



CONCRETE

Sika[®] Plastiment[®] & Plastocrete[®]

WORKABLE CONCRETE

TECHNOLOGY

BUILDING TRUST



PLASTICIZER AND WATER REDUCTION FOR STANDARD CONCRETE

Admixtures and additives are used in concrete and mortar production to enhance fresh and hardened properties. Sika® Plastiment® and Plastocrete® range of products are economic admixtures, predominantly from renewable resources, that can reduce the water content of concrete mix to maintain or improve workability and reduce the water to cement ratio (w/c-ratio) to improve the strength of concrete, compactness and durability.

When mixed with water cement will collect or form into a mass or group and need to be dispersed.

| 1 st GENERATION | | |
|---|--|---|
| TECHNOLOGY Lignosulphonates Gluconates | | <ul style="list-style-type: none"> ■ Electrostatic inter particle repulsion ■ Reduced surface tension ■ Retarding effect ■ Water reduction ~12% |
| SIKA SOLUTION | | <ul style="list-style-type: none"> ■ Sika® Plastiment® ■ Sika® Plastocrete® |
| Low water reduction | | |
| 2 nd GENERATION | | |
| TECHNOLOGY Naphthalenes (SNF) Melamines (SMF) | | <ul style="list-style-type: none"> ■ Electrostatic inter particle repulsion ■ Water reduction ~20% / ~25% |
| SIKA SOLUTION | | <ul style="list-style-type: none"> ■ Sikament® |
| TECHNOLOGY Vinyl copolymers | | |
| 3 rd GENERATION | | |
| TECHNOLOGY Polycarboxylate (PCE) | | <ul style="list-style-type: none"> ■ Electrostatic inter particle repulsion ■ Steric hindrance ■ Water reduction ~40% |
| SIKA SOLUTION | | <ul style="list-style-type: none"> ■ Sika® Viscocrete® |
| High water reduction | | |



TECHNOLOGY

Water reducing plasticizers are the oldest dispersing agents for cement first developed in the 1930s that are modified and refined for today's concrete needs. Water reducing plasticizers disperse the cement in aqueous solutions. The surface-active agent is adsorbed into cement giving the particles a negative charge, having a repulsion effect. As the particles separate, the available surface area of cement available for early hydration increases, that normally would not be available with just water. As the aqueous solution surrounds the cement particles there is greater mobility. This lubricating effect of the mix is the main reason for the improved workability.



ECOLOGY

Sika® Plastiment® and Plastocrete® uses predominantly biodegradable raw materials made from renewable sources. Aqueous solution free of organic solvents and are neither toxic or harmful to health, irritating or corrosive and toxicologically safe.

APPLICATION

Traditional water reducing plasticizers are more effective in lower grades of standard concrete whether they for civil infrastructure, buildings or domestic projects.

- Ready mix concrete
- Site batch concrete
- Pumped concrete
- Precast concrete

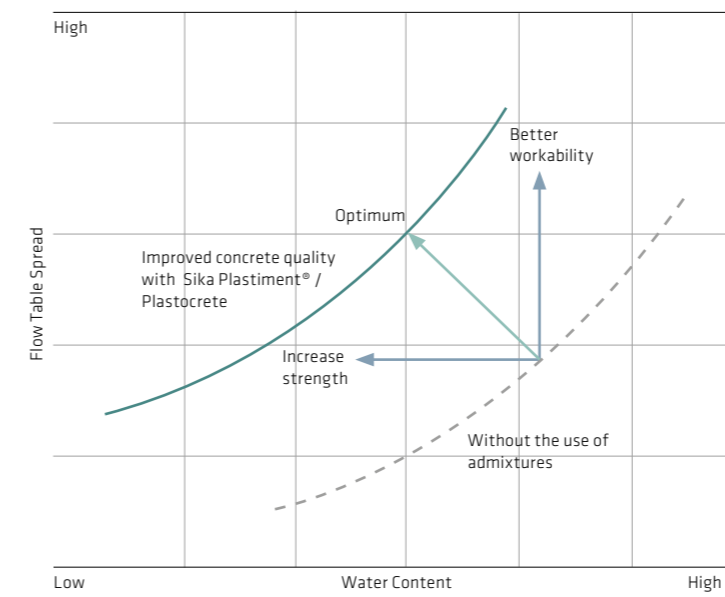
FEATURES

Simply add a water reducing plasticizers to any concrete during mixing. The admixture will automatically distribute itself uniformly in the concrete. Long mixing or high energy mixing are not required, which makes the technology ideal for job site mixing. Slight variations in cement have little effect on the performance. Sika® Plastiment® and Plastocrete® are especially effective in high ambient temperatures where set retardation is required.

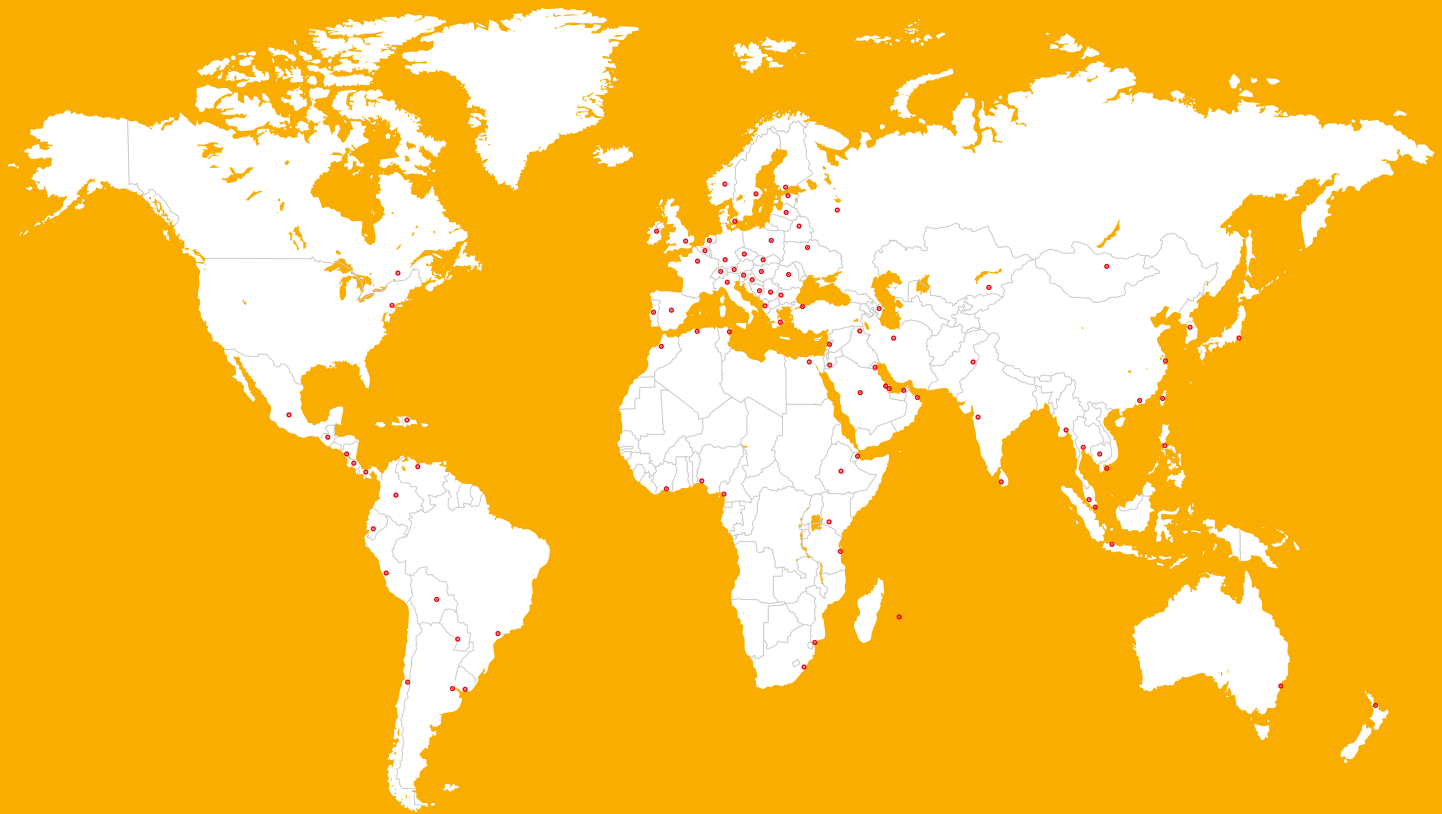
What can be achieved with a water reducing plasticizer compared to a control mix?

| Feature of adding a water reducer | The benefit |
|--|---|
| For reducing the water content | <ul style="list-style-type: none"> ■ Reduces water amount by ~5 to ~12 % ■ It will increase the compression strength ■ Reduces chance of bleeding and segregation ■ It will maintain the workability retention |
| For maintaining a constant water content | It will increase the workability |
| For reducing the cement content | <ul style="list-style-type: none"> ■ It can economise the mix design ■ Reduce CO₂ footprint |
| For maintaining the cement content | <ul style="list-style-type: none"> ■ It will increase the compression strength |
| For improving the workability | <ul style="list-style-type: none"> ■ Easier surface finishing ■ For pumped concrete |
| For controlling hydration | <ul style="list-style-type: none"> ■ Very good in high ambient temperatures ■ It can reduce heat development ■ It can decrease porosity of the concrete ■ It can reduce water permeability ■ It can reduce diffusivity of aggressive agents ■ It will improve concrete durability |
| For fluctuations with raw materials | <ul style="list-style-type: none"> ■ Robust with differing cements |

FINDING THE RIGHT BALANCE BETWEEN A LOWER W/C-RATIO AND GOOD WORKABILITY



GLOBAL BUT LOCAL PARTNERSHIP



FOR MORE INFORMATION:



Who we are

Sika is a specialty chemicals company with a leading position in the development and production of systems and products for bonding, sealing, damping, reinforcing and protecting in the building sector and the motor vehicle industry. Sika's product lines feature concrete admixtures, mortars, sealants and adhesives, structural strengthening systems, industrial flooring as well as roofing and waterproofing systems.

Our most current General Sales Conditions shall apply. Please consult the most current local Product Data Sheet prior to any use.



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