

Set accelerating admixture

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EN934 part 2 table 6

Description of Product

POZZOLITH[®] 555 is a ready to use liquid admixture formulated to accelerate setting time and to produce high early strength in special application concretes.

Fields of Application

POZZOLITH[®] 555 is recommended for use in:

- Concrete to be placed on galvanised steel flooring and roof systems.
- Pre-stressed concrete (either pre-tensioned or post-tensioned)
- Concrete bridge deck repair
- Concrete pipe
- Concrete containing steel reinforcement

Neither calcium chloride nor any other intentionally added chloride-containing ingredients are used in the manufacture of POZZOLITH[®] 555 admixture. Therefore, POZZOLITH[®] 555 admixtures will not initiate or promote corrosion of steel embedded in concrete.

Features and Benefits

The compressive and the flexural strengths of concrete containing POZZOLITH[®] 555 Accelerator admixture will develop more rapidly compared to plain concrete. Benefits to concrete construction and to the manufacture of concrete products because of the increase in early strengths are as follows:

- Earlier stripping and re-use of forms for walls and pre-cast work
- Earlier structural use of concrete, as in lift-slab construction, tilt-up, paving and floors.
- Earlier tensioning in post-tensioned concrete
- Earlier de-tensioning in pre-stressed concrete
- Potential energy savings in accelerated steam-cured applications (pre-stressed concrete)
- Potential energy savings in accelerated steam-cured applications (pre-stressed/pre-cast) by reducing curing temperatures and/or the curing time necessary to reach the desired strengths.

Technical Data/Typical Properties

Appearance	Light brown to clear liquid
Specific gravity @ 20°C	1.390 g/cm ³
pH-value	4.75
Alkali content (%)	Less than or equal to 2.5
Chloride content (%)	Less than or equal to 0.10
Chlorine content (%)	Less than or equal to 0.10

Typical Results

The following are examples of results obtained using POZZOLITH® 555.

Mix

- Non air entrained concrete containing 305 Kg ordinary Portland cement per cubic metre
- Plain mix v. mix containing 2% calcium chloride vs POZZOLITH® 555 at various dosages.
- Concrete and Ambient Temperature is 10°C.
- All mixes @ 110 -130 mm slump.

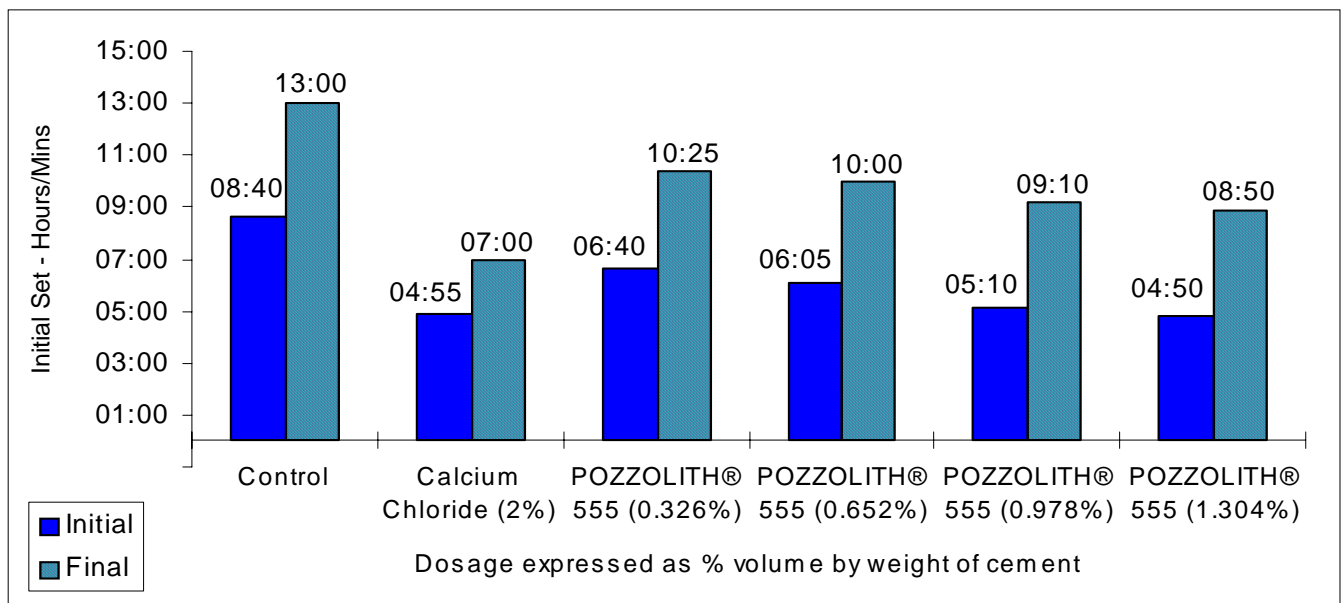


Table 1: Setting time performance at variable dosage rates compared to plain concrete and 2% calcium chloride. Concrete and ambient temperature 10°C.

Non-Air-Entrained Concrete							
Performance data							
Mix Design	Cement (Kgm ⁻³)	Slump (mm)	Air (%)	Time of Set (1)			
				Initial Set (Hours:Min)	Comparison (Hours:Min)	Final Set (Hours:Min)	Comparison (Hours:Min)
Plain	303	127	2.4	8:40	Ref.	13:00	Ref
CaCl ₂ 2%	305	114	2.2	4:55	-3:45	7:00	-6:00
POZZOLITH® 555 addition (100 Kg ⁻¹ cement)							
326 ml	306	121	2.0	6:40	-2:00	10:25	-2:35
652 ml	305	114	2.2	6:05	-2:35	10:00	-3:00
978 ml	304	121	2.2	5:10	-3:30	9:10	-3:50
1304 ml	306	121	1.8	4:50	-3:50	8:50	-4:10

Application Procedure**Set Acceleration**

Concrete with POZZOLITH® 555 has a significantly faster setting time than plain concrete (Figures 1-4). Increasing the dosage rate of this product increases set acceleration. Tests have demonstrated that POZZOLITH® 555 admixture can produce setting time acceleration equivalent to that produced when 2% calcium chloride is added to a concrete mix (Table 1). This is dependant on the type and source of the cement.

Particularly beneficial in cold weather, reduction in setting time allows for the earlier finishing of concrete. This can result in substantial time and money savings in construction through better scheduling, fewer cold weather delays, faster construction and earlier occupancy.

Compatibility

POZZOLITH® 555 can be used with air-entraining admixtures approved under ASTM and CRD specifications when air-entrained concrete is desired. This admixture can also be used in conjunction with other BASF Construction Chemicals (UK) admixtures conforming to BS 5075: Part 2 to achieve cost-effective, customised concrete performance. When used with other admixtures, each admixture must be dispensed separately into the mix with POZZOLITH® 555 added last.

Dosage

POZZOLITH® 555 has been evaluated for use in concrete up to:

By Volume – 1.87 litres per 100 kg of cement (binder).

By Mass – 2.60 kg per 100 kg of cement (binder).

The dosage rate is dependent upon the ambient and concrete temperatures involved, cement type and degree of acceleration required. Field tests have demonstrated that the **most effective dosage range is:**

By Volume – 0.58 to 0.94 litres per 100 kg of cement (binder).

By Mass – 0.8 to 1.3 kg per 100 kg of cement (binder).

BASF IBC Admixture Systems do not advise employing usage rates outside the suggested dosage range without consulting BASF IBC Admixture Systems Technical Services Department. Trial mixes should be made with job materials and approximating job conditions to determine optimum dosage rates and performance.

Shelf Life

Minimum 12 months when stored in accordance with the Manufacturer's instructions.

Packaging

POZZOLITH® 555 is available in 210 litre drums. Bulk deliveries available on request.

Storage

Store at 12°C or above. If POZZOLITH® 555 admixture has frozen, thaw at 2°C or above and completely reconstitute by mild mechanical agitation. Do not use pressurised air for agitation. Store under cover, out of direct sunlight and protect from extremes of temperature. Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice consult our Technical Services Department.

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Health and Safety

*For full information on Health and Safety matters regarding this product the relevant Health and Safety Data Sheet should be consulted.

The following general comments apply to all products.

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs, (which may also be tainted with vapour until the product is fully cured and dried). Treat splashes to eyes and skin immediately. If accidentally ingested, seek medical attention. Keep away from children and animals. Reseal containers after use.

Spillage

Chemical products can cause damage; clean spillage immediately.

DISCLAIMER

"BASF IBC Admixture Systems Limited" (the Company) endeavours to ensure that advice and information given in Product Data Sheets, Method Statements and Material Safety Data Sheets (all known as Product Literature) is accurate and correct. However, the Company has no control over the selection of its products for particular applications. It is important that any prospective customer, user or specifier, satisfies him/her-self that the product is suitable for the specific application. In this process, due regard should be taken of the nature and composition of the background/base and the ambient conditions both at the time of laying/applying/installing the material and when the completed work is to be brought into use.

Accordingly, no liability will be accepted by the Company for the selection, by others, of a product, which is inappropriate to a particular application.

Products are sold subject to the Company's standard conditions of sale and all customers, users and specifiers, should ensure that they examine the Company's latest Product Literature.