Supplementary Materials

Table S4. Qualitative sensitivity-analysis traceability matrix

This matrix traces the evidence-directness restriction without a statistical meta-analysis. Scenario 1 considers retained Levels A–C evidence; Scenario 2 restricts interpretation of WWCB performance to direct and near-direct lignocellulosic evidence (Levels A–B). Scenario 3 would additionally require adequate source-level methodological information, but it has not been completed study by study for the full registry. The table distinguishes the directness-based interpretation from methodological robustness that remains unverified.

Principal conclusion	Scenario 1: Levels A–C	Scenario 2: Levels A–B	Scenario 3: methodologically interpretable core	Traceable interpretation
$CaCl_2$ has stronger application-proximate support than $Ca(HCOO)_2$ for wood–cement/WWCB use.	Retained for synthesis.	Can be evaluated from A–B evidence; S1 contains lignocellulosic $CaCl_2$-targeted records.	Not fully adjudicable from S1 alone; source-level methodological verification required.	Directness-based conclusion is traceable; methodological robustness should not be overstated.
Direct WWCB evidence for $Ca(HCOO)_2$ is insufficient for a product-level superiority claim.	Retained; conventional cement evidence may explain mechanism but not WWCB superiority.	Restriction to A–B does not create missing direct WWCB evidence.	Not fully adjudicable from S1 alone; absence of a documented WWCB evidence base remains the key limitation.	Conclusion is primarily an evidence-gap statement and is not dependent on Level C mechanism studies.
Detailed $Ca(HCOO)_2$ hydration/aluminate mechanisms are supported mainly by conventional cementitious evidence.	Mechanistic interpretation can use Level C evidence.	Mechanistic detail becomes weaker when Level C evidence is removed.	Requires source-level verification for methodological interpretability.	This conclusion is sensitive to evidence directness and should remain explicitly labelled as mechanistic transfer.
Neither accelerator can presently be declared universally superior for WWCB manufacture.	Supported by the asymmetric and incomplete evidence base.	Remains compatible with the A–B restriction because direct comparative WWCB evidence is insufficient.	Formal methodological robustness cannot be fully demonstrated from S1 alone.	The conservative no-superiority conclusion is traceable to the documented evidence gap; avoid claiming a completed formal Scenario-3 test.
Durability/corrosion implications require application-specific WWCB validation.	Supported using WWCB/wood–cement evidence plus indirect cement/wood–metal evidence.	Some mechanistic and corrosion-transfer evidence is lost under A–B restriction.	Requires source-level methodological verification.	Durability interpretation is more sensitive to indirect evidence and should be presented as conditional rather than definitive.

Interpretive scope: the central conclusion that a controlled WWCB comparison is missing persists under the directness restriction. The available appraisal matrix cannot establish robustness to the proposed methodological restriction until source-level ratings have been completed and documented for relevant records.