



3MB FACT SHEET

ONE BINDER. ENDLESS SOLUTIONS.

AEON MATERIAL SOLUTIONS: U.S. DISTRIBUTOR FOR
UNIVERSAL ECO SOLUTIONS' 3MB.

WE PROVIDE INNOVATIVE, SUSTAINABLE MATERIALS WITH FULL
SUPPORT, FROM CONSULTATION TO GLOBAL PROCUREMENT.

info@aeonms.com
1-800-AEON-3MB
www.aeonms.com

What is 3MB and Why Choose It?

Product Overview

3MB (Modified Macro Molecular Binder) is a concentrated liquid binder for soil stabilization, ideal for civil and site works.

Manufactured by Universal Eco Solutions and distributed in the U.S. by Aeon Material Solutions, 3MB includes comprehensive support: local scoping, logistics, field assistance, and a clear warranty.

- ◇ Not a polymer or asphalt emulsion. **DOT non-hazmat** for shipping/handling (verify local requirements).
- ◇ Works with standard road/site equipment and water trucks; compatible with **fresh or sea water** (note equipment care for saltwater). Applicable across AASHTO soil groups **A-1 to A-7** via a simple process: **dilute, mix, compact, cure**.
- ◇ With proper design and QC, achieve **95%+ of maximum density (Proctor)** for durable performance, reduced imported material demand, and a lower carbon footprint.
- ◇ **Lab performance:** 0.1% 3MB shows 98% (45 MPa) at 7 days, 129% (57 MPa) at 14 days in paste (UAS report).
- ◇ **Not for high-organic peat or standing water without remediation.**

Enhanced Durability

Extends service life by resisting cracking/rutting; 40-50% PI reduction in clays; 95%+ compaction.

Eco-Friendly

Sustainable, non-toxic (LD50 >5g/kg), EPA compliant; lower environmental impact.

Cost-Effective

Achieve 20-30% savings with 3-5x extended maintenance cycles.

Versatile Application

Suitable for road construction, pavement preservation, bridge decks, industrial surfaces, and dust control.

Rapid Curing

Typical 24-36 hour cure minimizes disruption.

Proven Performance

UAS 2022 tests show 0.1% boost: 98% at 7 days (45 MPa).

Applications & Seasonal Fit

- ◇ Rural/county roads, access routes, subdivisions
- ◇ Industrial pads, laydown yards, energy platforms
- ◇ Trench backfill, general stabilization, RAP reclamation
- ◇ Runways/taxiways (as part of engineered sections)
- ◇ Dust and erosion reduction (project-dependent)

Fall/Winter Note

- ◇ Stabilize native roads and bases **before freeze-thaw** to minimize seasonal rework.
- ◇ Prioritize drainage, shoulder shaping, and compaction control in cool/wet conditions; **plan around forecast to avoid precipitation during initial cure.**

Application Guidelines

How it Works (simplified)

01) Dilute

Standard example **1:6** (1 part 3MB : 6 parts water); finalize per mix design.

03) Compact

Target **optimal moisture content (OMC) ± tolerance** from selected Proctor;
proof-roll per agency standard.

02) Apply & Mix

Reclaimer/stabilizer or mixing equipment;
shape and grade.

04) Cure

Project-dependent (soil, temperature, humidity).



Achieve optimal performance and long-term durability with calibrated equipment, proper mixing and compaction, and adherence to recommended cure times.

Quality Control & Test Methods

Adherence to established test methods and regular testing ensures successful project outcomes and compliance with agency standards.

- ◇ Moisture - density (Proctor): AASHTO **T99/T180** (ASTM **D698/D1557**)
- ◇ Atterberg limits/PI: ASTM **D4318**
- ◇ CBR (as required): AASHTO **T193** (ASTM **D1883**)
- ◇ Lab Context: 0.1% 3MB: 98% at 7 days (45 MPa), 129% at 14 days (57 MPa) in paste



Best Practices for Field Implementation

Successful 3MB application requires careful planning and execution to ensure project integrity and maximize cost-effectiveness:

- ◇ Decision cues to add cement/lime: PI around 20+, high traffic loading, or strict strength/spec requirements.
- ◇ When not to use (guardrails): Not for high-organic peat or standing-water without remediation.

Quick Project Example

For a general understanding of material requirements for a common road project, consider:

1-km (3,280 ft), two-lane (24 ft wide) road

4-in depth

@ standard 1:6 planning rate: ~ **1,666 gal 3MB**
± 10,000 gal water ≈ **7 IBCs** (250-gal)

8-in depth

(for scale): = **3,333 gal 3MB** ± **20,000 gal**
water ≈ **14 IBCs**

Notes: Values are illustrative (assume planner variable **B ~ 12 gal/yd³** total solution). Final mix design and logistics are set by **project-dependent mix design** and QC.

Appendix A: Detailed Worked Example

This appendix provides a complete calculation for a road project, including material quantities, IBC counts, water requirements, and estimated costs and timelines.

Material Quantities & Water Requirements

This section breaks down material quantities, including 3MB binder, water, and IBC counts for a hypothetical road project.

Road Length	1 km (3,280 ft)	1 km (3,280 ft)	Two-lane (24 ft wide)
3MB Binder Required	= 1,666 gal	= 3,333 gal	@ standard 1:6 planning rate
Water Required	= 10,000 gal	= 20,000 gal	Compatible with fresh/sea water
IBC Counts (250-gal)	= 7 IBCs	= 14 IBCs	Illustrative (planner variable B = 12 gal/yd ³ total solution)

Quick Reference: For a 1-km road treatment with 4" depth, approximately 6,552 gallons of 3MB concentrate are required.

Cost Analysis and Timeline Estimates

Cost and timeline estimates are project-specific, varying by soil type, equipment, and labor rates. However, 3MB consistently delivers measurable savings by reducing the need for imported aggregates and other base materials, minimizing transportation requirements, and accelerating overall construction through enhanced durability and rapid curing.

For a detailed, project-specific cost analysis and timeline, please contact us at info@aeonms.com or 1-800-AEON-3MB.

Appendix B: Specification Insert

This section provides practical tables, a quality control checklist, and standard specification language to help engineers and field teams integrate 3MB into project plans and contracts.

Planner Tables for Different Soil Types

This table offers general guidance for 3MB application rates and performance across various AASHTO soil classifications. Final dosing requires a project-specific mix design.

AASHTO Class	Typical PI	3MB Dosing	Key Benefit/Performance
A-1 (Granular)	Non-plastic	Low to Moderate	Excellent strength, dust control
A-2 (Granular w/ Fines)	0-10	Moderate	Good strength, reduced moisture sensitivity
A-3 (Fine Sand)	Non-plastic	Low to Moderate	Improved cohesion, erosion resistance
A-4 (Silty)	Up to 10	Moderate to High	Reduced plasticity, increased bearing capacity
A-5 (Elastic Silty)	10-20	High	Significant PI reduction, improved stability
A-6 (Clayey)	10-20	High	Excellent PI reduction (40-50%), enhanced durability
A-7 (Clayey, High Plasticity)	20+	Very High	Dramatically reduced PI, increased load-bearing
Organic/Peat	N/A	Not Recommended	Not for high-organic peat or standing-water without remediation



QC Checklist for Field Teams

Ensure adherence to project specifications and optimal performance with this comprehensive Quality Control checklist for field implementation of 3MB.

- ◇ **Pre-Application Assessment:** Confirm soil classification (AASHTO A-1 to A-7), PI, and moisture content. Verify equipment calibration (reclaimer/stabilizer, water trucks).
- ◇ **Mix Design Verification:** Confirm approved 3MB:water dilution ratio.
- ◇ **Application & Mixing:** Ensure uniform application of 3MB solution. Verify thorough mixing to achieve homogeneous material. Confirm target depth of treatment.
- ◇ **Compaction Control:** Achieve optimal moisture content (OMC) \pm tolerance from selected Proctor. Perform proof-roll per agency standards. Document roller passes and compaction equipment used.
- ◇ **Curing Conditions:** Monitor project-dependent conditions (temperature, humidity, precipitation forecast) during initial cure (24-36 hours typical). Protect from premature wetting.
- ◇ **Post-Application Testing:** Conduct moisture - density (Proctor): AASHTO T99/T180 (ASTM D698/D1557). Perform Atterberg limits/PI: ASTM D4318. Conduct CBR (as required): AASHTO T193 (ASTM D1883).
- ◇ **Documentation:** Maintain daily logs of quantities, weather, equipment, and test results.
- ◇ **Lab Performance Data:** 0.1% 3MB: 98% at 7 days (45 MPa), 129% at 14 days (57 MPa) in paste (UAS report).