



MBK International Services Inc.

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MBK Biochar Carbon Removal Platform: Technical Addendum (Pre-NDA Version)

Project Location:

Fort Bend County, Texas, USA

1. Engineering & System Design

Modular Pyrolysis Reactors

- Continuous-flow, high-temperature units engineered for consistent biochar yield
- Designed for high operational uptime with automated thermal control systems
- Scalable modules allow expansion from 3M to 22M tons/year CO₂e capacity

Input Feedstock

- FSC-/PEFC-certified agricultural and forestry biomass
- Moisture content $\leq 20\%$; particle size optimized for pyrolytic efficiency
- Localized sourcing model supports scope 3 emission reductions

Energy Efficiency

- Heat recovery loop minimizes thermal losses
 - Surplus energy reused on-site or exported to local grid as renewable heat
 - IoT-monitored for real-time energy-to-output optimization
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2. Biochar Output & Permanence Profile

Carbon Composition

- $\geq 85\%$ fixed carbon content (verified by BET surface analysis & proximate testing)
- Engineered under oxygen-limited conditions $>600^{\circ}\text{C}$ for durability
- Supports resistance to microbial decomposition and chemical degradation

Longevity & Climate Benefit

- Mean residence time $>1,000$ years (based on Schmidt et al. 2021)
 - Eligible for durable carbon classification under leading protocols
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3. Monitoring, Reporting & Verification (MRV)

Digital Infrastructure

- IBM Hyperledger blockchain tracks:
 - Batch ID (with QR code)
 - Timestamp and geolocation
 - Reactor conditions and carbon yield

IoT-Enabled System

- Live sensor monitoring of temperature, emissions, flow rates, and biomass input
- Alerts and logs stored securely with third-party access protocols

MRV Compatibility

- API-Ready for enterprise ESG systems (SAP, Salesforce, Workiva)
 - Compliant with CarbonFuture, Puro.Earth, and Verra VM0044 MRV frameworks
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4. Certification Alignment & Pre-Registration Readiness

Target Registries:

- Verra (VM0044)
- Puro.Earth (CORC-eligible)
- Gold Standard (Soil Carbon / Biochar Methodologies)
- Climate Action Reserve (CAR)

All registry integrations are designed for seamless issuance, audit trail clarity, and retirement transparency.

5. Operational Timeline & Readiness

- **Construction Timeline:** Underway; projected commissioning within 12–18 months
- **Audit Partners:** DNV, SCS Global Services (pre-engaged for validation)
- **First Credit Issuance:** Expected within 6 months post-commissioning
- **Buy-Side Prequalification:** Available via forward purchase agreements (FPAs)

Contact

For registry documentation, verifier templates, or a full facility LCA dossier:

Email: info@mbkinternational.com

Website: www.mbkinternational.com