtained by changing particle size and dosage.

Larger particle sizes, 80 and 120 μm are used to produce a **suede** effect finish, or for coating the back of faux leather to achieve a coarse or split leather finish. **Smaller particle sizes** and **mixtures** of different particle sizes can be used to create other surface finishes, such as, **nubuck**. **Patterns** on faux leather can be created using **gravure** or **screen printing** methods.



Addition, Mixing & Expansion

About **5 to 10 g/m²** dry unexpanded microspheres is usually enough to create a **3D suede effect**. The microspheres should be the last material added to a PU or PVC paste, and are **easy to disperse** in highly viscous dispersions. The spheres can **withstand high shear** rates without any damage. For the best result, it should be ensured the microspheres are fully dispersed.

The **top coat** containing unexpanded microspheres is usually applied by **knife blade** or **roller coating**, at a thickness of less than 300 µm.

Normally, the coated leather is **expanded** at 150 to 200°C, but this does depend on substrate type, substrate thickness, coating thickness and heating equipment used; these parameters should be **optimised** to give the **best performance**.

Expansion of the microspheres and **gelation** of the plastisol happens at the same time. To obtain full **expansion** of the microspheres, it is important they expand before the matrix cures.

Expandable microspheres have good **chemical resistance** against plasticisers typically used in PVC plastisols, however, if DMF is used concentration should be kept low since this can affect storage time. Improved storage stability can be achieved with low temperatures.



PU & PVC

Faux Leather with expandable microspheres

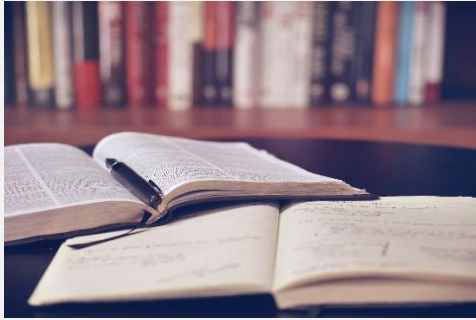
In **PU leather**, a good starting point is adding **2 to 6 parts** dry unexpanded microspheres to a formulation based on a soft and non-tacky **PU resin** with high elasticity, >500%.

For **PVC leather**, **4 to 10 parts** of dry unexpanded microspheres is normally used. The choice of **plasticiser** is just as important as the PVC resin to the final finish of the faux leather. Di-isononyl phthalate (DINP) is widely used with an epoxy plasticiser in vinyl plastisols. Other phthalates are chosen when different properties are required, such as, strong resin solvent power to decrease gelation time and temperature.

Adding up to **10% w/w** of dry unexpanded microspheres has little effect on the **viscosity** of the plastisol. The mixture exhibits a pseudoplastic flow; viscosity decreases with increasing shear rates.

To prevent discolouration a **heat stabiliser** is added. Zinc based stabilisers, such as barium or calcium, have been shown to work well. Epoxidised soybean oil (ESBO) incorporated into the formulation offers heat and light stabilising properties.

Pigment plasticiser dispersions are suitable for **colouring** PVC-plastisols or vinyl plastisols containing expandable microspheres.



Further Reading

Our **Technical Guide – Properties of Expandable Microspheres** takes an in depth look at the properties of expandable microspheres. A great introduction if you are new to the world of expandable microspheres.

To discover how to make coatings and putties to upgrade hides and increase yield of real leather, refer to our **Application Guide – Leather Finishing with Expandable Microspheres**.

Find out how expandable microspheres are used to make uniform foamed plastisols in our **Application Guide – Plastisols with Expandable Microspheres**.

What's Next?



Do you need help **choosing the right grade** for your application, **more information** or a **sample** to try?

We are always happy to help and answer any questions you may have. Please do not hesitate to contact us:

t: +44 (0)1406 351988

e: tracey@boud.com

w: www.boud.com

a: Boud Minerals Limited, West Bank, Sutton Bridge, Lincolnshire, PE12 9UR, United Kingdom

Something to Note

The information contained in this guide is a result of our experience and research. It is given in good faith but under no circumstances does it constitute a guarantee on our part, nor does it hold us responsible, particularly in the case of legal action by a third party.