

PRODUCT NAME

Adi-Con® CSF (R) Micro-Silica & Fibre Admixture

MANUFACTURER

Gemite® Products Inc.

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FEATURES

- High Compressive Strength:**
 The high pozzolanic reactivity of the super fine particles and the effect of chemical admixtures results in a high compressive strength concrete. The cross-sectional thickness or cement content can be reduced resulting in lower material costs.
- Ten sile and Flex ural Strength:**
 The improvement in compressive strength also results in improvement of ten sile and flex ural strengths.
- High Abra sion and Im pact Resistance:**
 Considerable improvement in the structure of hydrated cement paste results in high abra sion resistance and impact resistance of *Adi-Con CSF(R)* modified concrete. The impact resistance is further improved by the addition of poly mer fibre.
- High Re sistance to Chemi cal At tack:**
Adi-Con CSF(R) reacts with free lime (calcium hydroxide) in cement paste and forms more chemically resistant calcium silicate compounds. Super fine particle size (below 1 micron) further increases the chemical resistance by providing very dense, low permeability cement paste structure, which is difficult to penetrate by the reactive chemicals such as weak acids, concentrated salt solutions (eg. chlorides, sulfates) and high caustic solutions.
- Reduction of Re bar Cor rosion:**
Adi-Con CSF(R), by reducing the permeability of concrete, minimizes the chloride penetration, which causes steel rebar corrosion.
- Segregation is Reduced:**
 The addition of fine particles increases the concrete cohesion resulting in lower segregation and bleeding.
- Improvement of Freeze/Thaw Durability:**
 The freeze/thaw resistance is improved as a result of the high tensile strength of the cement paste binder. The air-entrained stability in *Adi-Con CSF(R)* modified concretes improves freeze/thaw resistance.



The Advanced Materials Centre

PRODUCT DESCRIPTION

Basic Use

Adi-Con CSF(R) modified concrete is suitable for new construction and restoration and develops strength and durability difficult to achieve with standard concrete. The compressive strength of 5,000 psi (30-35 MPa) can be increased to 10,000 psi (70 MPa) by addition of *Adi-Con CSF(R)*.

The addition of micro-silica improves the chemical resistance of concrete and is beneficial in the chemical and other industries. *Adi-Con CSF(R)* is used in construction and restoration of floor slabs, columns, equipment bases, concrete tanks and storage vessels.

The low permeability of micro-silica concrete is essential in new construction and restoration of concrete bridges and parking decks, where resistance to chloride penetration is essential.

In wet or dry shot creting, micro-silica reduces rebound, allows a thick overhead application and provides low permeability and high strength.

Composition and Materials

Adi-Con CSF(R) is a two component kit, containing dry micro-silica (silica-fume), chemical admixtures and polymeric fibres. The kit can be added into the ready mix truck on-site or at the plant.

Limitations

Do not apply *Adi-Con CSF(R)* modified mortar or concrete when the temperature is expected to be below 4°C (40°F) within 48 hours, or when rain is imminent. Follow Hot Weather concreting precautions at temperatures exceeding 25°C (77°F) or under sunny and windy conditions. Protect from freezing. Do not over finish the *Adi-Con CSF(R)* mortar and concrete and do not use steel trowel for finishing.

Because of "bleeding", micro-silica modified concrete and mortar is considerably more susceptible to plastic shrinkage cracking. Reduction of the surface water evaporation, even under normal conditions, is essential. Water misting, surface water evaporation retardants or curing compounds applied soon after screeding and finishing help to reduce this condition.

Health and Safety

Adi-Con CSF(R) is a very fine amorphous silicodioxide powder. When handling, wear dust protective mask. Harmful if digested. Keep product out of reach of children. FOR INDUSTRIAL USE ONLY. Consult MSDS for additional information.

Color

Dark Grey or Grey.

Packaging

Adi-Con CSF(R) is supplied as a two-component kit. Component A is packaged in 6.05 kg (13.4 lbs) bags and Component B is packaged in 22.7 kg (50 lbs) bags.

Yield

One (1) kit is suitable for 1.0 m³ (1.3 yd³) of concrete. Contact Gemite Technical Service for information on dosage requirements for concrete, wet and dry shotcrete and other specific applications.

Storage and Transportation

Adi-Con CSF(R), stored on pallets in a dry, cool area, has an unlimited shelf life. Packaged 25 kits per pallet.

TECHNICAL DATA

Complies with AASHTO M307-90 Standard Specification "Microsilica for Use in Concrete and Mortar". Complies with CSA Standard CAN/CSA-A23.5-M86 "Supplementary Cementing Materials". The chemical composition and physical properties are available from Gemite's Technical Service.

INSTALLATION

Current Guide Specification and Application Instructions contain additional information specific to each application and must be followed.

Adi-Con CSF(R) is added to the ready mix truck on-site or at the plant. The exact dosage depends on the concrete mix design and the required performance characteristics of the concrete.

The placement and finishing of *Adi-Con CSF(R)* modified concrete is very similar to the conventional concrete.

Contact Gemite's Technical Service for information regarding mix design, dosage, mixing, placement, finishing and curing for specific uses of micro-silica modified concrete.

Curing

Minimum 3 days moist curing is essential for achieving the benefits of the *Adi-Con CSF(R)* modified concrete.

Clean-up

All tools and equipment must be cleaned with water immediately after use. Cured material can only be removed mechanically.

AVAILABILITY AND COST

Adi-Con CSF(R) is available worldwide. Contact the manufacturer for the name of the nearest Representative/Distributor and for current pricing information.

MAINTENANCE

None required.

WARRANTY

A limited twelve (12) month Material Replacement Warranty is available. For complete details contact Gemite's Head Office.

TECHNICAL SERVICE

Technical advice on the suitability of *Adi-Con CSF(R)* for a specific application, Specification assistance and Application advice is available from Gemite's Technical Service: USA 888-443-6483 or Canada 905-672-2020.

Short Specification

The micro-silica concrete additive will be *Adi-Con CSF(R)* as manufactured by Gemite Products Inc. [USA 888-443-6483] [Canada 905-672-2020]. The micro-silica used in the additive will be in compliance with the AASHTO M307-90, and CAN/CSA-A23.5-M86. It will be used according to the latest manufacturers Guide Specifications and Application Instructions.