ABSOLUTE CLIMATE

MRV for Biochar and Mineralization

What it is, how well it works, and what we should do with it

2026

What is MRV?

Monitoring, Reporting, and Verification

but….

It’s actually a couple of different things

How to Measure a CDR Project

Accounting: Assessing the life-cycle emissions in a way that reflects the atmospheric impacts generated

Quantification: Gathering high-quality data to calculate and build confidence in the net removals claimed

Durability: The likelihood that stored carbon will it stay that way for ~1000 years

Safety: Clarity on impacts to project employees, communities and ecosystems, and how they should be mitigated

Co-Benefits: Value generated for communities besides carbon removal

Accounting

Assessing the life-cycle emissions in a way that reflects the atmospheric impacts generated

Biochar

✅ Pyrolysis equipment is well understood and simple to account for properly

⚠️ Feedstock accounting is contentious and doesn't often reflect atmospheric impacts

⚠️ Biomass can be a source of potent GHGs if not stored correctly, which is not always considered

Mineralization

✅ Mineralization equipment is well understood and simple to account for properly

⚠️ Feedstock accounting is contentious and doesn't always reflect atmospheric impacts

	Biochar	Mineralization
Accounting	🥈	🏆
Quantification		
Durability		
Safety		
Co-Benefits		

Quantification

Gathering high-quality data to calculate and build confidence in the net removals claimed

Biochar

✅ Easy to measure feedstocks and outputs

⚠️ May have fugitive GHGs like methane that aren't measured

Mineralization

✅ Easy to measure feedstocks and outputs

⚠️ May have natural carbon removal that is challenging to measure

	Biochar	Mineralization
Accounting		
Quantification		
Durability		
Safety		
Co-Benefits		

Durability

The likelihood that stored carbon will it stay that way for ~1000 years

 Biochar

⚠️ Scientific understanding of biochar degradation is still underdeveloped

⚠️ Durability likely varies by soil condition, but is hard to estimate

⚠️ Likely doesn't remain durable for 1000 years, but may or 100s of years

 Mineralization

✅ Scientific understanding of mineralization durability is well understood

✅ Likely remains durable for well past 1000 years

✅ Biggest risks are acid rain, volcano eruptions, and fire-breathing dragon attacks

	Biochar	Mineralization
Accounting		
Quantification		
Durability		
Safety		
Co-Benefits		

Safety

Clarity on impacts to project employees, communities and ecosystems, and how they should be mitigated

Biochar

✅ Pyrolysis equipment is mature, with low safety risks when operated properly

⚠️ Some air quality risks if not operated properly

Mineralization

✅ Mineralization process itself typically has low safety risks

⚠️ Extractive mining practices can have air quality and safety issues if not conducted properly

	Biochar	Mineralization
Accounting		
Quantification		
Durability		
Safety		
Co-Benefits		

Co-Benefits

Value generated for communities besides carbon removal

 Biochar

- ✅ Can replace pile burning
- ✅ Can be used to reduce wildfire risks
- ✅ Returns nutrients back to working and natural soils
- ✅ Promotes water retention is soils, and improves crop yields

 Mineralization

- ✅ Carbonate outputs can potentially be used in building materials or products
- ✅ Can potentially consume industrial or mining residues, which may be abandoned

	Biochar	Mineralization
Accounting		
Quantification		
Durability		
Safety		
Co-Benefits		

Policy Opportunities

1. Development of independent and consistent methodologies that ensure that project claims match atmospheric impacts
2. Agency collaboration on effective safety metrics and data collection procedures
3. Get more directly involved!
    a. Procurement and integration into CA's Cap and Invest
    b. Incorporate CDR activities on state lands, where appropriate
    c. Build standards and CDR policy designed to be replicated by others

Thank you for supporting CDR!