
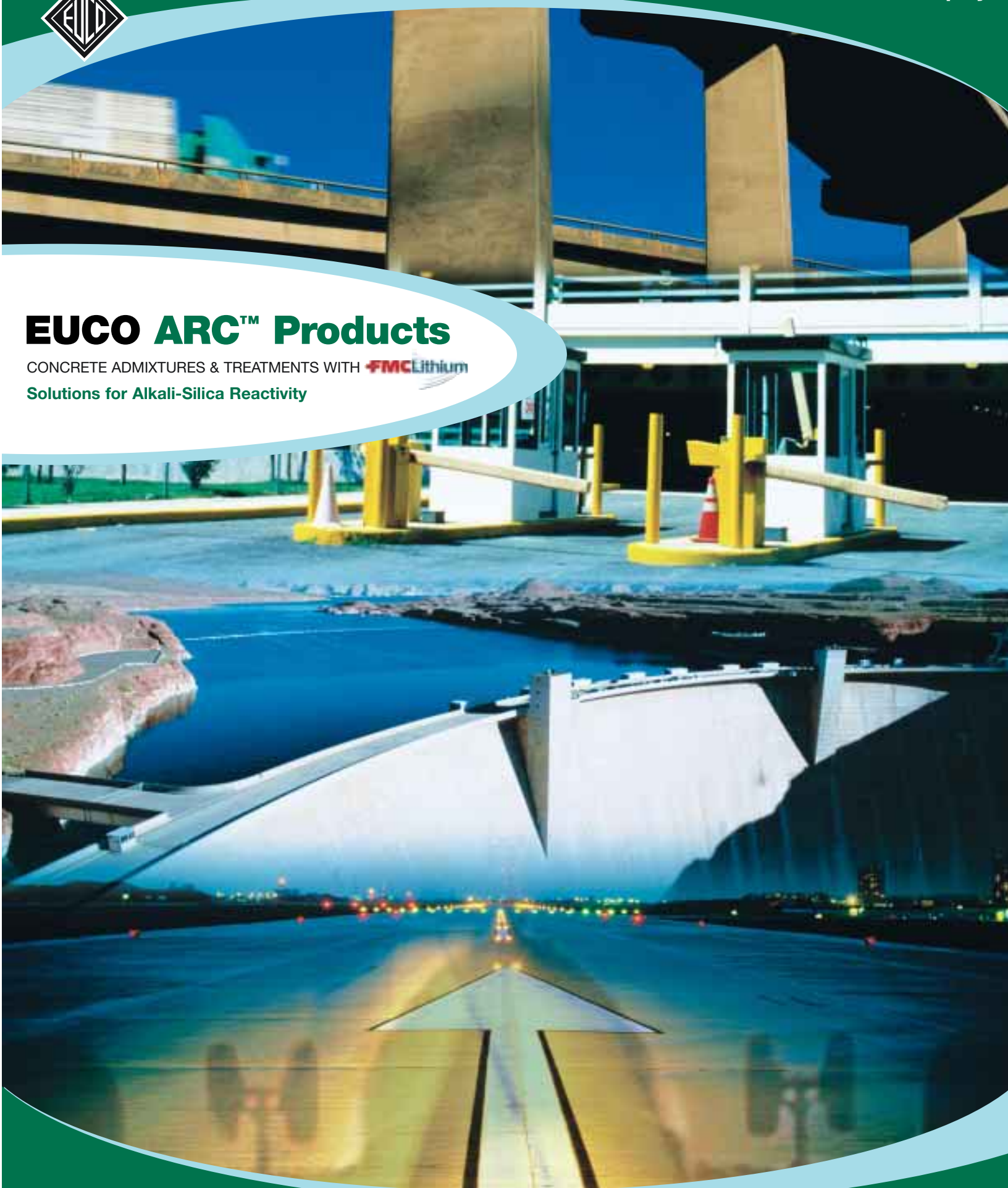




The Euclid Chemical Company

EUCO ARC™ Products

CONCRETE ADMIXTURES & TREATMENTS WITH 
Solutions for Alkali-Silica Reactivity





EUCO ARC™ Treatment with

EUCO ARC™ TREATMENT is a specially formulated lithium nitrate product which is designed to reduce expansion due to alkali-silica reactivity (ASR) in hardened concrete. This product is used in the remediation of concrete structures and infrastructures presently affected by ASR. EUCO ARC TREATMENT is the only patented, penetrating lithium solution available in the market.



Treatment Methods

EUCO ARC™ Treatment

Flood concrete surfaces by topical ponding or spray application to gain penetration. Coverage rates range from 3 to 9 gallons per 1000 ft² (11.4 to 34.1 Liters per 92.90 m²).

The treatment may also be applied by vacuum impregnation, pressure-injection or electrochemical injection. Actual dosage is based upon the concrete volume to be treated.

Contact us about calculating relative cost options.

EUCON Integral ARC™

This admixture is dispensed during the concrete batching operations or can be added to mixed concrete on site. Liquid and powder admixtures are available for shotcrete applications and for modifying patching mortars.

The amount of EUCON INTEGRAL ARC™ needed to mitigate ASR in fresh concrete is a function of the sodium equivalent (Na_2Oe)* of the cement and the amount of cement used per cubic yard (or cubic meter) of concrete. A formula for calculating the correct amounts of EUCON INTEGRAL ARC™ is provided on the product data sheet.

*Sodium equivalent (Na_2Oe)= $\%Na_2 + (0.658 \times \%K_2O)$

EUCON Integral ARC™ with

EUCON INTEGRAL ARC™ is a specially formulated lithium nitrate admixture for the prevention of alkali-silica reactivity (ASR) in concrete. This product is used alone or in combination with pozzolans to optimize a system for preventing ASR.

Applications

- Roadway, Bridge, and Highway Construction
- Parking Garages
- Airports
- Ports and Piers
- Water Treatment Facilities

Benefits

Lithium technology for concrete:

- Allows the use of local, cost-effective materials
- Increases the lifespan of concrete structures
- Maintains concrete as the best life-cycle choice
- Preserves public safety



What Is ASR?



Alkali-silica reactivity (ASR) is a chemical reaction that occurs between reactive silica in aggregates and cement alkalis (sodium or potassium) in the presence of water. The reaction causes the formation of a gel that absorbs water and swells, exerting internal pressure that can lead to cracking and premature deterioration of concrete. The deterioration weakens the concrete matrix, rendering concrete vulnerable to further damage by the ingress of salts leading to steel corrosion, traffic loading, vibrations, and environmental stresses such as freeze-thaw cycles.

How Do I Know If I Have ASR?

In North America, a significant portion of aggregate used in the manufacture of concrete has been tested and identified as potentially ASR reactive or non-reactive. ASTM tests recognized to evaluate ASR are:

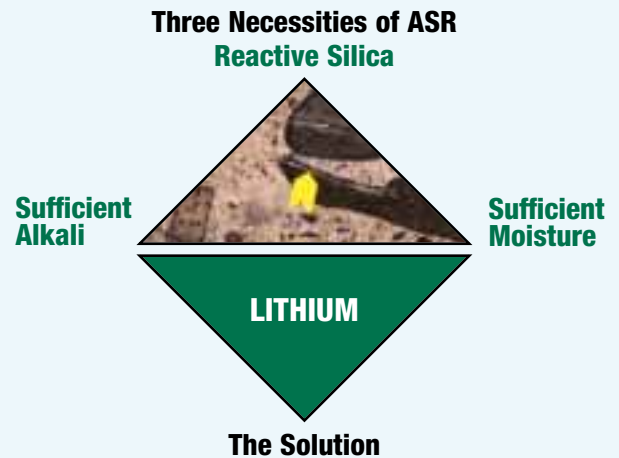
C-295 – Petrographic Exam
C-227 – Mortar Bar

C-1260 – Rapid Mortar Bar
C-1293 – Concrete Prism

C-856 – Concrete Petrography

How Does Lithium Work?

Many experts agree that lithium technology is the best and, often times, the only truly effective choice when mitigating ASR. Lithium has been proven. It forms a gel that is non-expansive, meaning it does not absorb water. This negates one of the primary contributing causes to the formation of ASR. Sufficient lithium is necessary to counteract the alkalis in a concrete mix.

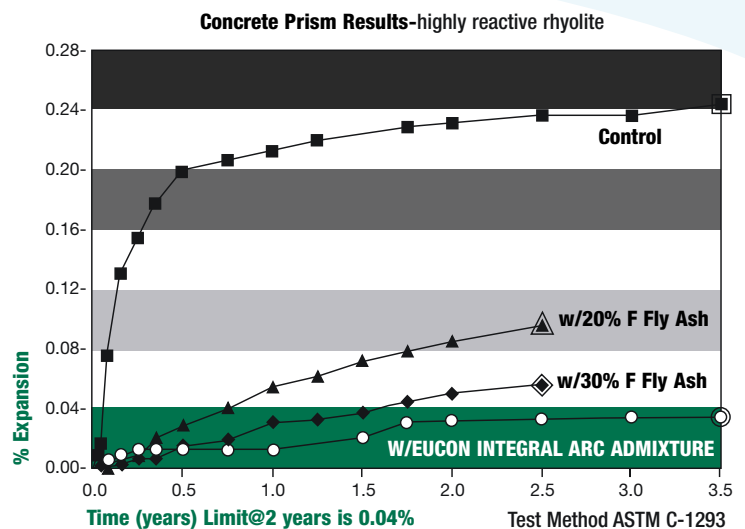


What Are The Results?

Prior to the use of lithium technology, the prevention and mitigation of ASR damage was limited to three options:

- 1) Avoidance of reactive aggregates
- 2) Reduction of cement alkali and/or total alkali in concrete
- 3) The use of suitable pozzolans as mineral admixture or blended cement

Euclid's lithium admixtures allow for the use of reactive aggregates and are the most effective, single solution for ASR prevention. EUCON INTEGRAL ARC™ is the most practical solution when used in combination with suitable pozzolans.





Our Partnership With

The Euclid Chemical Company and FMC Lithium have joined forces to distribute and market lithium-based products for controlling alkali-silica reactivity (ASR) in fresh concrete and for lithium-based concrete treatments to mitigate ASR-induced expansion. For more than a decade, FMC Lithium has been developing technology to mitigate ASR in fresh and hardened concrete, based on research originally conducted under the Strategic Highway Research Program (SHRP).

This research has identified and recommended lithium as a remedy to ASR. The Euclid Chemical Company continues to expand its commitment to providing durability-enhancing admixtures and treatments to the concrete industry. The Euclid Chemical Company offers the sales and service support required to bring this technology to owners, design professionals, and to the end-user.

Qualifications

Lithium admixtures and treatments are now recognized as the most effective choices for the prevention and mitigation of ASR. This technology is included in a number of industry guide specifications and by a number of State's Department of Transportation. It has also been successfully used in military and commercial airfield construction. It has been recognized by the following agencies:

- ◆ The US Army Corps of Engineers
- ◆ The Federal Highway Administration (FHWA)
- ◆ The Federal Aviation Administration (FAA)
- ◆ The National Sanitary Foundation (NSF)
- ◆ The American Association of State Highway Transportation Officials (AASHTO)
- ◆ Local agencies involved with bridges, highways and aviation facilities

For complete information on Euco ARC products with FMC Lithium, contact The Euclid Chemical Company.



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An  Company

www.euclidchemical.com

ISO 9001 Certified

The Euclid Chemical Company, founded in 1910, is today a worldwide supplier of quality products and services for the concrete and masonry industry. Marketed under the EUCO name, we offer a full line of repair and maintenance products based on the latest technologies. We provide complete specification assistance and laboratory support as well as on-site service for guidance on proper product usage. EUCO materials are warehoused in over 200 locations in the USA and are available world-wide through international affiliates.

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