

shRoom-Inn - The Future of Insulation

Main Points

Resource Resilience:

- addressing "Peak Oil" challenges
- improving resource diversity

Rethinking Resource Usage:

- shift to sustainability
- harnessing valuable materials from resources

Black Liquor Potential:

- utilizing lignin
- capitalize on carboxylic acids

Sustainability and Profit:

- waste conversion to valuable materials
- environmental responsibility achieved

Main Product



Insulation Boards

Mushroom-based:

pleurotus ostreatus

Insulation:

comparable with styrofoam [1,2]

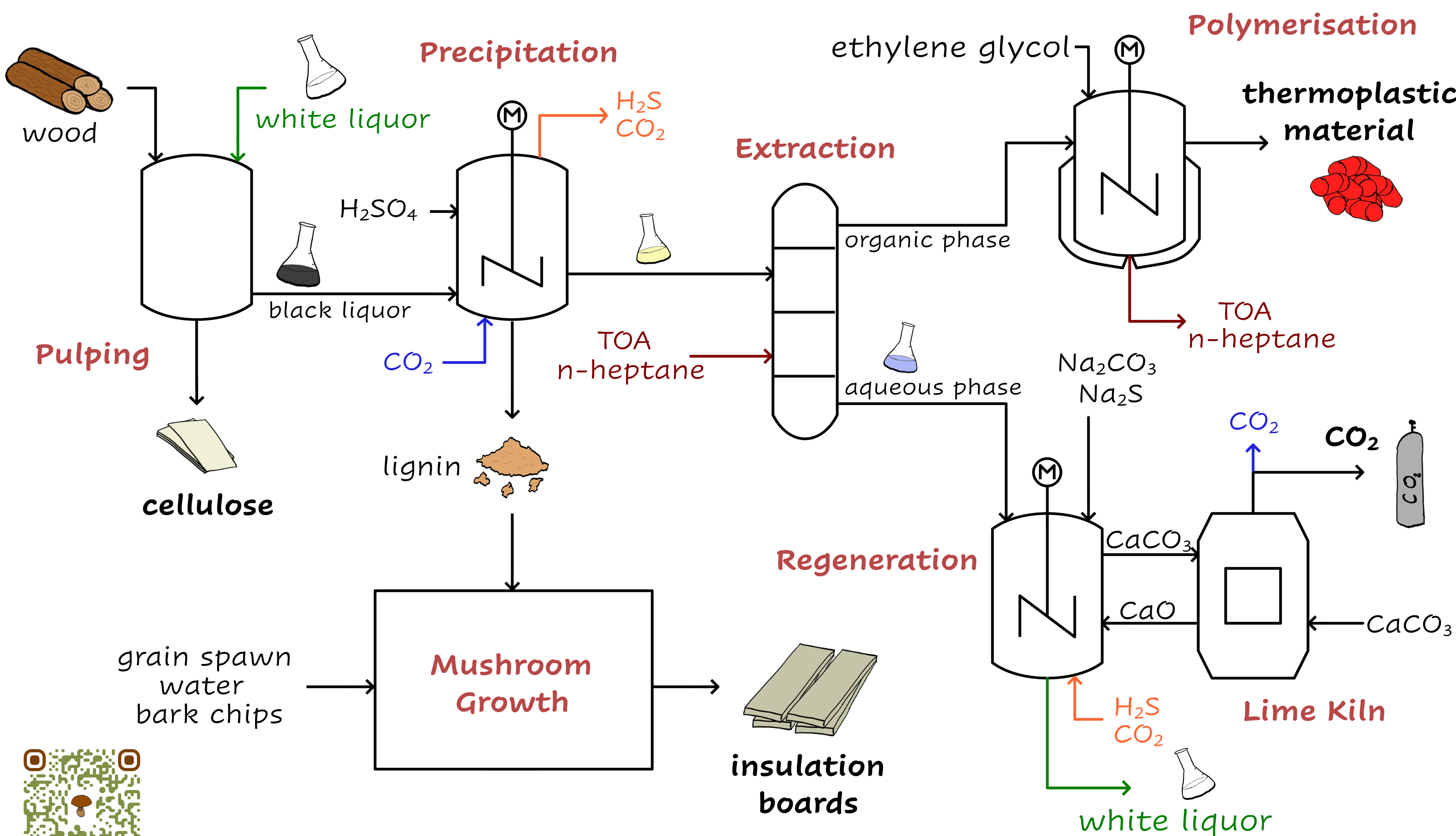
Sustainability:

easy compostable
from 100% natural resources

Production Capacity:

3.8 mil. std. boards per year
standard board dimensions:
1.2 x 0.6 x 0.06 m
7.4 kg

shRoom-Inn - the Process



Pulping:

wood breakdown with white liquor [3,4]

Precipitation:

lignin separation with pH-drop [4]

Extraction:

complexation of carboxylic acids with TOA [5]

Regeneration:

pH and concentration adjustments of white liquor [3]

Lime Kiln:

process for pH adjustment [3,4]

Mushroom Growth:

cultivation of fungi [2,6]

Polymerisation:

linking of carboxylic acids to linear connectors

Economics

Initial Investment:

38.7 mil. € for facilities, land, and construction

Annual Revenue Breakdown:

achieving a turnover of 160.6 mil. €

Annual Costs:

116.3 mil. € consisting of personell expenses, material & electricity costs, disposal expenses, duties, and interest

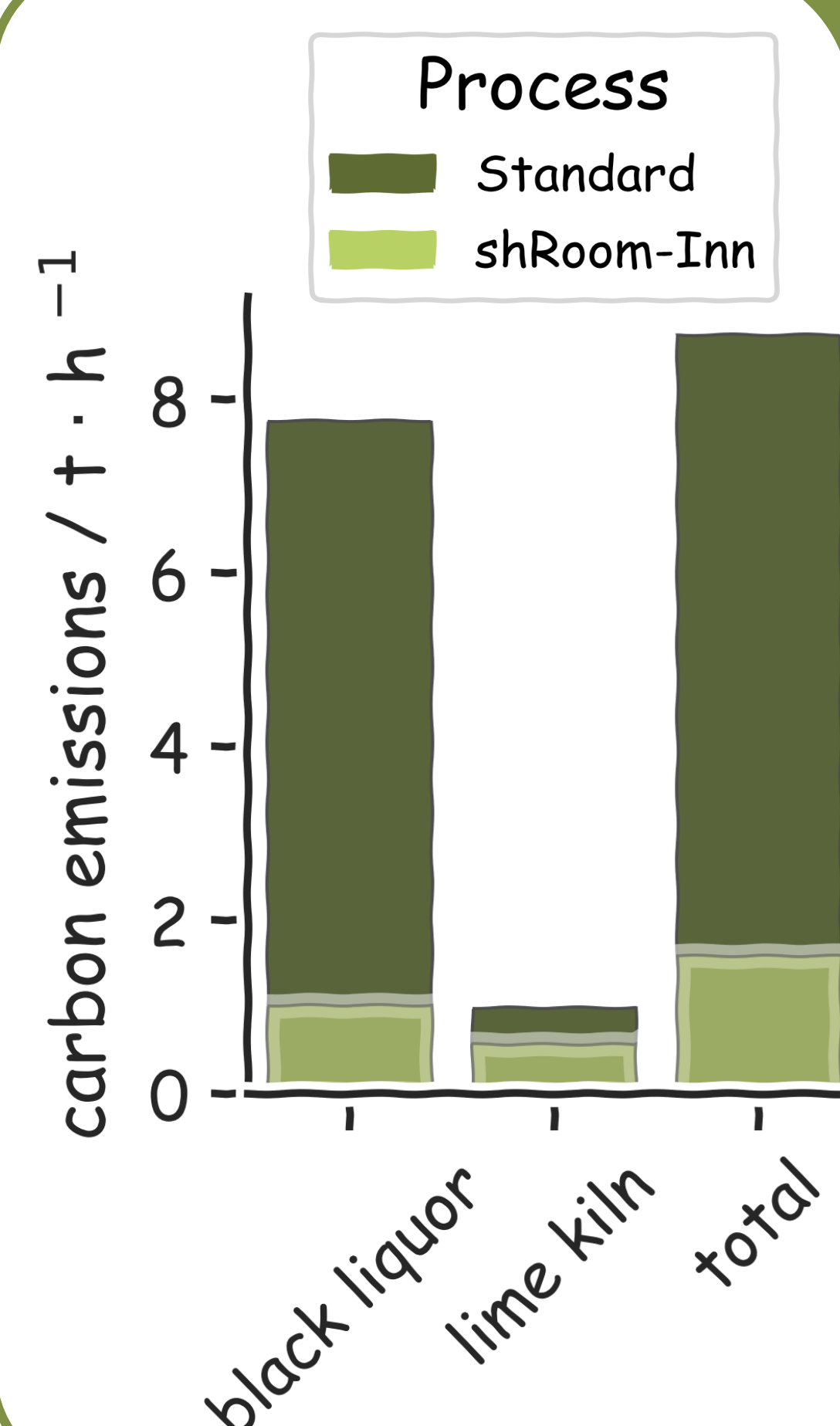
Annual Profit:

44.3 mil. € due to sustainable, energy efficient, biodegradable boards, bio-thermoplastics, and CO₂

Break-Even Point:

achieved within the first year

Environment



CO₂-Sink:

84% emission reduction, a significant stride for the environment

Resource-Efficiency:

shifting from burning valuable materials to utilizing black liquor waste for valuable products

Enhanced-Approach:

holistic utilization of trees as a valuable resource: eco-friendly alternative to oil-based materials