Evaluation of new low-tech pyrolysis technologies in the Artisan context

Step	Description	Responsible party
1	Artisan C-Sink manager or a third-party artisanal pyrolysis technology provider wants to evaluate their own pyrolysis system.	C-Sink Manager/Technology provider
2	Offer for pyrolysis technology evaluation and list of requirements	Carbon Standards
3	Offer signed and sent back to CSI and signing of a NDA by both parties.	C-Sink Manager/Technology provider
4	Hand in the requested and required documents	C-Sink Manager/Technology provider
5	Checks for completeness of the documentation	Carbon Standards
6	Evaluation of the pyrolysis technology	Carbon Standards
7	Approval of pyrolysis technology in the Artisan context, published on CSI website.	Carbon Standards

Here in summary the essential documents / information which we need for a "technology accreditation" / approval of low-tech pyrolysis units:

Document	Description
Detailed flow chart	• A schematic process flow chart of the system • Showing the flow of biochar, additional biomass, exhaust/flue/syn- gases, residues
Construction plan	• 2D or 3D plan of the construction plans
Mass balances	• Amount of input (biomass) to amount of output (biochar, heat, biogas)
Biochar quality analysis	• Complete analysis of biochar from three different biomasses/feedstocks by an CSI accredited lab: ○ C, H, N, O, S + Ash ○ pH ○ Water Holding Capacity ○ Density @ < 3mm particle size ○ Electrical Conductivity of the solid biochar ○ 18 EPA PAHs • If there are moving metallic parts in the reactor, these additional elements need to be analyzed: ○ As, Pb, Cd, Cu, Ni, Hg, Zn, Cr, B, Mn, Ag • The biochar has to fulfil the WBC-Agro criteria
Emission measurements	• From an independent, external, competent measuring body, provide methodology and list measurement devices prior to the tests for approval. • Record the values for CO, CxHx, (optional: NOx, PM10) • For the same three different biomasses/feedstocks as the biochar quality analysis • Methane emissions need to be lower than 35g CH4/t of biochar produced.
User/operating manual	• A description of how the pyrolysis unit is to be operated ("user manual" incl. precautions relevant to occupational health and safety, e.g. avoidance of flue gas exposure, burns, etc.).