



SPECIALTY  
PRODUCTS  
GROUP

# VAPOR LOCK™ Graphene UHPC

(Ultra High Performance Concrete)

Accreditations: ASTM C494

## DESCRIPTION

Vapor Lock™ Graphene UHPC (Ultra High Performance Concrete) is a ready to use concrete admixture that improves the strength and durability of all concrete applications while reducing the carbon footprint. Vapor Lock™ Graphene UHPC has been known to increase concrete strength by up to 20%. Vapor Lock™ Graphene UHPC reacts with the calcium hydroxide (C-H) created by the Portland cement reaction with water converting the C-H into additional calcium silicate hydrate (C-S-H) making the concrete water and vapor proof. This chemical reaction is similar to a pozzolanic material such as flyash, GGBFS and silica fume, but more controlled and predictable. Graphene is one of the strongest and most flexible materials ever discovered.

## BASIC USES

Vapor Lock™ Graphene UHPC is used in applications where strength and Ultra High Performance are necessary, and reduction of concrete's carbon footprint is desirable. Some places where this product would be ideal are bridges, runways, seaports, wherever increased strength and durability are desirable.

## MAJOR ADVANTAGES OF VAPOR LOCK™ Graphene UHPC

(Ultra High Performance Concrete)

- Increases compressive and flexural strength of concrete significantly
- Reduces cement by 5% which results in a c. 20% reduction in the carbon footprint
- Improves durability
- Water proofs concrete
- Decreases porosity
- Increased concrete density & hardness
- Increased abrasion resistance
- Virtually eliminates:
  - » Dusting
  - » Slab curl
  - » Plastic & drying shrinkage cracking
  - » Freeze-thaw spalling
  - » Delamination

## TECHNICAL & PRODUCT DATA

- Appearance: Clear
- Odor: None
- Toxicity: None
- Flammability: None
- pH: 10-12
- Shelf Life: 1 Year
- Weight: 10 -10.5 lbs per USG
- Freeze Temp: 32 F, 0 C
- Storage Temp: 35-75 F, 2 – 24 C
- Solvent: None, water- based
- Acid Resistance: Excellent
- Hazardous Vapors: None
- Capillary Break: Integral C-S-H
- Installation: All cementitious materials
- Number of components: 1
- Packaging: 330 USG Totes, 275 USG Totes, 55 USG Drums, 5 USG Buckets



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## APPLICATION INSTRUCTIONS

Cast-in Place, Normal Weight Concrete- Vapor Lock™ Graphene UHPC standard dosage is 10 ounces per 100 weight of cementitious materials and should be added with the head water for the best results. Contact your SPG representative for dosage rate verification or if introduction with the head water is not possible/practical. This dose needs to be accurate to minus 0% to plus 3%. Vapor Lock™ Graphene UHPC must be added to concrete by a ready mix or pre-cast provider that is certified by SPG to utilize this material.

## SPECIAL HANDLING

Do not allow the product to freeze. Discard any frozen or separated product.

## SAFETY

Please refer to SD at [www.spggogreen.com](http://www.spggogreen.com) or contact SPG.

## WARRANTY DISCLAIMER

The information herein is to assist customers with product selection. Our products are intended for sale to qualified industrial and commercial customers. Customers shall be responsible for inspection of product prior to use to determine suitability for and applicability to their application. Trial batch mixes are encouraged with certified ready mix providers. We warrant that our products will meet our written specifications. Nothing herein shall constitute a warranty expressed or implied, including any warranty of merchantability or fitness, nor is protection from any loss or patent to be inferred. The exclusive remedy for all proven claims is replacement of our materials and in no event shall we be liable for special, incidental or consequential damages. Project specific warranties are available for waterproofing and concrete durability.