



Summary of Recent Projects

Area of Work: Sustainability

Project Description: Life Cycle Assessment of Forestry Products

AquAeTer is currently performing Life-Cycle Assessments (LCA) of five forestry products. Our assessment team includes a diverse group of mechanical, chemical, and geological engineers, geologists, biologists, and environmental scientists. The purpose of the LCA is to quantitatively evaluate environmental impacts associated with the national production, use, and disposal of the forestry product. The LCA examines the cradle-to-grave inputs of raw materials, energy, water, and transportation resources and outputs of chemical constituents impacting air, water, and land. The Life-Cycle Assessment is used to compare the environmental impact of the forestry product to alternative products in the marketplace and inform audiences of the environmental impacts. Each stage of **AquAeTer's** Life-Cycle Assessment is peer-reviewed by industry and life-cycle assessment experts to ensure that our assessment is high caliber. **AquAeTer** follows ISO standards 14040 and 14044 during completion of their Life-Cycle Assessments. Examples of impact indicators being assessed for this on-going project include:

Impact Indicator	Characterization Model
Green house gas (GHG) emissions	Calculate total equivalent anthropogenic CO ₂ emissions for CO ₂ , methane, and nitrous oxide per functional unit.
Fossil fuel usage	Total amount of fossil fuel, based on BTU value, used in product life-cycle per functional unit.
Releases to air potentially resulting in acid rain (acidification)	Calculate total hydrogen ion (H ⁺) equivalent for released sulfur oxides, nitrogen oxides, hydrochloric acid, and ammonia using factors from TRACI (2002). Acidification value is in units of H ⁺ mole-eq per functional unit.
Releases to air potentially impacting human health	Use the impact factors from TRACI (2002) to calculate the following health indicators: 1) HH Cancer Air (benzene-eq per functional unit); 2) HH Non-cancer Air (toluene-eq per functional unit); and 3) HH Criteria Air (milli-DALYs per functional unit).
Releases to air potentially resulting in ecological toxicity	Use the impact factors from TRACI (2002) to calculate the ecotoxicity potential of releases in units of lbs 2,4-D-eq per functional unit.
Releases to air potentially resulting in smog	Use the impact factors from TRACI (2002) to calculate the smog forming potential of releases in units of g NO _x / m per functional unit.
Amount of water used or consumed	Calculate total water use per functional unit.

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BRENTWOOD, TN
(615) 373-8532

CENTENNIAL, CO
(303) 771-9150

HELENA, MT
(406) 449-6216