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Adopting the Two-Stage Nested Mixed Analysis of Variance Test to the Eco Indicator 99 to Evaluate Building Technologies under LCA Uncertainties

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Abstract : Eco-indicator 99 (EI99) considers fundamental life cycle assessment (LCA) uncertainties via egalitarian/egalitarian (e/e), hierarchist/hierarchist (h/h), individualist/individualist (i/i), individualist/average (i/a), egalitarian/average (e/a), and hierarchist/average (h/a) methodological options. The objective of this study is to provide a reliable two-stage nested mixed balanced Analysis of Variance (ANOVA) test as a supplemental test to EI99 to address the problematic combination of similarly and not similarly produced materials usually found in building technologies. The robustness of the test was determined from both the "EI99 (all options)" stage (including e/e, i/i, h/h, e/a, i/a, and h/a - all methodological options) and the "EI99 (perspectives)" stage (including e/e, i/i, and h/h methodological options of EI99 - the methodological options with their particular weighting set or e/a, i/a, and h/a methodological options of EI99 - the methodological options with the average weighting set) of evaluating building technologies.

Keywords : building technologies, LCA uncertainty, Eco-indicator 99, two-stage nested mixed ANOVA test
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