13. A process according to any one of the claims 10 to 12, wherein the lignocellulosic material is solid wood having a size of at least 1 m in at least one dimension.

14. The use of a reactor system to conduct a process for the acetylation of lignocellulosic materials, the reactor system comprising a reaction vessel having a closable aperture suitable for the introduction of lignocellulosic material, an inlet and outlet for acetylation fluid, and an inlet and outlet connected to a first gas flow loop, said first gas flow loop comprising a gas flow line connecting the inlet and the outlet, said gas flow line connected to a heat exchanger and at least one fan, the use being for an acetylation process wherein solid wood is submerged into a liquid acetylation medium, wherein the reactor system is according to any one of claims 1 to 9.

15 A use according to claim 14, wherein the process for the acetylation of lignocellulosic materials, wherein the process is according to any one of the claims 10 to 13.