

ADVA[®] CAST 554

High Range Water Reducer / Superplasticiser for High Early Age Strength in Precast Applications

Product Description

ADVA[®]CAST 554 is a powerful superplasticiser with accelerating properties designed to yield high range water reduction, short setting time and very high early compressive strength as required by the precast industry.

ADVA[®]CAST 554 superplasticiser allows concrete to be produced with low water/cement ratios for high early and final compressive strength. ADVA[®]CAST 554 is ideal for use in all precast / pre-stressed structures where high range water reduction and accelerated early strength development are needed for early de-moulding and/or heat energy savings.

ADVA[®]CAST 554 is based on synthetic carboxylated polyether and conforms to EN 934-2 and manufactured under controlled conditions to give a consistent product.

Advantages

- ADVA[®] CAST 554 is especially suitable for producing high range water reductions, allowing considerable increases in compressive strength
- Impermeability and durability are correspondingly improved. In this application, near neutral setting time is observed
- The accelerating strength development given by ADVA[®] CAST 554 means that casting can continue in cold weather reducing the energy requirements of external heat curing
- Suitable for use in mix designs containing fly ash, ggbs or silica fume
- ADVA[®] CAST 554 provides superior concrete surface finish characteristics with reduced surface defects

Typical Properties

ADVA [®] CAST 554	
Appearance	Pale Straw Liquid
Specific Gravity (20°C)	1.080
Alkali Content (eq.Na ₂ O)	0.40%
Chloride Content	Nil
Air Entrainment	1.0 %
Freezing Point	0°C

Method Of Use

ADVA[®]CAST 554 is supplied ready for use.

When producing high consistence concrete or concrete of low w/c ratio it is recommended that ADVA[®]CAST 554 be added in its supplied form with part of the batching water, after the addition of the cement. After the addition of admixture, a further mixing cycle of two minutes is suggested to enable ADVA[®]CAST 554 to efficiently disperse the mix components.

Compatibility with Cements

ADVA[®]CAST 554 can be used with most types of Portland cements. It is also effective in concrete containing fly ash or ground granulated blastfurnace slag.

For use with special cements we recommend contacting GCP.

Compatibility with Other Admixtures

ADVA[®]CAST 554 should not under any circumstances be premixed with other admixtures. The performance of the product will be affected by the presence of other chemical admixtures.

We recommend that all admixtures be added separately into the mix.

Addition Rates

Range	400 ml - 1000 ml per 100 kg cement
	0.40% - 1.00% (v/w) by wt. of cement
As a guide to trials an addition rate of 0.60 - 0.80% volume by weight of cement is suggested.	
For advice and assistance with trials we recommend that you consult GCP Applied Technologies.	

As with most products of this type, the magnitude of the effect obtained with ADVA[®]CAST 554 is governed by the quantity of product used, w/c ratio, and specific nature of the concrete and constituent materials. It is necessary therefore to assess performance under site conditions using actual materials to determine optimum dosage and effect on plastic/ hardened concrete properties, such as cohesiveness, consistence retention, set characteristics, early rate of strength gain, ultimate compressive strength and shrinkage when these are of consequence.

Effects of Overdosing

The effect of overdosing ADVA[®]CAST 554 is a function of the degree of overdose.

When producing high consistence concrete, overdosing will increase the level of consistence and may induce the onset of segregation, or if the water content is adjusted accordingly allowing even greater water reduction which causes the mix to become overly cohesive. Only when there are large overdoses will an increase in setting time be significant.

Any situation where an overdose is suspected, careful inspection of the concrete in its plastic state should be conducted. Particular attention to consistency and cohesiveness prior to a decision on the suitability of the concrete for the particular application in question.

Dispensing

It is preferable that ADVA®CAST 554 should be introduced into the concrete mixer by means of automatic dispensing equipment.

Equipment or advice on dispensing can be obtained from GCP Applied Technologies.

Health and Safety

For further information on Health and Safety matters regarding this product we recommend that you consult the relevant Safety Data Sheet from GCP Applied Technologies.

In line with general chemical handling precautions avoid contact with skin or eyes and protective gloves/goggles should be worn.

Packaging and Storage

ADVA®CAST 554 is supplied in both 15 or 205 non returnable drums and 1,000 litre totes.

Alternatively, bulk deliveries can be arranged.

ADVA®CAST 554 should when possible be stored away from extremes of temperature and then protected from frost. The product should be kept out of direct sunlight in shaded storage at all times.

Storage Life in Manufacturer 's Drums :

12 months from date of manufacture.

Storage Life in Bulk Storage:

12 months from date of delivery.

Technical Service

Our Technical Service department of GCP Applied Technologies is available to assist you in the correct use of our performance chemicals.

gcpat.uk | United Kingdom customer service: +44 (0) 1925 855330 Fax: 01925 855350

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