## ADDITIVE SOLUTIONS FOR PU ARTIFICIAL LEATHER

CATALYSTS AND SURFACTANTS FOR SUSTAINABLE ARTIFICIAL LEATHER AND TEXTILE COATINGS





# MAKING THE ARTIFICIAL LEATHER INDUSTRY MORE SUSTAINABLE WITH OUR INNOVATIVE POLYURETHANE ADDITIVE SOLUTIONS

From handbags, shoes, and garments to automotive seating, polyurethane-based artificial leather is used in a variety of applications as a sustainable and effective alternative to natural leather. A porous PU layer coated onto a textile carrier at the core of the material determines much of the material's physical properties, including, haptics, breathability, tear strength and other features.

Traditionally produced in a solvent-intensive process, the industry is increasingly moving towards more sustainable processes to protect both consumers, and the environment. As the leading expert in foamed polyurethanes, we are at the forefront in developing additives that enable this new generation of artificial leather technologies.

#### Typical composition of PU artificial leather



#### WE ARE WHERE YOU ARE



Evonik is the global leader in Polyurethane Additives with over 50 years of industry experience, offering the broadest range of additive solutions including surfactants, catalysts, curatives, performance additives, and release agents. With production and laboratory capabilities in all major regions, we are well positioned to serve your needs, now and in the future.

#### WATERBORNE PU LEATHER

The use of waterborne polyurethane dispersions as a raw-material enables PU-based artificial leather to be produced without the use of hazardous solvents.

The benefit of this technology is that it can be transferred and used on classical production lines with minor investment and in minimal time. In production, waterborne systems are easy to handle and stand out as they benefit from a long pot life. Artificial leather based on waterborne technology can be extremely light and comes with a very soft feel to the touch.

Our innovative ORTEGOL® P series of additives has been specifically developed for use in the production of waterborne PU leathers and includes foaming agents, dispersants, and viscosity enhancers.

#### Waterborne polyurethane dispersions - production process for foam-coated textiles



#### **2K PU LEATHER**

By using a reactive polyol-isocyanate mixture, it is possible to produce PU artificial leather in a completely solvent free way.

While the use of 2K technology requires an initial investment in special mixing equipment, the benefits that are gained from the very fast and efficient production of leather outweigh the costs.

2K artificial leather stands out as a premium product due to its very good mechanical properties such as good wear and abrasion resistance.

For the formulation of 2K artificial leather systems our offering includes tailored silicone surfactants as well as curing catalysts to help control the reactivity of the PU coating.

## The reactive 2K process enables a solvent-free production of PU-based artificial leather







#### **ORTEGOL®** P series for waterborne PU leather

ORTEGOL* P	The ORTEGOL® P series includes innovative foam stabilizers that provide fast foam build-up, outstanding fine foam structure and superior foam stability. Addi- tionally, these products are non-migrating, low-emis- sive and provide high system compatibility.
ORTEGOL° PD	Dispersants are summarized under the ORTEGOL® PD series. These products were optimized for the use in foaming applications of aqueous polymer dispersions and show minimum interference with foaming agents and foam stabilizers. The ORTEGOL® PD series also includes dispersants for both organic and inorganic particles/fillers.
ORTEGOL* PV	Our ORTEGOL® PV viscosity enhancers have also been optimized for use in foaming applications and will not give rise to unwanted foam defects. Products for different flow behaviors ranging from Newtonian to strong pseudo-plastic flow are all available.

### Our additive solutions for 2K PU leather

## Catalysts for 2K PU leather

POLYCAT <sup>®</sup> and DABCO <sup>®</sup> series	Broad variety of standard TEDA and DBU-based catalysts
POLYCAT <sup>®</sup> SA series	Blocked amine catalysts for delayed reaction profiles. Available with different activation temperatures
DABCO <sup>®</sup> NE series	Low emission amine-based catalysts
KOSMOS <sup>®</sup> and DABCO <sup>®</sup> series	Tin and bismuth-based catalysts with a strong gelling reaction

#### Surfactants for 2K PU leather

#### **TEGOSTAB®** series

Broad variety of silicone surfactants providing numerous benefits, such as optimized cell structure, improved substrate wetting or improved levelling

#### SPECIAL ARTIFICIAL LEATHER APPLICATIONS

In addition to solutions for foamed PU leather based on waterborne PU dispersions or 2-component reactive systems, our diversified additive portfolio also includes additives for special PU artificial leather applications. For PU leather based on blocked high solid pre-polymers, we provide levelling agents and cell regulators selected from our TEGOSTAB<sup>®</sup> series of silicone surfactants.

In all of these applications our additive solutions do not only help to produce artificial leather of highest quality, but they also provide a number of processing benefits for artificial leather producers, including larger processing windows or faster production speeds.

Our approach is to find the best technical solution for each individual customer and provide full technical support.

We have set-up a fully equipped lab which enables us to offer our full technical services to the artificial leather industry today, and to help meet the development challenges of the future.





#### TEXTILE COATING APPLCATIONS

Evonik's additive solutions are not only limited to artificial leather applications. In fact, in all fields of the textile industry where foamed textile coatings play a role our foam stabilizers, performance additives and catalysts can be used to improve both product quality and processing conditions.

Please visit www.evonik.com/ polyurethane-additives to learn more and contact us at polyurethane@evonik.com to discuss all of your PU artificial leather or Textile coating requirements.



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#### www.evonik.com/pu-contacts

For more detailed information or to obtain a brochure which addresses a specific area of interest, please visit our website.

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