WRDA® P4

Concrete Plasticiser

Product Description

WRDA®P4 is a liquid plasticiser, or water-reducing agent used to improve workability of concrete mixes or to allow an effective reduction in the free water content to be made. The effect is achieved by its adsorption onto the surface of the cement particles in a concrete mix giving a powerful deflocculating action. It can also be used to effectively reduce permeability of concrete.

WRDA®P4 is formulated from carefully selected raw materials and is manufactured under controlled conditions to give a consistent product. It is based on high grade modified lignosulphonic acid derivative and depending on addition rate, WRDA®P4 meets the requirements of Type A and D materials of ASTM designation C-494 and BS EN 934-2.

Advantages

- The effective plasticising action of WRDA® P4 will give increased workability to most types of concrete mixes. Harsh mixes, such as those produced with crushed rock aggregates, are considerably improved in the plastic and hardened state.
- When used for its water-reducing effect, reductions in the water content in the region of 10% can normally be achieved with subsequent increases in strength, impermeability and durability.
- WRDA® P4 can be used to modify concrete mix designs to achieve cement reductions.
- The reduction in excess water which can be achieved, together with the slight air entrainment, characteristic of lignosulphonic acid derivatives, is effective in increasing the impermeability of concrete. Surface finishes can be improved and blemishes such as 'sand runs' overcome.
- WRDA® P4 is of particular value in concreting operations subject to high ambient temperatures.
- It extends the period of time when the concrete can be placed and compacted.
- WRDA® P4 is recommended for use where waterproofing or structural concrete is specified. Significant reductions in water permeability and penetration can be obtained.

Typical Properties

WRDA® P4	
Appearance	dark brown liquid
Specific Gravity	1.16 at 20°C
Air Entrainment	Air content of concrete mixes will normally be increased by between 1% and 2%.
Chloride Content	Nil
Freezing Point	0°C

Method of Use

WRDA®P4 is supplied ready for use. It should be added to concrete mixes during the mixing process, at the same time as the water or the aggregates.

It should not be added directly to the cement. No extension of normal mixing time is necessary.

Compatibility with Cements

WRDA®P4 can be used with all types of Portland, Pozzolanic and blast furnace cements. It is also compatible with cements containing fly ash and silica fume.

Compatibility with other Admixtures

WRDA®P4 should not be premixed under any circumstances with other admixtures. While some admixtures can be usefully combined within the same mix the performance of this product may well be affected by the presence of other chemicals and we recommend that GCP Applied Technologies be contacted for advice in all such circumstances.

Addition Rates

Range: 0.4%–1.0% volume by weight of cement

The performance of WRDA®P4 is best assessed after preliminary tests on site, using the actual concrete under consideration to determine the optimum dosage and effect on concrete properties such as ultimate compressive strength, early rate of gain of strength and shrinkage, when these are of consequence.

As a guide to these trials, an addition rate of 400 ml–1000 ml WRDA®P4 per 100 kg cement is recommended.

This rate of addition can be varied to give different results. To achieve an extension of workability of concrete under hot climatic conditions higher dosages can be used. Addition rates of 600 ml–1000 ml WRDA®P4 per 100 kg cement is suggested. For advice and assistance with your trials we would recommend that you consult our technical department.

Effects of Overdosing

Overdosing of WRDA®P4 will generally produce a considerable increase in workability and in certain circumstances, slight increase in air entrainment. This particularly in cold weather, will be accompanied by a retardation of the initial and final set of the concrete. In such cases, however, provided the concrete is properly cured, the ultimate strength will generally be higher than for normal concrete. The effects of overdosing will also be exaggerated when sulphate resisting cement is used in place of ordinary Portland cement.

Dispensing

It is preferable that liquid admixtures for concrete should be introduced into a mixer by means of automatic dispensing equipment, details of which can be supplied upon request.

Health and Safety

For further information see WRDA®P4 SDS (Safety Data Sheet) or consult GCP.

Packaging

WRDA®P4 is supplied in nominal 210 litre, non-returnable containers.

Alternatively, 1000 litre IBCs or bulk deliveries can be arranged

Storage

WRDA®P4 should be stored in original containers or suitable closed tanks, preferably out of direct sunlight and protected from extremes of temperature.

Storage Life in Manufacturer's Drums:

12 months from the date of manufacture

Storage Life in Bulk Storage:

12 months from the date of delivery

Technical Service

The Technical Service Department of GCP is available to assist you in the correct and best use of our products. These resources and advice are at your disposal entirely without obligation. Please contact:

GCP

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