



Phone: 877.224.5850  
 640 Garden Commerce Parkway  
 Winter Garden, Florida 34787  
 Email: [contactus@barrierone.com](mailto:contactus@barrierone.com)  
 Website: [www.barrierone.com](http://www.barrierone.com)

### Product Description:

Barrier One PIA ("PIA") is a ready to use liquid concrete admixture that **inhibits and blocks** the redistribution of concrete moisture, allowing interior adhered flooring applications to proceed without the setbacks of the redistribution of concrete moisture. PIA eliminates the need for topical moisture mitigation systems, extended wait times for concrete moisture testing requirements, and provides an adhesion guarantee.

PIA's USA manufactured ingredients are integrally combined with existing elements of your mix design initiating capillary breaks within the concrete. These chemical reactions create abundant insoluble hydration products; permanently disrupting your concrete's natural capillary / pore structures. These reactions eliminate the movement of critical level moisture vapor emissions into & out of the concrete.

PIA has been extensively tested in both laboratory and field conditions. This admix has demonstrated increased early strength gains creating a denser concrete resulting in reduced slab curl. PIA is independently certified to reduce shrinkage, ASR, & corrosion while demonstrating permeability results.

PIA utilization allows for the direct application of primers, cementitious underlayments, sealers, and coatings to be installed on nonporous (power-troweled) slabs in as little as 7 days. Field moisture testing is not a PIA warranty requirement. If conducted (since most flooring companies require) PIA warrants up to 25lbs. per ASTM F1869 or 100% RH per ASTM F2170.

### Technical Data:

Appearance: Translucent Blue	Toxicity/Vapors/Odors: None
Ph: 11.3	Specific gravity: 1.22
Shelf Life: One Year from delivery	Weight: 9.6 lbs./gal (net)
Flammability: None	Freeze Temp: 32°F
HPD: Available	VOCs: 0 g/l
Sodium Silicates: None	Chlorine Content Added: None
Capillary Break: Yes	NSF / ANSI 61 Compliant

### Dispensing:

- Compatible with normal & light weight mix designs. Mix design(s) must be approved prior to first concrete placement.
- Compatible with well consolidated steel & composite fibers.
- Dosage: 14oz volume / 100 lb. total cementitious with 1:1 mix water replacement.
- Water to Cementitious ratio design ranges of 0.31 to 0.52
- PIA should be dosed separately from other admixes & at the tail-end of the load. **Allow mix to thoroughly hydrate before adding PIA.** Adding PIA with withheld tail water is recommended.
- For dosing accuracy & reporting, batch plant application is recommended. Allow a minimum of 7 minutes of rapid drum rotation before discharge.
- Do not let the PIA material freeze at any point prior to application.

### Concrete Performance:

- PIA has no deleterious concrete effect & does not accelerate or retard mix set times per ASTM C494 testing. It facilitates finishing by reducing bleed-water; creating a creamier / richer undiluted paste.
- Water reducing admixes are acceptable to achieve slumps > +4".
- PIA has minimal impact on slump. (≤ 0.5" slump loss)
- Added shrinkage reduction admixtures (SRA) or crystalline product utilization are not recommended.
- 3" minimum slab depth for warranty consideration per ASTM 302.1R

### Curing:

The Company concurs with ACI 302.2R-06 that any slab receiving moisture sensitive flooring; "shall be cured & covered with waterproof paper, plastic sheets, or a combination of the two for 3 to 7 days". Although leaving the plastic down longer is acceptable; "PIA" dosed slabs only require 24 -48 hours of cure by this means & method. Curing compounds have no deleterious effect on "PIA" performance. *However*, if a curing compound is utilized, adhesive manufacturer guidelines regarding floor prep must be followed per ASTM F-710.

### Specification Requirements:

The use of Barrier One PIA admixture must be registered prior to any concrete placement for warranty consideration. In most instances, a certified / independent 3<sup>rd</sup> party serves as the project's inspection company of record and is present at every concrete placement. These contracted representatives will be contacted by the Company and must be present on all dosed PIA jobsite placements. One daily cylinder will be collected by this agency for the Company for internal quality control testing.

All slabs on ground (SOG) require the use of an ASTM E 1745 vapor retarder. Installed per ASTM E 1643 and in direct contact with concrete per ASTM F710 & ACI 302.2R-06.

Test	Description	Result
ACI 212.3R	Permeability Reducing Admix for Hydrostatic Conditions (PRAH)	Yes
ASTM D-5084	Hydraulic Conductivity of Saturated Porous Materials	<1.0 x 10 <sup>-9</sup>
CRD C48-92	Standard Test Method for Water Permeability of Concrete	Pass
ASTM C-494	Type S Admixture	Pass
ASTM C-39	Type (1L Cement) (Average Strength Increase)	22%
ASTM C-157	Drying Shrinkage (Average Reduction in Shrinkage)	86%
MIP Testing	Mercury Intrusion & Porosimetry (Reduction of Pore Structure) (Normal Mix) (Pore Structure Reduction)	15.00%
MIP Testing	Mercury Intrusion & Porosimetry (Reduction of Pore Structure) (Self Consolidating-SCC Mix) (Pore Structure Reduction)	36.00%
ASTM C232	Bleed Water in Concrete (Reduction)	19.20%
ASTM C-1543	Reduction in Corrosion (Ponding)	80%
ASTM C-1202 & AASHTO T-277	Reduction in Chloride Ion Penetration (Coulombs) (Chloride Permeability Rating)	Very Low
ASTM C-666	Freeze Thaw Resistance (Reduction in Mass Change)	63%
ASTM C-672	Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals	No Scaling
ASTM G-109	Corrosion of Embedded Steel Reinforcement in Concrete Exposed to Chloride Environments	No Notable Corrosion
ASTM C-1152	Acid Soluble Chloride in Mortar and Concrete	Pass
ASTM C-1260	Potential Alkali Reactivity of Aggregates (Mortar Bond Method) (Average Reduction in ASR Expansion %)	Pass
ASTM C-1567	Potential Alkali Reactivity of Combinations of Cementitious Materials & Aggregate (Accelerated Mortar Bond Method)	Pass
W/CM Ratio	Water To Cementitious Materials Ratio Range	0.31 - 0.52
Promotes Bonding	Concrete Surface Contamination: Additional Salts or Deleterious Materials or Compounds that Inhibit Bonding)	No Contamination
Entrained Air	Use With OR Without Entrained Air	Yes
Fly Ash	Use With OR Without Fly Ash:	Yes
Slag	Use With OR Without Ground Blast Furnace Slag	Yes
Lightweight	Use With OR Without Lightweight Aggregate	Yes