BASF
The Chemical Company

RHEOBUILD® 1100

A high range water reducing superplasticising admixture for the production of rheoplastic concrete

Description

The basic components of RHEOBUILD® 1100 are synthetic polymers which allow mixing water to be reduced considerably and concrete strength to be enhanced significantly, particularly at early ages. RHEOBUILD® 1100 is a chloride free product.

Primary uses

- Precast concrete.
- Low water/cement ratio concrete.
- In complicated formwork or with congested reinforcement.

Advantages

RHEOBUILD® 1100 allows the production of very flowable concrete, with a low water / cement ratio. Table 1 shows some typical examples of reductions in w/c ratio. Concrete with RHEOBUILD® 1100 shows strengths higher than concrete without admixture having the same workability. The increase in strength, specially evident at early ages remains at later ages, both in air cured and steam cured processes. Initial and final sets do not change significantly with respect to concrete without admixture. Therefore, whenever longer transport and finishing times are needed, the use of retarding superplasticisers, such as RHEOBUILD® 561M or RHEOBUILD® MICRAFLOW are recommended.

Due to the reduction in the water / cement ratio, all other properties of hardened concrete improve significantly, namely; lowered permeability, shrinkage and creep, increased workability and modulus of elasticity.

For more detailed information on the influence of superplasticisers on hardened concrete properties, consult your local BASF representative.

Compatibility

RHEOBUILD® 1100 is compatible with all cements and admixtures meeting ASTM standards.
The use of RHEOBUILD® 1100 and MICRO-AIR 100 air entraining agent is recommended whenever concrete is required to withstand freeze / thaw cycling.

Packaging

RHEOBUILD® 1100 is available in bulk or 210 litre drums.

*Typical properties

Colour:	Dark brown liquid
Specific gravity:	1.210 at 25°C
Chloride content:	“chloride-free” to EN 934-2
Freezing point:	0°C

Standards

EN 934-2 Tables 3.1 and 3.2
ASTM C-494 Types A and F
BS 5075 Part 1 & 3 (superseded by EN 934-2)

Dosage

RHEOBUILD® 1100 is normally dispensed at a rate of 0.8-1.5 litres per 100kg of cement. Subject to successful trials, other dosages may be used up to a rate of 3 litres per 100kg of cementitious material.

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Directions for use

RHEOBUILD® 1100 should be added to the mix with the gauging water.

No extension to the mixing time is necessary. Never add RHEOBUILD® 1100 to dry cement.

Alternatively, when using RHEOBUILD® 1100 to produce flowing concrete at site using ready mix trucks, it can be added to the concrete via the feed hopper at the rear of the truck. Mix before discharge for 3 minutes at 10rpm to produce a fully homogenous mix.

When using RHEOBUILD® 1100 to obtain very high early strengths, advantage must be taken of its water reducing properties.

Effects of over dosage

A severe over-dosage of RHEOBUILD® 1100 will result in the following:

- Retardation of initial and final set.
- Slight increase in air entrainment.
- Increase in workability.

Dispensing

RHEOBUILD® 1100 is introduced into the mixer together with mixing water. The plasticising effect or water reduction is higher if the admixture is added to the concrete after 50-70% of the mixing water has been added. The addition of RHEOBUILD® 1100 to dry aggregate or cement is not recommended.

Storage

Store under cover, out of direct sunlight and protect from extremes of temperature. Shelf life is at least 2 years when stored as above. Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice consult BASF's Technical Services Department.

Safety precautions

RHEOBUILD® 1100 contains no hazardous substances requiring labelling. For further information refer to the material safety data sheet.

Note

Field service, where provided, does not constitute supervisory responsibility. For additional information contact your local BASF representative.

BASF reserves the right to have the true cause of any difficulty determined by accepted test methods.

Quality and care

All products originating from BASF's Dubai, UAE facility are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001, ISO 14001 and OHSAS 18001.

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Table 1
Typical examples of the influence of RHEOBUILD® 1100 on strength of concrete cured at 20°C or steam cured (cement content = 350 kg/m³; aggregate max. size = 20 mm).

				Curing at 20°C				Steam curing			
				(days) Strength N/mm²							
Type of cement	RHEOBUILD® 1100 litres per 100kg cement	w/c ratio	Slump (cm)	1	3	7	28	1	3	7	28
Ordinary Portland cement	0 1	0.60 0.47	21.5 22.0	5.6 10.4	13.1 24.5	25.3 42.8	33.8 51.6	17.3 29.1	20.1 32.3	26.2 38.3	33.2 46.2
High strength Portland cement	0 1	0.63 0.50	21.0 21.0	8.2 11.6	14.8 23.2	29.6 42.5	38.3 52.5	21.1 28.8	24.1 32.9	30.8 42.1	38.5 52.7
High strength and rapid hardening Portland cement	0 1	0.59 0.43	21.0 21.5	14.6 21.0	25.3 41.2	39.7 53.2	44.1 60.0	30.4 40.2	33.1 44.2	39.6 54.6	42.7 59.4

3 hours precuring at 20°C steam heating from 20°C to 70°C in 3 hours: steam curing at 70°C for 6 hours: cooling from 70°C to 20°C in 6 hours time; curing finishing at 20°C.

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* Properties listed are based on laboratory controlled tests.

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