

Press Release

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UV / UV-LED / IR expertise – Practical project support from Hönle

To obtain optimum results for your drying application, it is necessary to carry out comprehensive tests in advance. It is a matter of finding the ideal combination of chemistry and curing system. Drying process experts Dr. Hönle AG in Gräfelfing near Munich offer just such testing options in their applications laboratory. During the project planning phase, not only numerous customers, but also other market players and OEMs draw on the support of Hönle's experienced UV applications engineers.

In particular, the laboratory, which is equipped with every type of UV/LED-UV and IR drying technology, is used by the suppliers of paints and coatings. At Hönle, they test the curing properties of their coating agents. In order to examine the influence of different LED wavelengths on the curing process, for example, the Hönle laboratory offers LED systems with wavelengths of 365, 385, 395 and 405 nm. Mixed wavelengths can also be tested by combining different wavelengths.

However, the wavelength is not the only factor influencing curing. Intensity and dosage also affect the curing result. Special optics or elliptical

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reflectors are used to reduce the intensity loss at greater distances. Here, too, tests are essential to ensure good curing results. But at Hönle, cooperation with the chemical industry extends far beyond initial in-house tests. The UV specialists work closely together with their partners on the development and further development of their products, also at the partners' production sites.

End customers and OEMs mainly use the laboratory to define the optimum drying system for a specific application. One of the questions here is, for example: How many UV lamps are required to achieve a prescribed speed? To find that out, the laboratory is equipped with conveyor belts that can be run at up to 200 m/min. In addition to LED systems, the lab also offers all conventional UV systems with various spectra and reflector geometries, allowing targeted preliminary tests which quickly identify the optimum UV system for the application in question.

Hönle has the largest range of UV and LED-UV products worldwide as well as a comprehensive portfolio of IR dryers with and without hot air. And if it is not possible to find the perfect combination of drying unit and chemistry despite this broad selection, the Hönle engineers simply make adjustments accordingly. In this way, laboratory tests have often led to the development of pioneering drying and curing systems, always in line with the state-of-the-art and in response to genuine customer needs. As the most powerful curing system is not automatically the best fit for the customer's requirements.

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When is the result good?

There are no fixed reference values for the quality of the curing result. Scratch resistance is often tested with a fingernail, resistance to chemicals with a cotton bud soaked with isopropanol or acetone. Though these are appropriate testing methods, the results can only be evaluated subjectively, by the respective person carrying out the test. This means that an experienced tester is required. In order to reach an additional quantitative and thus objective assessment of the degree of cross-linking, the Dr. Hönle AG laboratory is equipped with an FTIR spectrometer. By measuring the double bonds formed within the coating, this device allows conclusions to be drawn about the influence of the UV curing process.

Cooperation is of the essence

Close collaboration between customer, chemistry and drying technology is always the key to a successful application and a precondition for the further development of the markets. Systems which make production more efficient and improve the end products can only arise where all wheels mesh.