# Technical Information

Hesse Lignal
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Hesse GmbH & Co. KG, Warendorfer Str. 21, D 59075 Hamm, Germany
www.hesse-lignal.de

## General: UV hardening of lacquers and the proper use of UV lamps

Adherence to the following recommendations enables an optimal coating result to be achieved when using UV-hardening lacquers with mercury- or gallium-doped UV lamps:

**The specifications in the technical data sheet** must be observed.

- Suitable and pretreated substrates.
- Application conditions including lacquer temperature, room temperature, ambient humidity, substrate temperature and wood humidity.
- Roller coating, spraying or curtain coating parameters and the application quantity.
- Drying and UV radiation specifications.

### Drying of lacquer layers prior to UV radiation

- In the case of lacquer systems that are water-dilutable, suitable drying equipment needs to be used to fully remove the water from the film prior to UV radiation. Otherwise the result may be insufficient curing. Strict adherence to the drying parameters is therefore essential. If in doubt, it is advisable to conduct a weight control using a weight-constant substrate, such as glass, to check the drying process.
- Even in the case of solvent-based lacquers, the solvent needs to be fully removed prior to UV radiation.

### Ensuring uniform radiation energy

- UV lamps age and their power declines over time. Please observe the service life recommended by the manufacturer and replace your UV lamps accordingly.
- It is also important to conduct a regular performance review to determine any premature decline in performance. Your Hesse team can assist you with such reviews and the evaluation of UV measurements.
- Taking care of lamp components is essential in achieving high energy levels and a long service life:
  - Protect the system from dust.
  - Regularly use a soft cotton cloth with a suitable cleaning agent (such as UY 7111) to clean reflectors and the UV lamp. Always wear cotton gloves when handling a lamp.
  - Check proper functioning of the lamp's cooling and extraction system, regularly clean the filter.
  - Avoid frequent switching on and off.
  - Observe manufacturer's instructions.

### Using the correct lamps

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- Mercury (Hg) lamps are generally used for UV radiation of transparent lacquer systems.
- Opaque systems mostly require gallium (Ga) and mercury (Hg) lamps.
- A 3-dimensional UV lamp system is required to achieve radiation on edges.
- Some lacquer systems, such as those hardened via excimer or with LED light, require special lamps. These lamps have different requirements that the mercury lamps mentioned above.
- Please observe the information in the Technical Data Sheet.

**Recommended energy quantities**

- Our various lacquers require different energy quantities and intensities depending on function and customer needs. It is therefore only possible to state standard values, which may deviate in individual cases.
- The following aspects influence the energy requirement:
  - Feed rates
  - Application and coating thickness
  - Type and condition of the lamps
  - Lacquer characteristics
- Hesse determines the stated values using the “UV Power Map II” device supplied by the company EIT. Please note that measurements recorded on different devices can be subject to significant deviations.

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- Standard values:

| Lacquer type | UVA | UVB | UVV |
|---|---|---|---|
| **HYDRO-UV** transparent hardening | 800 mJ/cm² | 550 mJ/cm² | |
| **HYDRO-UV** opaque hardening | 1000 mJ/cm² | 900 mJ/cm² | 1500 mJ/cm² |
| **UV lacquer** transparent pre-gelling | | 75-150 mJ/cm² | |
| **UV lacquer** transparent hardening | | 150-300 mJ/cm² | |
| **UV lacquer** opaque hardening | | 150-300 mJ/cm² | 600-900 mJ/cm² |

**General information:**

- Please apply a test coating under real conditions. Check the curing, resistance and adhesion of the complete coating.
- Adherence to the occupational health and safety regulations is mandatory when using UV radiation.
- In addition to this general technical information, please also refer to the technical information and the material safety data sheet relating to the individual products.
- Please contact you local Hesse sales representative as necessary, or our Technical Hotline is available via +49 (0)2381 963 846 or service@hesse-lignal.de.

**Note:**
This information is purely advisory and is based on the best knowledge available after careful research in line with current state of the art technology. It is not legally binding. We also refer you to our Terms and Conditions.
The material safety data sheet as per regulation (EC) No. 1907/2006 is available.