

The impact of furniture production on the environment

Care for the environment is at the core of our business. We rent long-term, durable furniture so that fewer pieces of furniture will be manufactured and then discarded. But how important is our choice to focus on solid wood furniture? And what is the impact on the environment of the production of a single piece of furniture?

To get answers to these questions, we developed a Life Cycle Analysis (LCA) to analyze the pollution created from the extraction of raw materials, the manufacturing of pieces of furniture and the transport of materials. We compared a tabletop made out of wood with one made out of Medium Density Fiberboard (MDF). We compiled all the “ingredients”, such as resins, pigments and chemicals, used in the manufacturing process and detailed all of the steps: the felling of the trees, the transport of logs to the factory and all the various steps needed to make a wood tabletop and an MDF tabletop. Using specialized software, we calculated the impact of the manufacturing on various environmental categories, such as global warming (CO₂) and ozone depletion (CFC11).

Here are the most important findings. To learn more, the entire report is available [here](#).

Result 1: MDF tabletops require much more energy than wood tabletops (Figure 1) – 6,000 MJ versus 116 MJ. (By comparison, a refrigerator uses 400 MJ a year.)

Result 2: Because of this difference, MDF tabletops produce much more pollution, such as carbon dioxide (CO₂) (Figure 2) and smog (Figure 3).

Result 3: Specific ingredients have a bigger impact on the environment. For example, some carpenters use soap to finish wood furniture instead of lacquer, which is toxic; but vegetable oil, an ingredient in the soap, produces more pollution than all of the other ingredients, for multiple categories (smog, acidification of land from acid rain, ozone depletion). For the MDF tabletop, the polyurethane binder was the worst for the environment; for example it produces 2.5 kg of smog compared with 0.6 kg from all the other ingredients.

Result 4: Transportation by ship is worse than by train and truck due to the distances involved. Nevertheless, the manufacturing itself had a bigger impact on the environment (Figure 4).

We’ve learned a lot – and now we plan to conduct further analyses so that we, as well as our customers, can expand our knowledge base.

Figure 4: Global warming by type of transportation	kg CO ₂ -eq
Truck – 100 km from Switzerland or France	0.5
Train - 1300 km from eastern Europe	3.4
Boat – 12,000 km from Brazil or Indonesia	4.5
Wood tabletop	20.0
MDF tabletop	400.8

