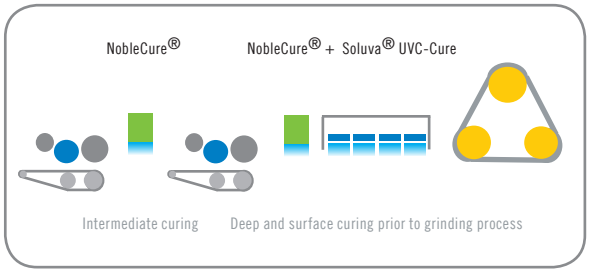
Heraeus

Keep surfaces appealing for a long time –
Energy-efficient curing with innovative UV lamps made by Heraeus Noblelight

Optimal curing results
with combined UV technologies



Combined with special UVC lamps, UV LEDs for pinning for optimal intermediate curing can be used in a plant for efficient curing prior to grinding.

To keep high-quality wooden furniture or precious parquet flooring appealing for a long time, their surfaces need to be elaborately prepared and sealed. In long processes that are often repeated, fillers, varnishes or paints are applied to the surface of the wood and cured layer by layer. Much energy is used in this curing process to achieve the best possible results. In times of rising energy prices, it is worthwhile to invest in current-saving equipment.

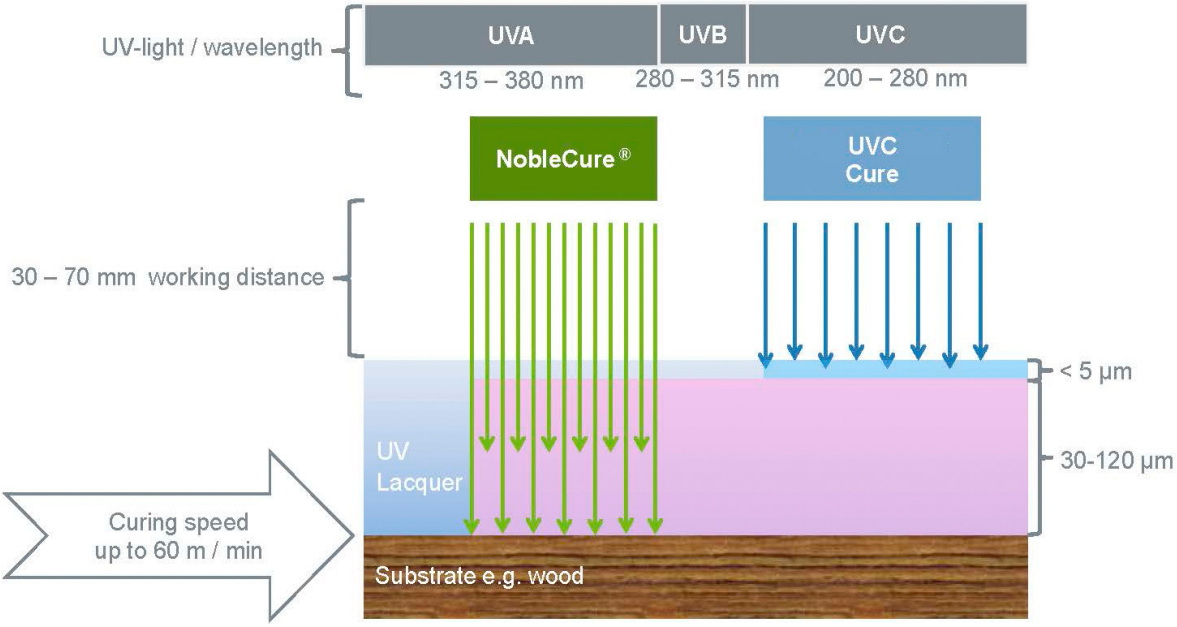
Heraeus Noblelight closely cooperates with system and varnish manufacturers to develop customer-optimised solutions for these industrial processes. The innovative Heraeus UV technologies make it possible to optimise curing processes in terms of cost of materials and energy.

Photoinitiators are activated by intensive UV light during a UV curing process – during polymerisation. Chemical compounds are initially broken up and then cross-link to form different compounds. Various light sources doped with gallium or mercury are used even today. Their wavelengths determine the location of curing: at the surface or deep inside.

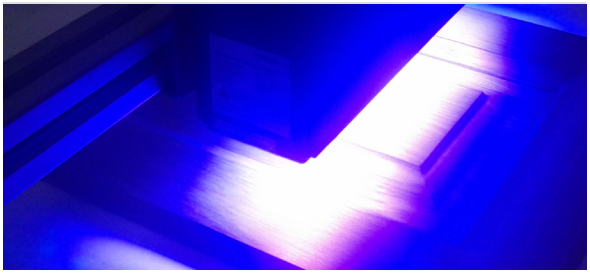
The optimal curing process is influenced by various factors:
- Emission spectrum and intensity of the UV light source
- Properties and thickness of the material to be cured
- Process speed
- Working distance between material and UV light source
- Carrier material and ambient temperature
- Chemical composition of the varnish systems

Combined methods using different UV technologies

Heraeus Noblelight offers various light sources to make your curing process as efficient as possible.
The diagram shows the curing properties of different UV light sources.



Energy-efficient curing
with tailor-made UV light sources



UV light sources precisely adjusted to the process improve reliability, reduce stress on the material and save costs and especially energy.

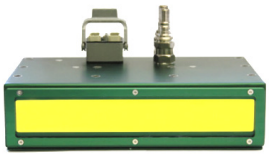
Your advantages at a glance:

- Easy handling due to modular design
- Long machine operation times due to long maintenance intervals
- Flexible as regards materials as the UV light sources also achieve the required curing at a working distance of between 30 and 70 mm
- Process optimisation by increasing curing speed: up to 60 meter per minute is possible
- Space-saving installation due to compact modular construction
- No fading / yellowing of the materials
- High process reliability as UV output will decline just slightly over the entire service life
- Low heat generation provides special suitability for curing heat-sensitive materials such as coniferous wood

A combined method for varnish curing using UV LEDs (NobleCure®) and UVC high-performance lamps (UVC Cure) has proven to be extremely effective for wood curing.

NobleCure® is a UV LED module which can be used efficiently for deep curing at a wavelength of e.g. 395 nm. In contrast, the UVC Cure module is equipped with special flat lamps and a QRC® reflector. Continuous curing at the surface is achieved with this UV lamp module in a wavelength range of about 254 nm.
Both UV modules can be integrated into the curing plant with minimum space requirements. Their modular design makes the UV systems suitable also for large working widths.

Comparison of technical data



UV Technology	UV LEDs - NobleCure®	UVC lamps - UVC Cure
Maximum working width	2,300 mm	2,300 mm
Power consumption of the entire system at a working width of 1,300 mm	3.5-7 kW - 25-50 W/cm	2.5 kW (4 lamps) - 16 W/cm
UV intensity at 10 mm working distance at wavelength	2-4 W/cm² at 395 nm	140 mW/cm² at 254 nm
Temperature at the surface of the UV light source	< 50°C	90 – 120°C
Service life	~ 10,000 h	~ 10,000 h
Special technology	- Micro-optics - Chip on board (COB)	- High-performance UVC lamp technology - QRC® reflector
Advantages	- Optimal deep curing - Energy-saving due to cycle option - Decentralised low-maintenance water cooling - No additional costs for compressed air - Ozone-free - Special micro-optics enable large working distances and 3D geometries - No heating of the material by infrared heat	- Optimal continuous curing at the surface - Low energy consumption - Incl. media box and air conditioning - Ozone-free - Innovative high-performance UVC lamp technology with patented QRC® reflector enables large working distances - No heating of the material by infrared heat

Competitive advantages due to productive light from UV to IR

Productive light with wavelengths from ultraviolet to infrared provides higher economic efficiency, improved process reliability and more innovation in many industrial, scientific and medical applications.

Heraeus Noblelight is a global market and technology leader in the field of special light source and system production. The business division is part of the Heraeus precious metal and technology group, a globally active family-owned enterprise with more than 13,300 employees in more than 120 companies.

The specialty light sources business group cooperates closely with system manufacturers and final customers to develop customer-optimised solutions for industrial processes. The foundation for the production of special UV lamps was laid when Heraeus invented the quartz glass mercury lamp in 1904. Today, more than 90 percent of UV systems are developed with a specific customer in mind.

Customer materials can be tested in step with actual practice and industrial processes can be optimised in own applications and development centres. In addition, Hanau has an accredited measuring laboratory that offers its know-how to customers and takes customer-specific measurements.

Whether you wish to optimise existing applications or win new markets, Heraeus Noblelight offers efficient, well thought-out and long-life solutions that give you a permanent competitive edge.

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