



STANDARD DELAYED SET

Product Bulletin #104

Delayed Set Admixture

ADVANTAGES

- Keeps concrete in a plastic state for reuse or extended delivery time requirements
- Fewer environmental problems associated with the disposal of waste concrete
- Saves labor, equipment and freight cost by eliminating disposal of waste concrete
- Eliminates the need for expensive reclaiming or recycler units with high maintenance costs
- Improves concrete workability
- Allows wash water stabilization for extended periods of time
- No need for admixture dispensers because **Standard Delayed Set** is packaged in water-soluble Fritz-Pak inner bag for convenient use at the plant or job site.

DESCRIPTION

Fritz-Pak **Standard Delayed Set** is a dry powdered admixture, packaged in a ready-to-use water soluble bag. **Standard Delayed Set** is formulated to extend the setting time of concrete while improving concrete quality. It does not contain any calcium chloride or other potentially corrosive materials and is compatible with all standard concrete admixtures.

DIRECTIONS

Standard Delayed Set should be added to plastic concrete as soon as job site conditions permit. Review cement and fly ash content from batch ticket and check actual concrete temperature. As with all admixtures, the effectiveness of **Standard Delayed Set** is reduced as concrete age and temperature increases.

1. Calculate how much **Standard Delayed Set** is required. See Recommended Dosage Rate.
2. Each **Standard Delayed Set** package is double bagged. Remove the protective outer bag and add the water-soluble Fritz-Pak inner bag to water or concrete mix. The entire bag will easily dissolve.
3. Agitate at high speed for 5 to 7 minutes to insure that the **Standard Delayed Set** is uniformly dispersed throughout the mix.
4. Concrete will gain from 2 to 6 inches (5 to 15 centimeters) in slump. Air content may increase slightly, depending on dosage rate and mix design. The concrete will gradually return to the original slump and air content when the set delay is completed.
5. **Standard Delayed Set** concrete may be

used with or without the addition of fresh concrete.

6. If delayed set concrete must be used earlier than planned, mix concrete at high speed or add additional fresh concrete to compensate for the remaining set delay.
7. If delayed set concrete must be used later than planned and concrete has not returned to its original slump, more **Standard Delayed Set** may be added.

RECOMMENDED DOSAGE RATE

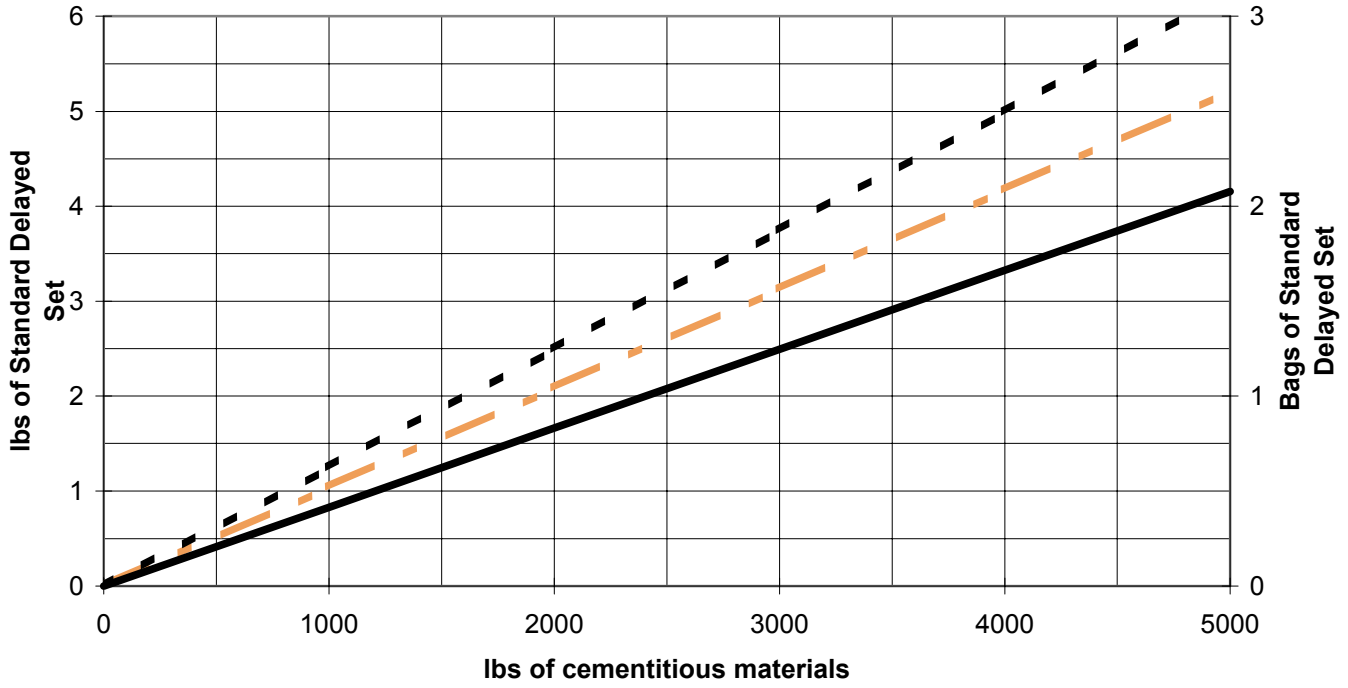
Use 1.0-1.67 ounces per 100 pounds (0.67-1.0 grams per kilogram) of total cementitious materials for every hour of set delay required. Refer to the **Standard Delayed Set** Dosage Rate Charts to determine quantities required for one or three hours set delay. For dosage rates outside the range of the charts use the dosage rates presented in Table 1. For extended or shorter delays, increase or decrease dosage proportionately. Concrete temperature, air temperature or concrete mixes containing accelerators, retarders, or special admixtures such as silica fume may require dosage rates outside the recommended range. Contact your Fritz-Pak distributor with any questions concerning the dosage rates for this product. We recommend that testing be done to determine the suitability of **Standard Delayed Set** to your mix designs.

COMPATIBILITY

Standard Delayed Set is compatible with all air-entraining admixtures, calcium chloride and other admixtures. When used with other admixtures, each one must be dispensed separately into the mix.

Standard Delayed Set Dosage Rate for One Hour Delay

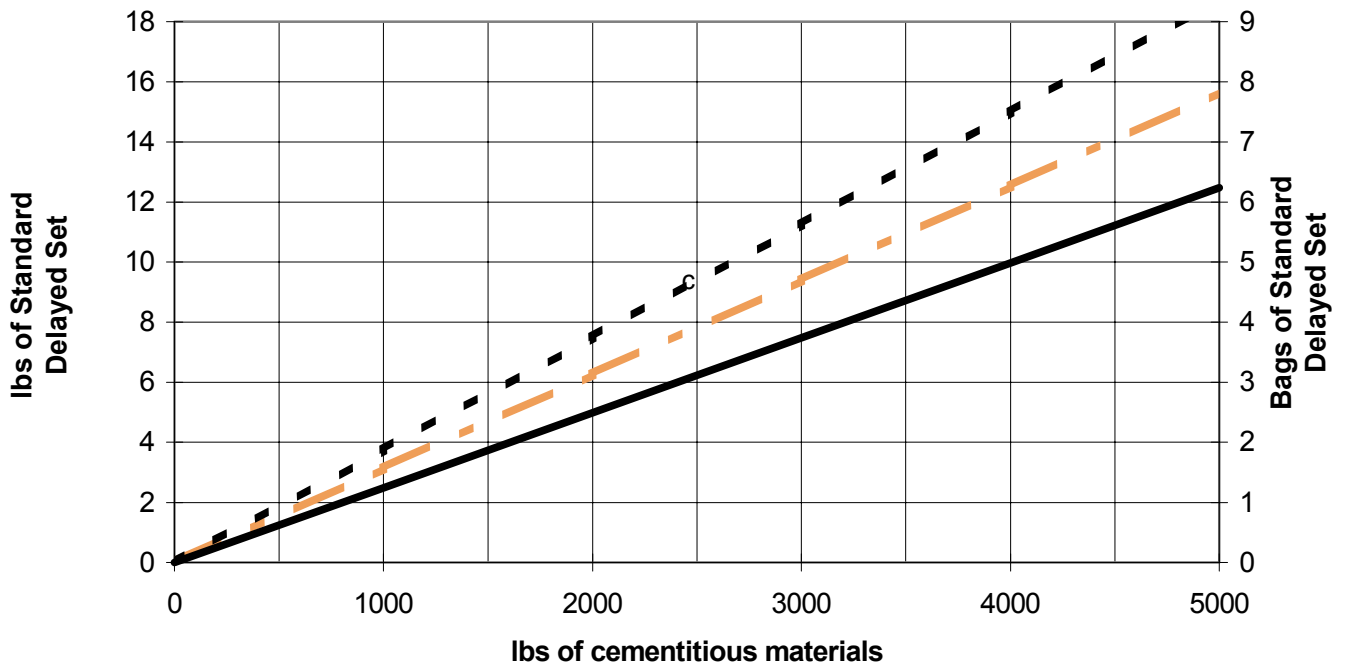
- Normal Weather
- Cold Weather
- - Hot Weather



**Use these charts for concrete batched in pounds and
using 2-lb bags of Standard Delayed Set**

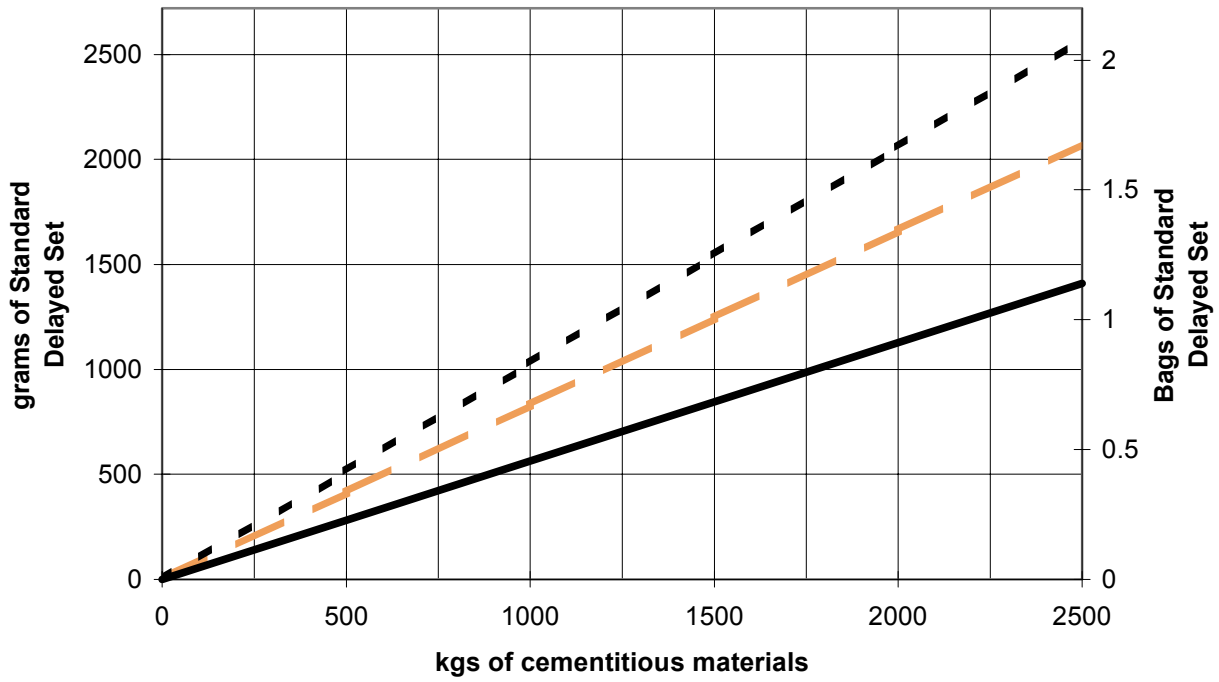
Standard Delayed Set Dosage Rate for Three Hour Delay

- Normal Weather
- Cold Weather
- - Hot Weather



**Standard Delayed Set
Dosage Rate for One Hour Delay**

- Normal Weather
- - - Hot Weather
- Cold Weather



Use these charts for concrete batched in kilograms and using 1360-gram bags of Standard Delayed Set

**Standard Delayed Set
Dosage Rate for Three Hours Delay**

- Normal Weather
- - - Hot Weather
- Cold Weather

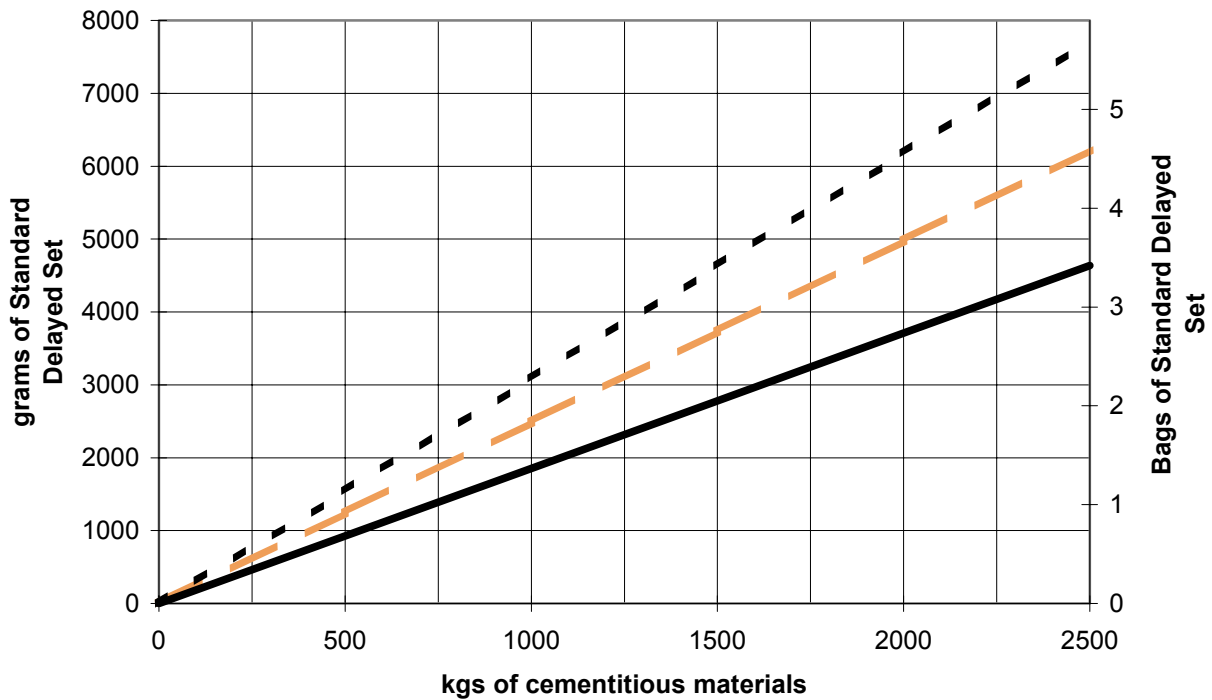


Table 1. Dosage rate for each hour of set retardation at different temperatures.

Temperature (°F/°C)	Dosage Rate oz/cwt (ounces of Standard Delayed Set per hundred lbs of cement)	Dosage Rate Grams of Standard Delayed Set per kg of cement
Cold Weather (less than 60°F or 15°C)	1.0	0.62
Normal Weather (60-80°F / 15-27°C)	1.3	0.83
Hot Weather (higher than 80°F or 27°C)	1.7	1.03

APPLICABLE STANDARDS

ASTM C-494 Type D, AASHTO M-194 & CRD C-87

PACKAGING

Fritz-Pak **Standard Delayed Set**

- 2 lb (908 grams) water soluble bag, 18 bags per case (item #95200)
- 1360 gram water soluble bag, 10 bags per case (item #95300)
- 50 lb (22.7 kg paper bag (item #95250)

Also available:

Fritz-Pak **Mini Delayed Set**

- 8 oz/227 gram water soluble bag, 60 bags per case (item #95050)

PRECAUTIONS

All Fritz concrete admixtures should be stored in a dry location, protected from breakage, deterioration and contamination. They are not subject to damage from freezing temperatures.

DISCLAIMER

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.

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Also available:

- **Mini Delayed Set**
Small (8-oz) bag retarder for emergencies, small concrete batches, concrete pump hoppers or for wash-water stabilization
- **FR-1**
Retarder with water reduction capabilities.
- **Fly Ash Retarder**
Retards set of Class "C" Fly-Ash Use for soil stabilization, manufacturing of "C" Class ash based products.
- **Specialty Retarders**

Manufactured by:

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Contact Fritz-Pak for information on:

- **Concrete Set Retarders**
- **Superplasticizers**
- **Air-Entraining Agents**
- **Pump Primers/Pumping Aids**
- **Water Reducers**
- **Non-Chloride Accelerators**
- **Finishing Aids**
- **Non-Shrink Grout Additives**
- **Concrete Surface Retarders**
- **Admixture Concentrates for Dry Packaged Blenders**