

POZZUTEC® 20

Patented non chloride accelerator with year-round versatility

DESCRIPTION/USES:

POZZUTEC® 20 admixture is a multi-component, nonchloride, water-reducing and accelerating admixture formulated to accelerate concrete setting time and increase early and ultimate strengths across a wide range of ambient temperatures (hot, mild, cold and sub-freezing).

POZZUTEC 20 admixture was developed for use in sub-freezing weather to allow concrete placement at ambient temperatures as low as 20 °F (-7 °C) without freezing in its plastic state. The unique chemistry and performance of POZZUTEC 20 admixture has earned Master Builders a U.S. patent.

This admixture has year-round versatility as a nonchloride accelerator in cold, mild and hot temperatures.

POZZUTEC 20 admixture meets ASTM C 494 requirements for Type C, accelerating admixtures, and Type E, water-reducing and accelerating admixtures. It is recommended for use in the following applications:

- All concrete where accelerated setting time and increased early and ultimate strengths are desired
- Reinforced, precast, pumped, flowable, lightweight or normal weight concrete, and shotcrete (wet mix)
- Concrete placed on galvanized steel floor and roof systems which are left in place
- Prestressed concrete—either pretensioned or posttensioned
- Fast track concrete construction
- Concrete subject to chloride ion constraints

ADVANTAGES:

POZZUTEC 20 admixture facilitates the production of quality concrete through these special benefits:

- Superior workability
- Superior finishing characteristics for flatwork and cast surfaces
- Accelerated setting time
- Earlier finishing of slabs—reduced labor costs
- Reduced in-place concrete costs
- Reduced or eliminated heating and protection time in cold weather
- Increased early and ultimate compressive and flexural strengths
- Earlier stripping and reuse of forms

PERFORMANCE CHARACTERISTICS IN MILD WEATHER:

Mix Data	POZZUTEC 20
Admixture	10, 15, 20 (650, 975, 1,300)
Dosage, fl oz/cwt (mL/100 kg)	470 (279)
Type I-II cmt lb/yd ³ (kg/m ³)	4 ± 1/4 (100 ± 5)
Slump, in. (mm)	Non-air-entrained concrete
Air Content %	
Setting Time vs. Dosage Rate	
Concrete Temperature: 70 °F (21 °C)	
Ambient Temperature: 70 °F (21 °C)	

Mix	Time of Set	
	Initial Set h:min	Comparison h:min
Plain	5:40	REF
POZZUTEC 20		
10 fl oz/cwt (650 mL/100 kg)	4:15	-1:25
15 fl oz/cwt (975 mL/100 kg)	3:55	-1:45
20 fl oz/cwt (1,300 mL/100 kg)	3:20	-2:20

COLD WEATHER:

Mix Data	POZZUTEC 20
Admixture	10, 15, 20 (650, 975, 1,300)
Dosage, fl oz/cwt (mL/100 kg)	517 (307)
Type I cmt lb/yd ³ (kg/m ³)	6 1/4 ± 1/4 (160 ± 5)
Slump, in. (mm)	Non-air-entrained concrete
Air Content %	
Setting Time vs. Dosage Rate	
Concrete Temperature: 50 °F (10 °C)	
Ambient Temperature: 50 °F (10 °C)	

Mix	Time of Set	
	Initial Set h:min	Comparison h:min
Plain	10:40	REF
POZZUTEC 20		
10 fl oz/cwt (650 mL/100 kg)	7:45	- 2:55
15 fl oz/cwt (975 mL/100 kg)	7:05	- 3:35
20 fl oz/cwt (1,300 mL/100kg)	5:30	- 5:10

SUB FREEZING WEATHER:

Mix Data	POZZUTEC 20
Admixture	90 (5,850)
Dosage, fl oz/cwt (mL/100 kg)	726 (430)
Type I cmt lb/yd ³ (kg/m ³)	8 1/4 ± 1/4 (210 ± 5)
Slump, in. (mm)	Non-air-entrained concrete
Air Content %	
Setting Time and Strength Performance	
Concrete Temperature: 73 °F (23 °C)	
Ambient Temperature: 25 °F (-4 °C)	

	Plain	POZZUTEC 20
Time of Set @ 25 °F (-4 °C) (Initial Set – h:min)	11:55*	6:00
Compressive Strength – psi (MPa)	490	1,600
3-day @ 25 °F (-4 °C)	(3.4)	(11.0)
7-day+	1,200 (8.3)	5,820 (40.1)
28-day+	2,620 (18.1)	8,120 (56.0)

* Petrographic examination indicated evidence of freezing in the plastic state.
+ Specimens stored at 25 °C (-4 °C) for 3 days and at 50 °F (10 °C) until time of testing

QUANTITY TO USE:

The specific dosage rate of **POZZUTEC 20** admixture is dependent on ambient and concrete temperatures, cement chemistry, concrete mix proportions, and the amount of set time acceleration needed and strength performance required. Listed below are the recommended dosage ranges for various weather applications.

RECOMMENDED DOSAGE FOR HOT, MILD AND COLD WEATHER APPLICATIONS:

Use 5 to 60 fl oz per 100lb (325 to 3,910 mL per 100kg) of cement. As the dosage rate of **POZZUTEC 20** admixture is increased, setting time is accelerated, and early and ultimate strengths are increased. Field tests have demonstrated that the most effective dosage range is 5 to 20 fl oz per 100 lb (325 to 1,300 mL per 100 kg) of cement.

RECOMMENDED DOSAGE FOR SUB-FREEZING WEATHER APPLICATIONS:

Use 60 to 90 fl oz per 100 lb (3,910 to 5,870 mL per 100 kg) of cement to reduce the freezable water content of the mix, to accelerate setting time, and to provide early protection against freezing in order to permit concrete placement at sub-freezing temperatures.

Concrete with **POZZUTEC 20** admixture can be placed in subfreezing ambient temperatures and may reduce or eliminate recognized protective measures and required protection time in cold weather concreting applications. See ACI 306.1, "Standard Specification for Cold Weather Concreting," and ACI 306 committee report, "Cold Weather Concreting" for recommended protection in cold weather.

Exposure to air movement, concrete surface to mass ratio, and mix proportions all affect performance under extreme cold weather conditions. Conservation of the concrete's heat of hydration through the use of wind protection and/or insulation will permit placement in subfreezing ambient temperatures. **Field evaluations should be conducted with the mix design and the local materials to determine:** the optimum dosage rate of **POZZUTEC 20** admixture required for desired setting time and strength performance; the minimum acceptable ambient and concrete temperatures for placement; and, if the recognized protective measures and the required protection time for cold weather concreting may be reduced or eliminated.

USE WITH OTHER ADMIXTURES:

POZZUTEC 20 admixture can be used as a singular admixture or as a component in a Master Builders admixture system. When used with other admixtures, each admixture must be dispensed separately into the mix.

In sub-freezing temperatures, the only admixture recommended for use with POZZUTEC 20 admixture (other than an air entraining admixture) is Rheobuild 1000 admixture to obtain increased water reduction and strength performance.

PACKAGING:

POZZUTEC 20 admixture is supplied in 55 U.S. gallon (208 liter) drums and by bulk delivery.

TEMPERATURE PRECAUTION:

Store at 50 °F (-10 °C) or above. If **POZZUTEC 20** admixture freezes, thaw at 35 °F (2 °C) or above and completely reconstitute by mild mechanical agitation. Do not use pressurized air for agitation.

NON CHLORIDE, NON CORROSIVE:

POZZUTEC 20 admixture will not initiate or promote corrosion of reinforcing steel in concrete. This admixture does not contain intentionally added calcium chloride or chloride-based ingredients. The admixture, due to chlorides originating from all the ingredients used in its manufacture, contributes less than 0.00005 % (0.5 ppm chloride ions by weight of the cement when used at a dosage rate of 1 fl oz per 100 lb (65 mL per 100 kg) of cement.

For additional information on **POZZUTEC 20** admixture or on its use in developing a concrete mixture with special performance characteristics, contact your local Master Builders representative.

NOTE: Concrete containing **POZZUTEC 20** admixture—
(1) which will be exposed to sub-freezing weather conditions must be sealed to prevent the ingress of additional water to hardened concrete during curing in place. A surface sealer must be applied as soon as the concrete reaches initial set or finishing is complete.
(2) should be protected against wind to avoid evaporation of surface moisture.

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