Structuring Agents

Polymer powders to create haptic, visual and functional effects on surfaces.
Structuring agents from Deuteron:
Additives for perfect coating surfaces.

Polymer powders for structured surfaces.

Today many modern surfaces desire special effects and modifications that require the use of coarse particles. The desired surfaces in these areas must **not be smooth**. Consequently, suitable structuring additives are required to control and create the requested effects.

The particle sizes of such structuring agents may lie in the range from below the film thickness of a coating to much greater. The usable particle size is defined by the specific application. The chemical basis, particle shape, particle size and the quantity of structuring agents are decisive for their effect on the surface. From the finest surfaces, which can barely be distinguished from matt surfaces, to very rough coarse structures with anti-slip properties, a wide range of effects can be created. The possibilities for use range from decorative to functional applications.

We offer such structuring agents and plastic powders based on polymethyl urea resins, copolyesters and polyamides. These products allow many of these characteristics to be created.

The type and thickness of the structure depends on the applied film thickness and on the ratio of structuring agent to the solid content of the binding agent. The different types exhibit different particle distributions. The coarser types produce thicker surface structures with less gloss reduction. The finer types result in greater gloss reduction and produce a fine, “velvet” surface. The matting effect of the fine types is very variable and follows a function of particle size and concentration. Even if it is possible to speak of coarse matting for some applications, the matting effect is naturally not comparable with that of typical matting agents. With the very coarse types, almost no matting takes place.

We currently offer 5 types in our Deuteron ST range, based on polymethyl urea resin. Deuteron ST-S, ST and ST-L represent three basic types of different particle sizes. Deuteron ST-G and ST-M are ground types that are suited to particularly fine and elegant surface effects. Additionally, the coarser particle ranges are complemented by the thermoplastic Deuteron ST50, ST100, ST125, ST250 and ST500 structuring agents.

The structuring agents of our Deuteron ST range can be used in all solvent-based and solvent-free coatings and in aqueous systems. Thus practically all areas of the haptic, visual and functional modification of surfaces are covered.
Deuteron structuring agents open up many possibilities for the structuring of your surfaces. Based on polymethyl urea resin or copolyester/polyamide, they enable you to achieve high-quality effects in your surfaces in both functional and aesthetic terms. Because of their advantages over conventional structuring agents, our polymethyl urea resin structuring agents in particular are used all over the world to produce a wide range of modifications. Profit from the versatile application possibilities our structuring agents offer for designing your surfaces.

/ Advantages at a glance:

- No melting point (only thermoset types)
- Temperature resistant up to 200 °C (only thermoset types)
- Highly transparent
- “Relatively” high hardness
- Soft effects (fine types)
- Anti-slip effects (coarse types)
- Friction reduction (fine types)
- Coarse matting
- Decoration (e.g. frost effects)
- Unrolling and anti-blocking effects
- Boosts and complements other effects pigments
Thermosets – polymethyl urea resin

Our polymethyl urea (PMU) resin-based Deuteron ST products are wax and silicone-free powders in grades ranging from fine to coarse. They stand out for their high hardness and wear resistance compared to conventional polyamide or polyurethane structuring agents. Compared to these types and to acrylate-based structuring agents there are also often economic advantages. They are resistant to the solvents used in coatings and exhibit temperature stability up to about 200 °C, and for short periods to still higher temperatures.

They increase the scratch and abrasion resistance of coatings, and the finer variants can increase slip by reducing the friction coefficient. These products offer high transparency and do not affect the appearance of the surfaces or their colours, etc. The particles of our structuring agents scatter light rather like glass splinters and do not reflect light like particles that exhibit cloudiness or have their own colour. Consequently no haze or veiling is created in the coating and the adjustment of colour tone in pigmented systems is not affected. When used in UV curing systems the incoming radiation of the light and thus the hardening of the coating is only slightly impaired.

Elastomer

A special product as a structuring agent is Deuteron SO 302. It is a coarse variant of our soft additive for aqueous systems (Deuteron SO 300) and is available exclusively as a dispersion in water. The coarse elastic particles create a special rough-soft structure in the surface. The product is crosslinkable with isocyanates, which allows high mechanical and chemical resistances, together with the soft behavior at the same time.
Additives to your Success.

**Thermoplasts – polyethylene / copolyester / polyamide powders**

In addition to our “classic” Deuteron ST types we also offer another product range with coarser structuring agents.

Unlike the previous duroplastic types, these products are thermoplastic polyester, polyamide or HD-polyethylene powders. These materials have a melting point of about 130 °C - 160 °C.

Deuteron ST50 through ST500 are coarse powders for creating distinctive surface structures. These very coarse products are used primarily in anti-slip coatings. They can however also be used in decorative coatings.

**Comparison of the particle size distribution of thermoplastic ST types with Deuteron ST-L.**

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Without Deuteron ST

With Deuteron ST

Floorings

Decorative coatings

Glass effect coatings
Deuteron: First-class products for the coatings industry

DEUTERON GmbH has 30 years of experience in the production and sales of additives including: matting agents, conductivity agents and UV initiators. In the course of our company’s 30-year history, we have become an important partner for the paint, lacquer and coatings industry – we operate nationally and internationally and are represented all over the globe. We serve you with the dependability and close business relationship that only an owner-operated, medium-sized company can offer – and we also have the expertise of a global provider. Get in touch with us! We are happy to be of assistance and to help find individual solutions for your needs.

Visit us on the Internet

You can find detailed information on all our products at www.deuteron.com. Matting and texturing agents, surface additives, UV initiators and much, much more: We supply first-class products and look back on more than 30 years of experience as an important partner for the coatings industry.

This brochure intends to give technical advice without warranty and does not claim to be complete.