Technical Information

Hesse Lignal
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Wood pre-treatment: bleaching in manual work

Descriptions/features:
Bleaching agents containing hydrogen peroxide are used widely in the treatment of wood surfaces. When stimulated by suitable activators, hydrogen peroxide breaks down into water and pure, active oxygen. This resulting oxygen is, at the moment of its creation, able to destroy certain ingredients in the wood, e.g wood dyes, and thus to lighten the wood. Hydrogen peroxide-based bleaching agents are therefore used when the desired colour tone is lighter than the natural colour of the wood and when the use of pigmented systems is out of the question on account of the coverage this produces.

As with all chemical products, the use of hydrogen peroxide-containing bleaching agents also requires compliance with specific operational and safety regulations. These must be adhered to without fail.
The safety regulations to be observed can be found in the relevant safety data sheets and the trade association regulations, with an excerpt below:

- Peroxides are chemically aggressive and contact with these substances will result in burns to the skin and mucous membranes (e.g. eyes!).
  It is therefore absolutely essential to wear protective clothing (safety goggles, protective gloves, apron)!
  Hair will become discoloured on contact with the spray fog!
- The use of bleaching agents in spray booths which are/have been used to process coating systems containing cellulose nitrate is not permitted.
  The lacquer dust found in the exhaust air ducts can spontaneously combust as a result of exposure to hydrogen peroxide and other oxidants.
  The same applies to exhaust air ducts with deposits of wood dust and similar, highly flammable dusts.
- Fumes from the evaporating bleaching agents stimulate corrosion of unprotected iron parts.
- Material that has already been activated must not be poured back into the storage tank!
  Risk of bursting as a result of the oxygen released!
- Activated bleaching agents must not be used from pressure vessels.
  Also not in airless/airmix devices.
  Risk of explosion!

Deliverable products:
- Bleaching agent: HWW 224/BW 804
- Bleach activator: HWB 202/BA 811, in powder form
  - The amount added makes up 5 % of the bleaching agent (50 g/litre)
  - To further increase the bleaching effect, the amount added can be increased to 10 %, but this reduces the pot life.
  - If a lesser bleaching effect is desired, the bleaching agent can be diluted immediately before use up to a ratio of 20 parts (by volume) of bleaching agent to 80 parts (by volume) of water. Do not store diluted material!

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- The bleach activator still makes up 5 %, calculated on the basis of the bleaching agent/water mixture.

Storage conditions and shelf life:
- Bleaching agents must be stored in a cool, dark place free from frost.
- The shelf life in the original unopened container is at least three months.
- Activators are stable for at least 12 months under constant conditions.

Wood pre-treatment:
- Sanding typical to the wood, e.g. 120 to 180 grain.

Bleaching process:
- The bleaching agent is mixed with the bleach activator immediately before use. This is then dissolved by stirring.
- Containers used must be non-ferrous, completely clean vessels made of plastic (possibly also glass).
- After activation, the mixture has only a limited pot life of roughly 1 to 3 hours, which is significantly reduced due to contamination with, among other things, wood dust and lacquer spray particles.
- The activated bleaching agent is preferably applied using a sponge:
  apply a rich amount with a synthetic sponge, remove any excess evenly with a wrung sponge, avoiding puddling.
- Spray application should not be used on account of the considerable health risks.

Drying:
- Drying takes at least 48 hours at room temperature, approximately 20 °C. For some wood types, e.g. cherry and various exotic woods, a drying time of at least 72 hours is necessary.
- Rinsing with warm water is not required, but may lead to a reduction in the yellowness, e.g. with oak.
- Generous exchange of air must be provided! Forced drying is possible but leads to other bleaching results.
- Failure to allow sufficient drying time can result in problems in the further surface structure, e.g. in:
  - Blistering
  - Colour changes
  - Greying
  - Flaking of the lacquer
  - Cracking
  - Embrittlement/loss of elasticity

  These phenomena sometimes occur only after a considerable length of time (weeks or months).

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Further treatment:

- Due to the very pronounced roughening of the wood by the bleaching process, the wood should be re-sanded lightly. Sanding through should be avoided.
  Abrasive sponges are available for this purpose (grain 150).
- The bleached surface can be stained with conventional water-based or solvent stains.
- Brighteners or transparent-coloured lacquers are particularly highly recommended, especially for very light colour tones, since they will aid equalisation.
- For surface treatment we recommend PUR, HYDRO and HYDRO-PUR lacquers suitable for this purpose from the respective standard range.
- See the current catalogue details and the technical information sheets for the various coating systems for details of which types are suitable.
- Unsuitable coating systems lead to the problems described under "drying".

Note:
This information is for advice and is based on the best knowledge available and careful research in line with current state of the art practice. This information cannot be held as legally binding. We also refer you to our terms and conditions of business.
The Material Safety Data Sheet according to the regulation (EC) No. 1907/2006 is available.