



Poly-Matrix System

- Eliminates hairline cracks
- Complete moisture barrier
- Won't crack from thermal cycling
- Deeper penetration than CMW
- Creates everlasting seal
- Can be used on concrete, block
- Stops mold, seepage, rutting
- Resistant to penetration of oil, acid, grease, and salts



Poly-Matrix Matrix Uses

Sewers-Manholes-Waste Water
Treatment Plants – Industrial
Warehouses – Schools – Factories
Hospitals – Malls – Food Processing
Plants – Freezers – Parking Decks
Airports – Stadiums – Aquariums –
Fish Hatcheries

Poly Matrix DESCRIPTION:

Poly Matrix is a bio-chemically modified silicate solution that provides long-term waterproofing and durability benefits to concrete. It penetrates into concrete and reacts with free calcium and water to form a calcium silicate gel complex in cracks, pores and capillaries. This gel creates a sub-surface barrier against the ingress of water and contaminants such as chloride ions.

Poly Matrix Advantage

Poly Matrix will seal existing leaking cracks to 2.00mm. In the matrix the product remains reactive when in contact with water to provide continues healing properties to future hairline cracks.

- Meets USDA regulations
- Penetrates for long-lasting protection
- Resistant to penetration of grease, oil, acids, and salts

Poly Matrix USAGE:

Poly Matrix is used to penetrate the surface and chemically bonds with the concrete, which will last for a longer period of time than a coating.

- Parking decks
- Airport runways
- Bridges
- Tilt-up construction
- Water retaining structures
- Sports arenas
- Distribution centers
- Airports & Hangers
- Schools
- Pharmaceutical plants
- Meat processing plants
- Convention centers
- Malls
- Breweries

Poly Matrix APPLICATION

- **Poly Matrix** must be applied to a clean, dry, dust-free concrete surface.
- All curing compounds must have degraded or be removed prior to application. If **OR Slab Tight** is used as the curing compound of choice then application of **Poly Matrix** may take place within 3-5 days.
- And materials that retard penetration should be removed.
- Where segregation or voids are apparent, chip out, treat with **Poly Matrix** then make good with **OR-CFF 4500 Polymer Repair** material.
- Good concrete practice must be followed such as adequate curing, compaction and vibration.
- Do not apply where ambient temperatures are below +50 degrees F or above +95 degrees F.

Poly Matrix Application Rules

New Concrete: 250 square feet per gallon

Old Concrete: 150 square feet per gallon, areas with crazing may take two applications.

Method

- A. Locate all cracks and flood with solution first ensuring they are filled with product.
- B. Apply the solution to the remaining area at a rate of between 150 and 200 square feet per gallon.
- C. When surface becomes touch dry – (usually 2-6 hours depending on wind conditions and ambient temperature) flood spray the treated areas with water on hotter or windy days to keep wet.
- D. After the 6-8 hours, block drains and pond area for a minimum of 12 hours to verify a waterproof seal has been achieved.

PRECAUTIONS

Protect glass, aluminum, wood and painted finishes from overspray.

LIMITATIONS

Poly Matrix is not suitable for sealing working/volatile cracks as a result of structural defects or caused by mechanical damage. **OR-CF 4500 Polymer Repair** is to be used. For construction joints or control joints use **OR-JF** or **OR-JS Polyurea**.

Poly Matrix SHELF LIFE & STORAGE

No known limit to shelf life. Store between 55 degrees F and 85 degrees F. Keep container sealed and avoid prolonged exposure to direct sunlight.

Always agitate drum or container before use.

Typical Properties

Diluting		use as supplied
Odor		none
Toxicity		none
Flammability		none
Coverage per gallon		150-200 sq ft/gal
Environmental Hazards		1 year
Shelf Life		Infinite
Solvent for clean up		Water – mild soap
Water absorption	ASTM C-642	3.2 in 24 hrs
Depth of Penetration		6 mm into concrete
Compressive strength	ASTM C-140	3,990 psi average
Untreated concrete	ASTM C-140	3,415 psi average
Water vapor transmission		217 grams/sq ft 24 hrs

PERFORMANCE CHARACTERISTICS

- Permanently seals cracks up to 2.00mm
- Reseals future hairline cracking
- Reduction of chloride diffusion coefficient by 89%
- Water permeability reduced by 70%
- Increases surface hardness
- Reduces scaling in freeze-thaw environments by 89%
- Allows 84.1% moisture vapor permeability
- Suitable for tanking applications (positive hydrostatic pressure) – tested to 400 metres
- Non Toxic – suitability for potable water

Packaging

5 gallon buckets

55 gallon drums

250 gallon totes

Poly-Matrix MEMBRANE WATERPROOFING

1 GENERAL

1.1 SCOPE

This specification describes a subsurface membrane waterproofing system by means of a solution that penetrates and integrates with the concrete surface.

Proprietary item: **Poly Matrix Surface Sealer** Waterproofing System

Manufacturer:

1.2 RELATED DOCUMENTS

Refer drawings, Preliminaries, Bill of Quantities, General Requirements, and General Provisions of the contract.

1.3 RELATED WORKS SPECIFIED ELSEWHERE

Concrete mix design, placement, curing, finishing, joint preparation and detailing affect this section and are included within this specification.

1.4 REFERENCES

Test procedures –

- Depth of penetration into substrate
- Cracks sealing and resealing on test rig
- Reduction of chloride diffusion co-efficient

2 QUALITY

2.1 SUBMISSIONS

Approval before application

Submit a detailed statement describing the concrete waterproofing system to be applied.

Inclusions

Include literature, details, samples, warranties and the like in the submission as required.

Provide the manufacturer's or nominated agent/distributors written acceptance and approval of the intended system required.

2.2 QUALITY ASSURANCE

Approved applicators

Use applicators approved and licensed by the manufacturer or their normal agent/distributor.

Site inspection

The approved applicator must inspect the site prior to commencement of application of the system, for purposes of reviewing related conditions affecting the performance requirements of this specification.

Safety

The site foreman/supervisor shall sight and understand the site specifications and product datasheets.

All products described in this section must be used with adequate personal protection as recommended by the Material Safety Datasheet which accompanies each product shipment.

3 MATERIALS AND COMPONENTS

3.1 MATERIAL

Waterproofing system

Provide a waterproofing solution that creates a vapor permeable sub-surface barrier to prevent water leakage and ingress of contaminants into the cracks and concrete matrix.

Provide a solution that penetrates into concrete and reacts with Calcium Hydroxide and water at ambient temperatures to form a non water soluble complex calcium silicate hydrate gel in the cracks pores and capillaries.

Material

Provide a solution that is a non-toxic, clear, odorless silicate based material with proprietary biochemical modification.

Cracks

The product must seal existing leaking cracks up to 2.00mm in structural concrete. In the Poly-Matrix, it shall remain reactive with water to provide autogenously healing properties to future hairline cracks to 0.3mm.

4 CONCRETE & RELATED DETAILING

4.1 CONCRETE MIX DESIGN

Poly-Matrix treatment is suitable for Portland cement, slag blend concrete, Type C fly-ash replacement up to 30% of replacement (Type F fly-ash is not suitable for use with Poly Matrix)

4.2 CONCRETE INSTALLATION

Installation of concrete

Ensure that the concrete is properly compacted by vibration and adequately cured for at least 28 days prior to the application of the material.

Falls

Pour concrete with fall lines to drains.

4.3 CONCRETE FINISH

Preferred finishes

Use steel float or broom finish.

Steel float

Where steel trowel/ride on machines are used, make sure no curing agents, bond breakers or finishing aids were used, if so, open pours by acid washing.

4.4 CURING

Water cure where possible for 7 days.

If curing compounds are used, degrade or remove prior to application.

4.5 CONSTRUCTION/POUR JOINTS

Construction joints/pour joints

Provide a vertical stop board at all construction/pour joints.

Pour breaks

Roughen construction joint face to expose aggregate so as to provide an adequate key for the new concrete slab to be poured.

4.6 UPTURNS AND PARAPETS

First preference

Treat slab with the material prior to pouring parapet.

Second preference

Pour parapets in-situ.

Third preference

Install ORJF or ORJS in the parapet joint.

4.7 DRAINS & PENETRATIONS

Prior to concrete pour

Install ORJF or ORJS as per manufacturer's recommendations around penetrations.

Drains

Where drains are installed, install either ORJF or ORJS liquid applied membrane recessed into the drain.

Waterstops

Install liquid applied ORJF or ORJS polyurea membrane around all penetrations.

Holes

Where holes are cored into the slab and penetrations placed afterwards, use ORCF and silica sand to fill the space between penetration and the slab, and then utilize ORJF or ORJS polyurea membrane.

5 EXECUTION

5.1 APPLICATION AND SUPERVISION

General

Install the system in accordance to manufacturer's published recommendations.

Personnel

Employ trained applicators.

Tools and Equipment

Use proper tools and equipment and working under the direct supervision of a technically competent and experienced supervisor.

5.2 SURFACE PREPARTION

Remove all dirt, laitance and loose fines by scraping or grinding.

Remove all materials that may retard penetration such as oil, grease, and paints.

Hack out all holes, areas of honeycombing, and damaged sections. Treat with ORCF. When dry to touch, patch with an ORCF and silica sand, and trowel to a smooth even finish. Allow 30 – 45 minutes for drying.

Clean down surfaces thoroughly by water blaster to remove dirt, dust, or other contamination to leave sound clean surfaces free of residues.

Ensure that the surface is dry at end of surface preparation.

5.3 ENVIRONMENT CONDITIONS

Do not apply the material –

- When ambient temperatures are below +55 degrees F or above +95 degrees F.
- When rain is imminent.
- In high wind conditions

5.4 CRACKS

General

Locate all cracks and flood with the material.

Ensure that all cracks are filled with product.

Coverage rate

15 - 20 square feet per gallon

5.5 GENERAL AREAS

Coverage rate

Apply the material to the remaining area at a coverage rate of between 150 – 200 square feet per gallon.

5.6 WATER FLOOR TREATMENT

When surfaces have become dry to touch – (usually 2-6 hours depending on wind conditions and ambient temperatures) and no longer than 6 hours, flood spray the treated areas with water for the first day.

Repeat the flood spraying for the next 2 subsequent days.

6 QUALITY CHECK AND COMMISIONING

6.1 WATER TEST AND VERIFICATION

On completion

Provide the following tests after treatment and ancillary detaining has been complete.

Water tests

Pond or water test the area for a minimum of 12 hours to verify the treated area is watertight. If leakage occurs, note and isolate area then treat again. Water-tightness must be verified before a guarantee is issued.

Surface penetration

For further quality control, random core samples can be taken to be analyzed, to determine penetration.