

Plasma Treatment of Wood

The plasma used for surface modification of wood and derived timber products is based on the principles of the Dielectric Barrier Discharge (DBD). Here, the metallic electrodes are separated by a dielectric, as, for example, ceramics. In applying an alternating voltage to the electrodes, the plasma ignites in the gaseous gap (see Fig. 1) The material which is to be treated is right in the discharge zone at this point.

Plasma treatment is a very environmentally friendly process, for only compressed air and electricity are necessary for a treatment of wood and derived timber products. As well, the method is competitive, doesn't need much space and can easily be integrated in existing production lines.

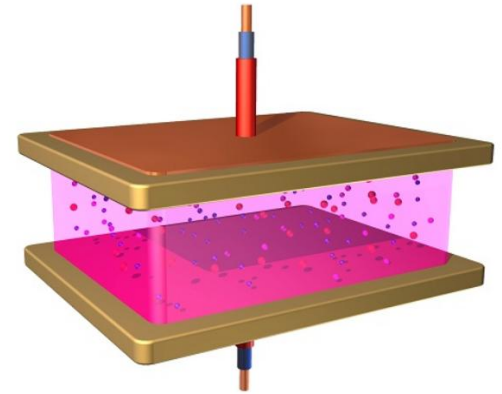


Fig 1: Schematic image of plasma generation

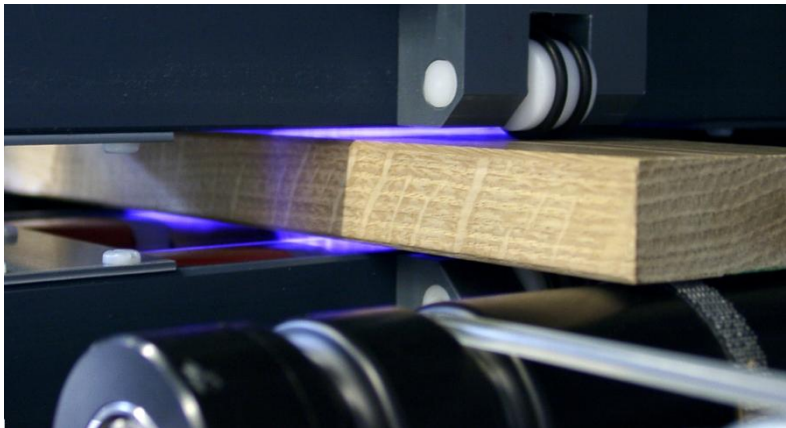


Fig. 2: Plasma treatment of wood

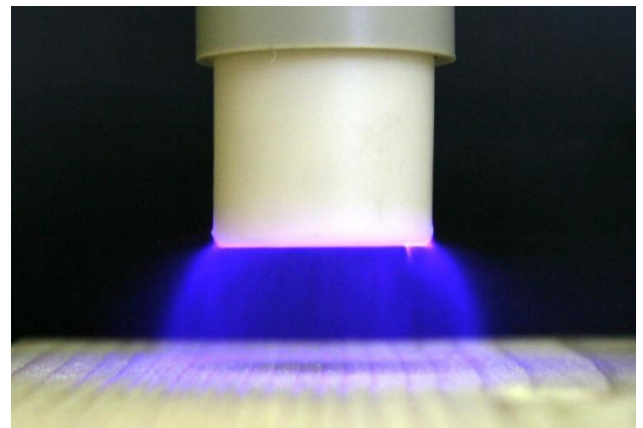


Fig. 3: Plasma discharge

Effects of a plasma treatment:

- Amelioration of lacquers adhesion
- No optical change on the wood surface
- Enhancement of the accelerated weathering of scumble
- Improvement of fracture strength of glued wood
- Hydrophobic effect of the wood surface by plasma coating