



EUCO **Self-Consolidating** **Concrete**

A History, Application, Testing
and Admixture Guide





EUCO Self-Consolidating Concrete

Since its' inception in the 1980's, the use of Self-Consolidating Concrete in the precast industry has grown tremendously. The development of high performance polycarboxylate polymers like Plastol 5000 and viscosity modifiers like Viscrol have made it possible to create "flowing" concrete without compromising cohesiveness, compressive strengths or durability.

Applications

Precast Concrete
Architectural Concrete
Pumped Concrete
Residential Structures
Civil Projects



◆ tanks ◆ columns ◆ beams ◆
◆ footers ◆ architectural concrete ◆

Labor and time are driving up costs for concrete producers and contractors. Self-Consolidating Concrete places quickly and easily with little or no vibration to give a smooth surface finish. Save money by reducing the wear and tear of equipment and improve the working environment for employees. Achieve very high early stripping strengths that will yield a quicker turnaround on your forms. The smooth surface finish will minimize or eliminate the need for time consuming cosmetic repairs.

Ask your Euclid Chemical representative how Self-Consolidating Concrete will improve your bottom line. At Euclid Chemical, it's service that sets us apart.

Benefits

SCC will increase:

- Early stripping strengths
- Productivity
- Design flexibility
- Pumpability

SCC will reduce:

- Overall production costs
- Wear and tear on equipment
- Concrete discharge and placement time
- Noise levels
- Time consuming cosmetic repairs

What is Self-Consolidating Concrete?



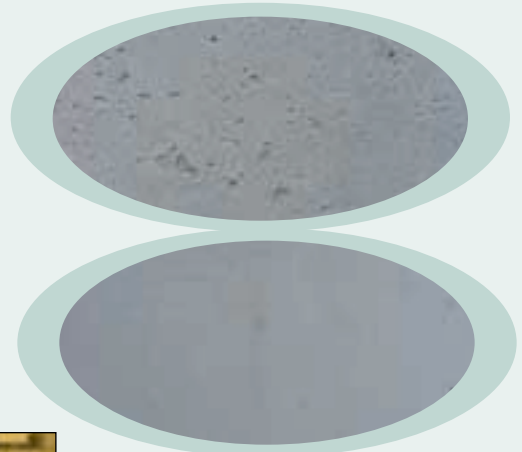
Self Consolidating Concrete is defined as a concrete mixture that can be placed purely by means of its own weight with little or no vibration. Adjustments to traditional mix designs and the use of Plastol 5000 or Eucon 1037 superplasticizers will create flowing concrete that meets tough performance requirements. If needed, low dosages of Viscrol viscosity modifier can be used to eliminate unwanted bleeding and segregation.

It's all about performance

High performance concrete requires high-performance admixtures. The Euclid Chemical Company has a full line of concrete additives to make durable and cost effective Self-Consolidating Concrete. Placement efficiencies can increase 300% and labor costs can be reduced by 70%. Architects and engineers will benefit from increased design flexibility without sacrificing performance or increasing placement costs.

Regular concrete with vibration
This picture demonstrates the "bugholes" on the surface of conventional concrete that has been placed into a form and vibrated. Precasters spend valuable time and money "rubbing out" surface imperfections when using conventional concrete.

Self-Consolidating Concrete
The surface of this Self-Consolidating Concrete has been improved tremendously when placed at a 28-inch flow diameter with no vibration.



This test demonstrates how conventional concrete with a 8.5 inch slump does not find its' way through dense rebar.



Self-Consolidating Concrete with a 28 inch spread flows easily through dense rebar.

SCC put to the test

One way to quantify the flowing characteristics is to conduct a "slump flow" test. Traditionally, a slump test (ASTM C-143) is used to judge plasticity. The unique properties of Self-Consolidating Concrete required some modifications of the slump test where no rodding is required and the subsequent flow of concrete is measured by the diameter of the spread.

ASTM committee C 09 is currently developing standards for Self-Consolidating Concrete. Testing apparatus' like the "L"-Box, "U"-Box, "J"-Ring, and "V" Funnel may be included in the final standard.



The "V" Funnel is a test that shows how quickly SCC passes through a constricted area.



The "slump flow" test shows diameters greater than 22" are considered self-consolidating concrete.



The "L" box is being considered as a testing apparatus to judge the ability of SCC to flow through rebar.



Quality is in the mix.



SCC looks very different than conventional concrete while mixing. Concrete producers must “re-train their eyes” for this very fluid concrete as it turns corners and fills forms. Traditionally, concrete that had the fluidity of SCC had a very high water to cement ratio that lowered compressive strengths and compromised durability. Properly designed Self-Consolidating Concrete can save time and labor without sacrificing performance.

EUCO Admixtures to use for Self-Consolidating Concrete

Plastol 5000 - This polycarboxylate based admixture will achieve impressive water reduction and very high early stripping strengths at very low doses. Plastol 5000 is your best choice for making Self-Consolidating Concrete.

Eucon 1037 - This high range superplasticizing admixture is another choice for Self-Consolidating Concrete that will achieve 22 inches or greater spreads. Eucon 1037 is compatible with all Euclid Chemical Admixtures.

Visctrol - This viscosity modifier will control bleeding and segregation in your concrete. This admixture is not always required.

Tuf-Strand SF - Structural fibers can be incorporated into self-consolidating concrete eliminating the need for welded wire mesh, which will save the concrete producer even more time and money.

The Euclid Chemical Company has a full line of air entraining agents, concrete admixtures and accelerators which meet ASTM requirements. Consult your Euclid Chemical Sales representative for specific product recommendations.



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An **RPM** Company

American Made. American Owned.

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 admixtures, 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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