

Non-Chloride Accelerator

ADVANTAGES

- Speeds up concrete set-time.
- Provides higher early strength.
- Does not promote steel corrosion.
- Dosage can be increased for faster acceleration.
- Can be easily stored for use as needed.
- Does not require heated warehousing.
- Can be used in all weather.
- Acceleration is dependent on the dosage used.
- The need for protection and heating of concrete in cold climates is reduced or eliminated.
- Allows faster reuse and stripping of forms.
- Suitable for all types of concrete.
- Packaged in a patented water-soluble Fritz-Pak inner bag for convenient use at the plant or job site.

DESCRIPTION

Fritz-Pak NCA is a non-chloride accelerator in powdered form. It is packaged in water soluble bags for easy addition to concrete ready mix trucks. It shortens set times while increasing early compressive strength. Fritz-Pak NCA does not contain calcium chloride or any other materials that promote corrosion in steel or efflorescence in concrete. Unlike some other non-chloride accelerators, such as those containing calcium nitrite, Fritz-Pak NCA is not hazardous. No special handling, storage or transportation expense is required.

DIRECTIONS

1. Determine the amount of NCA required. See Recommended Dosage Rate.
2. Each NCA package is double bagged. Remove the protective outer bag and add the entire water-soluble Fritz-Pak inner bag and contents to the wet concrete mix. The inner bag will easily dissolve.
3. Mix thoroughly for at least 5 minutes at high speed to ensure proper dispersion throughout the mix.
4. When working at low temperatures, users should follow the ACI Guidelines and Specifications for Cold Weather Concreting (ACI 306R-88 and ACI 306.1-90).



RECOMMENDED DOSAGE RATE

Dosage rate varies depending on temperature and the amount of acceleration desired. Increased dosages provide higher acceleration rates. Recommended dosage is 1-3 bags per cubic yard of concrete (1-3 lbs/cwt or 1-3% by weight of cement). Higher dosages may be used for faster acceleration. Dosage percentages are percent of Fritz-Pak NCA by weight of cement.

COMPATIBILITY

Fritz-Pak NCA is compatible with most concrete admixtures. When used with other admixtures, each one should be dispensed separately into the mix. Effectiveness of NCA is dependent on the proportion of C3A to SO3 in the cement. Higher acceleration will be obtained in cements with ratios greater than 4.0. In general, higher accelerations will be obtained in mixes with Type I, III or white cement.

APPLICABLE STANDARDS

ASTM C-494 Types C and E
AASHTO M-154 CRD C-87

continued...

Non-Chloride Accelerator

PACKAGING

- 5-lb (2.27-kg) water soluble bag
8 bags per case
48 cases per pallet (item #98450)
- 50-lb paper bag, 42 bags per pallet

FAQs

- Q. What other effects will this product have on my concrete?
- A. You may notice a slight increase in slump, since the product has some water reducing properties as well.
- Q. Can I use less than one bag per yard?
- A. Yes, you just need to experiment to get the right dosage for your particular needs.



An example of corrosion caused by calcium chloride in concrete.

- Q. Can I use more than three bags per yard?
- A. There's no point. More than 3 bags per yard will not give any faster acceleration.
- Q. What standards does it meet?
- A. It meets ASTM standards C-494 Type C and Type E.
- Q. Will it change the final strength of my concrete?
- A. No.

- Q. Will NCA promote the corrosion of steel in concrete?
- A. No, unlike the commonly-used calcium chloride, Fritz-Pak NCA will not promote corrosion or efflorescence.
- Q. When I use powdered calcium chloride I notice that the water or the calcium chloride gets hot, but it does not happen with NCA. Why?
- A. The heat released by calcium chloride when it dissolves in solution is called heat of solution and is not related to the concrete setting up faster. The heat of solution of NCA is much less than the heat of solution of calcium chloride. That is why it is also a safer product.
- Q. Will Fritz-Pak NCA have any affect on colored concrete?
- A. No. NCA will not cause colors to segregate, the way calcium chloride tends to do in concrete containing integral color.

PRECAUTIONS

All Fritz-Pak Concrete Admixtures should be stored in a dry location, protected from breakage, deterioration and contamination. They are not subject to damage from freezing temperatures. However, the inner bag may become somewhat brittle at very low temperatures and should be handled carefully.

WARRANTY

The information and recommendations in this publication are, to the best of our knowledge, reliable. Suggestions made concerning uses or applications are only the opinion of Fritz-Pak Corporation and users should make their own tests to determine the suitability of these products for their own particular purposes. Because of numerous factors affecting results, Fritz-Pak Corporation makes no warranty of any kind, expressed or implied, including those of merchantability and fitness for purpose. Statements herein, therefore, should not be construed as representations or warranties. The responsibility of Fritz-Pak Corporation for claims arising out of breach of warranty, negligence, strict liability, or otherwise are limited to the purchase price of the materials.

U.S. Patents No. 4,961,790 and No. 5,120,367.

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FRITZ-PAK NCA

Non-Chloride Accelerator

- ### ADVANTAGES
- Accelerates the set-time
 - Provides higher early strength
 - **NCA** does not promote steel corrosion.
 - Dosage can be increased for faster acceleration
 - **NCA** can be easily stored for use as needed.
 - The material does not require heated warehousing.
 - Can be used in all weather.
 - Acceleration is dependent on the dosage used.
 - The need for protection and heating of concrete in cold climates is reduced or eliminated.
 - Allows faster reuse and stripping of forms.
 - Suitable for all types of concrete.
 - **NCA** is packaged in a patented water-soluble Fritz-Pak inner bag for convenient use at the plant or job site.

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Dosage rate varies depending on temperature and the amount of acceleration desired. Increased dosages provide higher acceleration rates. Recommended dosage is 1-3 bags per cu yard of concrete (1-3 lbs/ cwt – 1-3% by weight of cement). Higher dosages may be used for faster acceleration. Some typical effects of Fritz-Pak **NCA** at different temperatures are presented below. Dosage percentages are percent of Fritz-Pak **NCA** by weight of cement.

Table 1. Observed changes in set time with use of **Fritz-Pak NCA** at different temperatures and different dosages. Dosage expressed in percent of **Fritz-Pak NCA** by weight of cement.

TEMPERATURE		INITIAL SET TIME (HH:MM)			FINAL SET TIME (HH:MM)		
°C	°F	Control	1% NCA	2% NCA	Control	1% NCA	2% NCA
4.4	39	7:12	5:24	3:48	11:36	8:42	6:48
21.3	66	4:18	3:12	2:18	6:18	4:36	3:54
38.1	93	2:12	1:36	1:24	3:36	3:06	2:24
TEMPERATURE		INITIAL SET ACCELERATION (HH:MM)			FINAL SET ACCELERATION (HH:MM)		
°C	°F	Control	1% NCA	2% NCA	Control	1% NCA	2% NCA
4.4	39	00:00	1:48	3:24	00:00	2:54	4:48
21.3	66	00:00	1:06	2:00	00:00	1:42	2:24
38.1	93	00:00	0:36	0:48	00:00	0:30	1:12

continued...

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APPLICABLE STANDARDS

ASTM C-494 Types C and E. Certification pending.

Notes:

PACKAGING

Fritz-Pak **NCA**

- 5 lb (2.27 kg) water soluble bag, 8 bags per case, 384 bags per pallet (item #98450)

PRECAUTIONS AND STORAGE

All Fritz-Pak Concrete Admixtures should be stored in a dry location, protected from breakage, deterioration and contamination. They are not subject to damage from freezing temperatures. However, the inner bag may become somewhat brittle at very low temperatures and should be handled carefully.

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U.S. Patents No. 4,961,790 and No. 5,120,367.

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