

COATING TRENDS AND RESEARCH

An interview with Jean-Yves Loze, Research Lab Manager - Powders for Coatings Orgasol® & Rilsan® Fine Powders by Arkema

At Arkema you are in charge of the technical development of Orgasol® powders and Rilsan® powders as additives in liquid coatings, and Head of the research laboratory for Rilsan® fine powders for coatings. Do your products enter our daily lives?

It's more than likely if you sit in front of a laptop, for example, its surface may have a matte black appearance with a velvety effect. This is exactly what our Orgasol® texture agent is able to generate in addition to other performances (non-greasy touch, powdered finish ...). If you're in your car, there's also a chance that our ultrafine polyamide powder will make your dashboard as soft to the eye as it is to the touch while resisting UV and heat attack. And if you look at the seals of the side windows, you will also find the presence of Orgasol® powder to reduce the coefficient of friction and noise. We can also imagine that you have furniture around you. The trend, especially in Europe, is more and more matte finishes on furniture. Wood protected by its coating must retain its natural appearance while remaining highly resistant to abrasion. Again, it may be that Orgasol® products are not far off!



With so many concrete applications that shed light on the applications of these additives, how to summarize their properties?

Orgasol® and Rilsan® fine powders are used as texturizing or matting agents. In addition to the surface modification (texture, slip or anti-slip), these additives improve the properties of use of coatings by optimizing their mechanical properties. They significantly increase their durability (resistance to scratching, abrasion, stains ...) and are also used, as I illustrated previously, to modify the sensory properties of the coating (soft or rough touch). Their ease of use make them multifunctional additives that offer a range of interesting properties for coating formulators in the fields of coil coating, can coating, etc. Orgasol® and Rilsan® fine powders are surface modifiers but they will never be used for this property alone. Our customers use them in cases where they need to make a qualitative leap in terms of surface effects and lifespan properties.

What's striking about Orgasol® and Rilsan® fine powders is their unique ability to constantly reinvent themselves. What do you attribute to this? What determines your research objectives?

The Orgasol® and Rilsan® polyamides are showing an insolent youth, as they celebrate their 30th and 70th birthdays, respectively! It is linked to their exceptional potential. What is quite impressive, for example, with the Orgasol® range is that we are able to develop applications by regularly discovering new properties and innovative uses for these resins. They are, for example, used today in the making of LCD films for flat screens for their optical properties and their controlled morphology. We are constantly trying to improve the properties of use and durability of coatings. This does not only benefit our customers and all end users. The benefit also meets the new challenges of sustainable development: the more a coating withstands the effects of time, the more durable it is and the less the environment is impacted. In the same perspective of sustainable development, we are working on materials based on renewable raw materials that can replace petroleum derivatives. This is the case of Rilsan® bio-sourced powders, extracted from castor oil, which we seek to develop in terms of particle size and chemistry. This is one of the other important axes guiding our research, consisting of exploring the different possibilities of evolution of the chemistry of our particles, particularly from the morphological point of view to obtain interesting visual and aesthetic aspects on the coatings. This is like creating a sculpture on a micron scale. We have thus developed a unique production process in the field of morphology control of fine particle sizes up to 5 microns. Again, we want to meet the demands of our customers. That, for example, of a formulator who will challenge us on issues concerning a composite material, for which we will look for a new type of particle to obtain very regular three-dimensional properties. Automatically, Orgasol® ultrafine polyamide powders will prevail. We will try to disperse these particles in the formulation so that once applied, they deliver the maximum of their effects.

A bit like cooking, one, two or three pinches in the recipe can change the dish?

It's a pretty good analogy. Just as the change of grade plays a great deal on the final properties, we can almost infinitely adjust the texturing by measuring the «pinches» of which you speak. To give an idea of magnitude, these are just a few percent in the formulation of a coating. It is a plus for the customer who, on the basis of a simple formulation, goes through additions of Orgasol® or Rilsan® powders to obtain formulas with different effects. They can be varied very quickly. A slight variation, for example, with the Orgasol® additive, allows to go from a varnish that will be rather satin to a matte varnish with a touch effect much softer. This is true for surface properties. It is also for sustainability. One of the great advantages of Orgasol® and Rilsan® powders is also their great ease of use in the formulations: they are often incorporated at the end of the formulation because their dispersion is easy and does not lead to a thickening of the coating product.

Staying with this image of cooking, are you at the stove alongside the formulators?

This is the function of the formulators but very often, we go back a bit in the kitchen because it is important for us to know the customer's formulation if we want to be able to advise them more effectively. We can thus propose formulas of orientation. The formulator keeps their manufacturing secrets, which does not prevent us from exchanging a minimum with them on what they are looking for. This requires having a good knowledge of the other ingredients of the formulation so as not to miss out on an essential part of our job which is to know also the job of our customers. And then, it's pretty essential if we want to be sure to get the most out of our products in the formulation. To do this, we are using synergies within Arkema with our Coating Resins, Sartomer and Coatex colleagues, who are also involved in coatings. We interact with them on formulations to keep us up to date on developments and advise our customers most effectively.