

# 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

- Production of rheoplastic self compacting concrete.
- 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 IR is 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.

## 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 220 kg.drums and 1100kg. containers.

## Typical properties\*

\* Properties listed are only for guidance and are not a guarantee of performance

Colour:	Brown free flowing liquid.
Specific gravity:	1.195 – 2.00 at 25°C.
Air entrainment:	Maximum 1%.
Chloride content:	Nil to BS 5075.
Nitrate content:	Nil.

## Standards

ASTM C-494 Types A and F  
BS 5075 Part 1 & 3

## Dosage

RHEOBUILD 1100 is normally dispensed at a rate of 0.8 - 1.2 Litres per 100kg of cement. Other dosages may be used, depending on the materials and conditions.

## 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.

## 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.

## 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 1 year 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 Degussa'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 Degussa representative.  
Degussa reserves the right to have the true cause of any difficulty determined by accepted test methods.

## Quality

All products produced by Degussa certified manufacturing facilities, are produced to conform to systems designed to meet internationally recognised quality standards.

**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/m<sup>3</sup>; aggregate max. size = 20 mm).

Type of cement	RHEOBUILD 1100 litres per 100kg cement	w/c ratio	Slump (cm)	Curing at 20°C				Steam curing			
				(days) Strength N/mm <sup>2</sup>							
				1	3	7	28	1	3	7	28
Ordinary Portland cement	0	0.60	21.5	5.6	13.1	25.3	33.8	17.3	20.1	26.2	33.2
	1	0.47	22.0	10.4	24.5	42.8	51.6	29.1	32.3	38.3	46.2
High strength Portland cement	0	0.63	21.0	8.2	14.8	29.6	38.3	21.1	24.1	30.8	38.5
	1	0.50	21.0	11.6	23.2	42.5	52.5	28.8	32.9	42.1	52.7
High strength and rapid hardening Portland cement	0	0.59	21.0	14.6	25.3	39.7	44.1	30.4	33.1	39.6	42.7
	1	0.43	21.5	21.0	41.2	53.2	60.0	40.2	44.2	54.6	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.