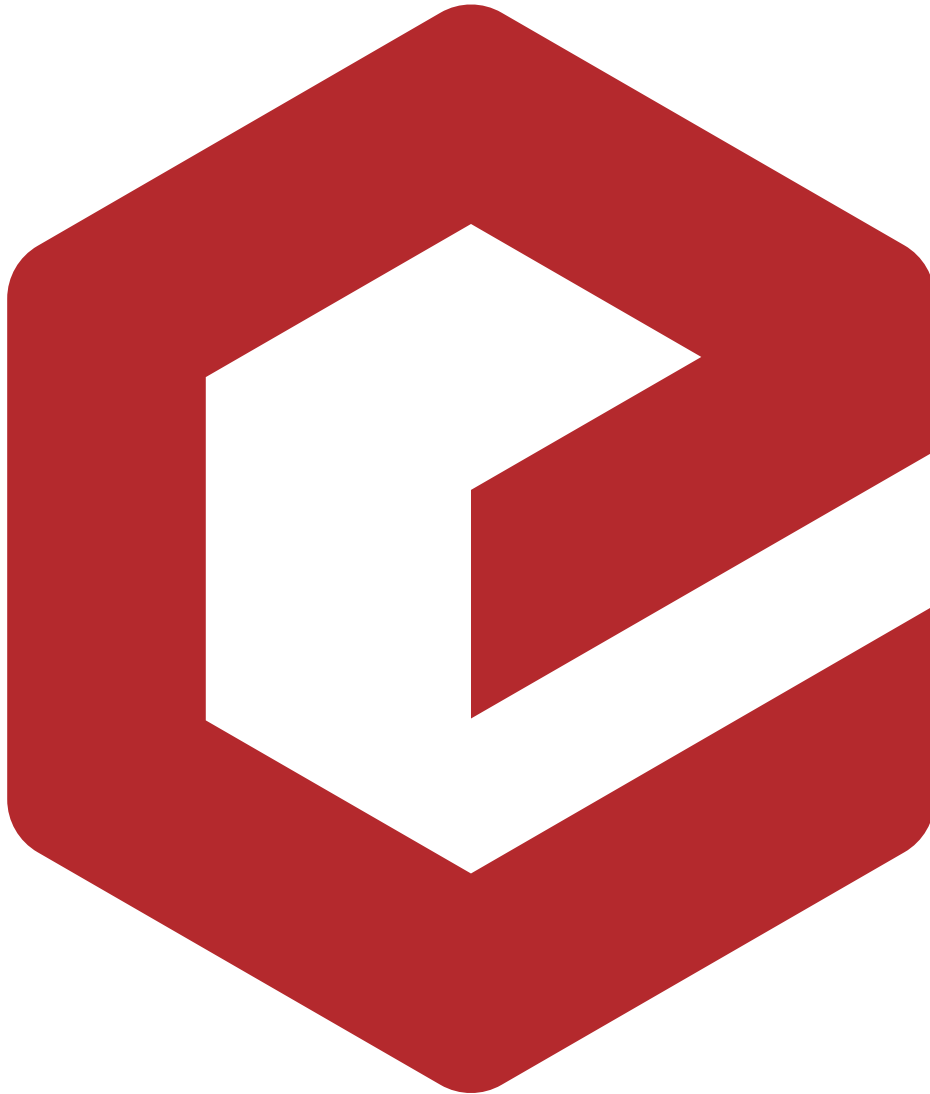


**EdenCrete™**



**CARBON CONCRETE ADDITIVE**

# TOUGHER STRONGER CONCRETE

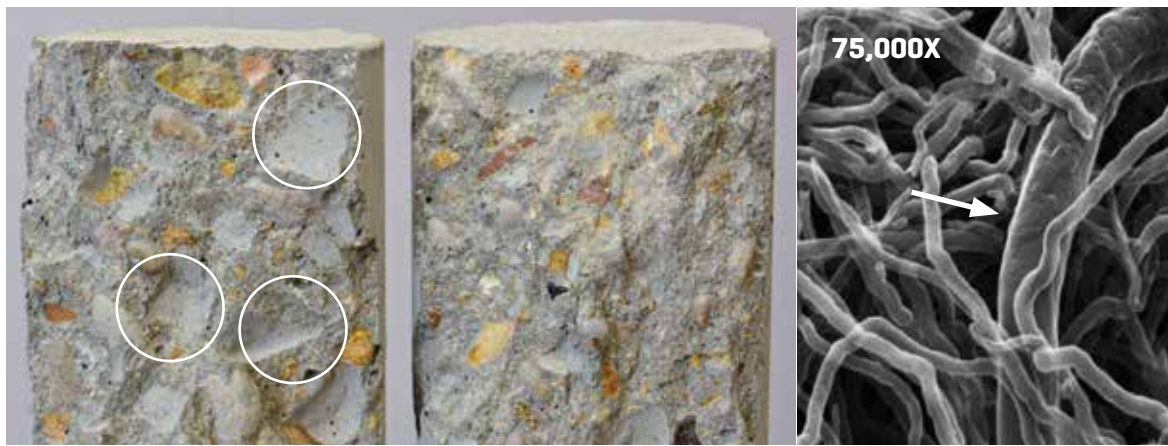
## **Harness the abrasion resistance and bonding strength of carbon nanotubes for your next pour.**

Developed by Eden Innovations, **EdenCrete™** is a carbon nanotube-enriched liquid additive that elevates concrete structures to new levels of strength and toughness. When added to concrete mixtures, it performs like multiple additives rolled into one: It boosts surface abrasion resistance and produces extremely low permeability while improving tensile-strength like no other product on the market today.



## How does EdenCrete™ make concrete tougher?

Good question. When added to concrete mixtures, carbon nanotubes in **EdenCrete™** fill in spaces at the nanoscopic level by bonding to hydrated cement particles. When concrete dries, instead of leaving porous openings that would allow water to penetrate or cracks to develop, these nanotubes create millions of flexible, strong carbon bridges throughout the structure. These carbon bridges greatly improve resistance to failure caused by bending stresses, resulting in greater resistance to abrasive wear and crack propagation. In fact, not only does **EdenCrete™** make concrete stronger, we believe it can also increase concrete longevity beyond traditional expectations.



Concrete Pullout **without EdenCrete™**. Notice the flat, smooth areas where aggregate has pulled out of the cement paste. The concrete fails before the aggregate.

Concrete Pullout **with EdenCrete™**. Notice the aggregate fractures before the concrete bond fails.

**EdenCrete™** carbon nanotubes form denser bonds at the molecular level.

## The strength of carbon fiber—now available in concrete.

What exactly are carbon nanotubes? These submicroscopic cylinders of carbon, barely 1/50,000th the diameter of a human hair, have revolutionized dozens of industries and thousands of products from aerospace applications to electronics to sporting equipment. Why? Carbon nanotubes are ounce for ounce 117 times stronger than steel and 30 times stronger than bulletproof Kevlar, yet extremely light. These carbon nanotubes create enhanced bonds at the interfacial transition zone between the cement paste and the aggregate, resulting in superior pullout capacity and greater aggregate fracture when failure is reached. Simply put, the aggregate breaks before the concrete does.

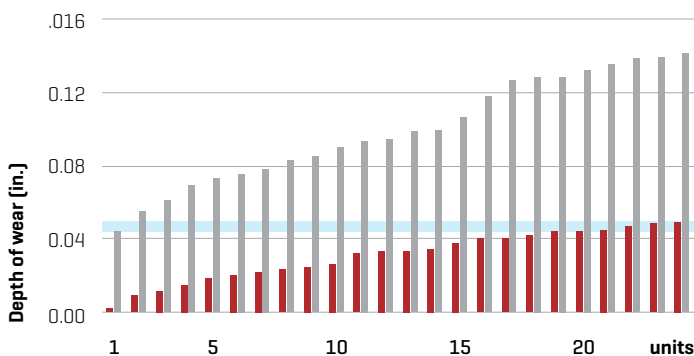
## Tested for consistent, reliable results.

**EdenCrete™** has undergone extensive research and development, laboratory testing, and field trials in different environments and projects around the globe. It has been vetted and designated *Allowed for Use* by the Georgia Department of Transportation for construction and maintenance projects in Class 24-Hour accelerated strength concrete mix applications and Class B concrete applications.

Recent ASTM testing speaks for itself. You can see why **EdenCrete™** is generating so much excitement and interest throughout the industry.

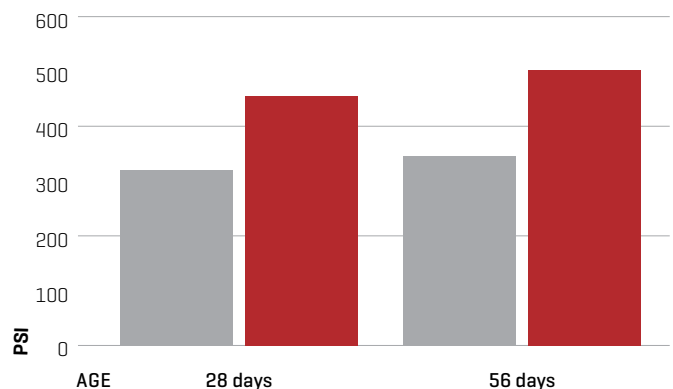
### 59% Increase in Abrasion Resistance

ASTM C779, Proc. C



### 32% Increase in Flexural Strength

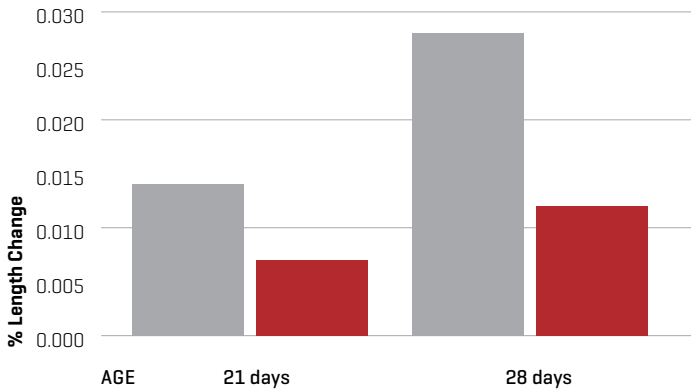
ASTM C78



■ **EdenCrete**  
■ **Control**

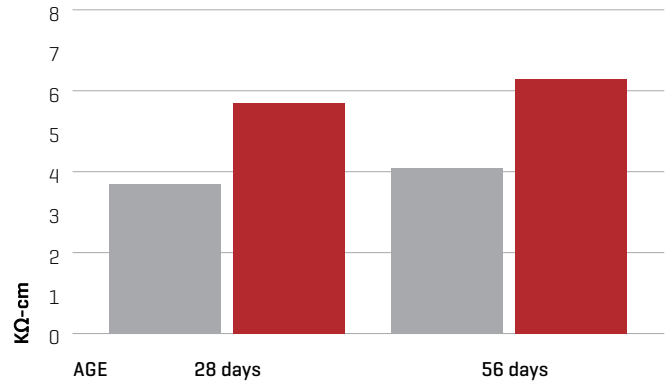
### 61% Reduction in Shrinkage

ASTM C157



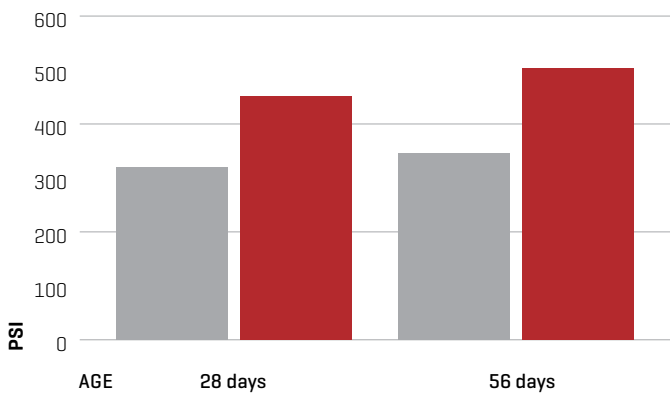
### 54% Reduction in Permeability

Bulk Electrical Resistivity [Correlated to RCPT; ASTM C1202]



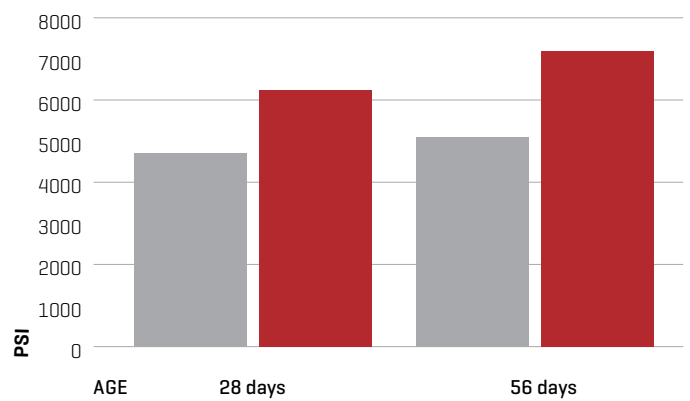
### 46% Increase in Tensile Strength

ASTM C496



### 41% Increase in Compressive Strength

ASTM C39



# THE FUTURE OF CONCRETE

## Save Money by Replacing or Reducing Multiple Admixtures

**EdenCrete™** does the job of several different types of admixtures you may already use. Typically, the addition of **EdenCrete™** improves the efficiency of other admixtures already in the concrete mix. Whether your goal is to reduce permeability, improve flexural, tensile and/or compressive strength, or improve resistance to surface abrasion and shrinkage, **EdenCrete™** gives you the option to replace or reduce the amount of other admixtures normally required to achieve the desired results; saving you money.

## Works Well with Other Concrete Additives

**EdenCrete™** is neutral and non-reactive. It can be used in mixes containing any of the various admixture chemistry-types commonly in the market. Unlike chemical concrete admixtures that can impact the workability, color or effectiveness of your mix, **EdenCrete™** does not require altering formulations or procedures to get the mix you want. It offers a wide range of compatibility for contractors, architects and ready mix companies.

## Excellent Workability

Since **EdenCrete™** works on the nano-level to build strength, there is no impact on the fresh properties, including workability or finish-ability of your concrete; unlike synthetic macro fibers.

## Chemical and Stain Resistant

Reduced Permeability means chemicals can't penetrate the surface as deeply as concrete without **EdenCrete™**. More importantly, unlike some chemical concrete additives that might be reactive to a variety of chemicals spilled on the surface, carbon nanotubes in **EdenCrete™** are chemically neutral, and therefore won't react to a wide range of acids, bases and solvents.

## ASTM Testing

All testing on **EdenCrete™** has been conducted by Independent, 3rd Party Test Labs, according to the following ASTM Test Standard:

|                         |  |
|-------------------------|--|
| Compressive Strength;   | ASTM C39   |
| Split-tensile Strength; | ASTM C496  |
| Flexural Strength;      | ASTM C78   |
| Abrasion Resistance;    | ASTM C779, Proc. C   |
| Shrinkage;              | ASTM C157  |
| Permeability            | Bulk Electrical Resistivity [Correlated to RCPT; ASTM C1202] |



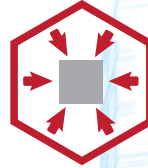
## POUR IN THE STRENGTH IN THESE KEY AREAS



**ABRASION**



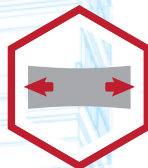
**FLEXURAL**



**SHRINKAGE**



**PERMEABILITY**



**TENSILE**



**COMPRESSIVE**



**STAINING**

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### Application Guidelines

- Ready-to-use liquid admixture.
- No need for dilution.
- No special mixing equipment needed.
- Good for hoppers, mixing trucks or central plant mixers.
- **EdenCrete™** should be employed at dosage rate of 1/2 to 4 gallons per cubic yard. (30 to 150 fluid ounces per 100 lbs. of total cementitious materials.)

### Storage, Handling and Transport

- **EdenCrete™** should be transported and stored at 40° to 95° degrees Fahrenheit; 5° to 35° degrees Celsius.
- Avoid freezing. If **EdenCrete™** freezes, the particles will irreversibly precipitate.
- For bulk storage, the admixture tank should be constructed of plastic, stainless steel or fiberglass. Seal the tank after adding **EdenCrete™**.
- Translucent tank and storage containers should be stored out of direct sunlight.
- **EdenCrete™** has shelf life of at least 12 months after production.

### Safety

**EdenCrete™** is not considered dangerous to handle. Before handling, please read the Safety Data Sheet (SDS) for health, safety and environmental information.

**Get the most out of EdenCrete™. Contact us today.**

Our **EdenCrete™** admixture specialists look forward to answering your questions about this innovative product. Whether it concerns special applications, admixture formulations, or optimizing dosage, please contact our **EdenCrete™** team. Ask us about our free consultation, introductory pricing and complimentary supplies of **EdenCrete™** for your first pour.



**EdenCrete Industries, Inc.**  
12420 N Dumont Way  
Littleton, CO 80125  
303.468.1705  
info@edencrete.com

*EdenCrete Industries, Inc. is a subsidiary of  
Eden Energy, Perth Australia*