



CONCRETE

SikaRapid[®] TECHNOLOGY

HARDENING ACCELERATOR SYSTEMS

BUILDING TRUST



EXCELLENCE IN CONCRETE HARDENING PROCESSES WITH SikaRapid® TECHNOLOGY

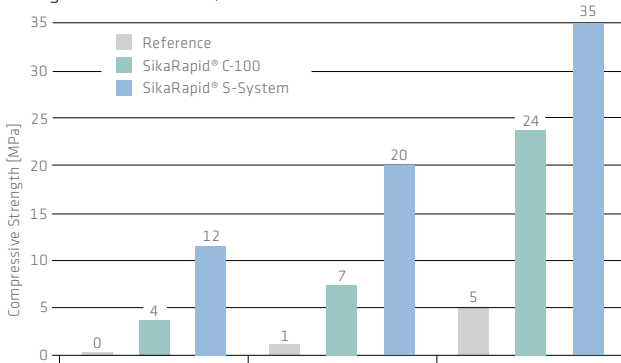


TECHNOLOGY

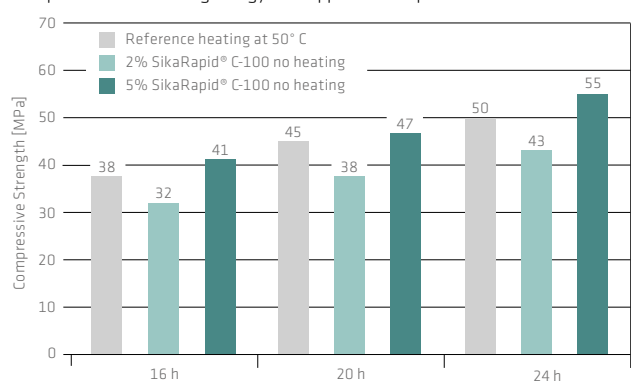
In an industrialized rapid precast production the concrete hardening process represents the decisive step for production output. Depending on the production speed and produced concrete elements formwork removal can be necessary only after some hours. For a sustainable and cost efficient process any heat or steam curing should be avoided. With application of SikaRapid® C and SikaRapid® S-System the formwork removal strength can be attained within hours at a concrete and ambient temperature of 20°C. SikaRapid® C is available as liquid version whereas SikaRapid® S-System is a 2-component product.

The required hardening behavior of concrete is strongly depending on the concrete type and construction system used. Conventional ready mix concrete applications require a certain strength gain after 16 to 24 h in order to remove the formwork and keep construction speed. In this case the climatic conditions can represent the challenge if one is confronted with low ambient temperatures in winter. With application of SikaRapid® construction site speed can be kept high at low temperatures. Therefore SikaRapid® Technology offers enhanced concrete hardening behavior for cold and warm ambient as well as concrete temperatures.

Significant precast concrete acceleration with 330 kg CEM I 52.5 R after 5, 6 and 8 hours



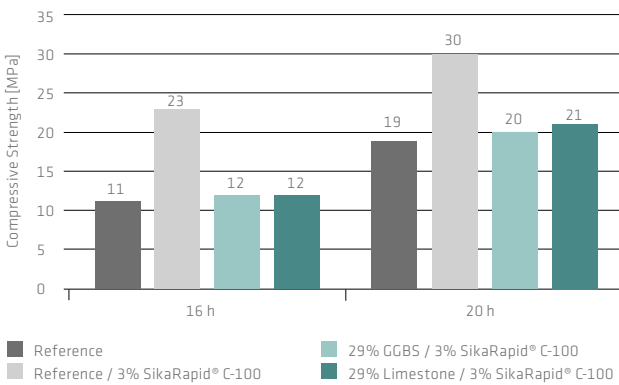
Compensation of heating energy with application of pre-stressed concrete



SUSTAINABILITY REQUIREMENTS

Sustainability of the concrete construction process is becoming more and more important. The OPC (clinker) utilized in a concrete mix design as well as the energy required to attain a target strength are two decisive sustainability factors. With application of SikaRapid® C the required heat and steam curing can be reduced or eliminated while achieving the necessary early strength on the one hand. On the other hand it is possible to substantially reduce the clinker content in the concrete mix design and keep formwork removal time.

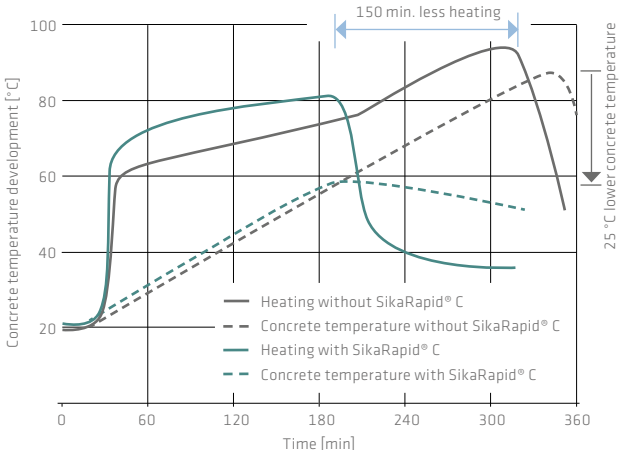
Compensation of 29% cement replacement with application of SikaRapid® C-100



HEAT REDUCTION

Powerful hardening acceleration results in the following advantages

- Reduced heating period while target early strength is realized
- Substantially reduced energy consumption
- Significantly reduced maximum concrete temperature
- Increase durability of the hardened concrete



HARDENING ACCELERATION ADMIXTURE

SikaRapid® is an innovative and highly efficient concrete acceleration technology. Depending on the concrete mix design and process requirements it is possible to accelerate concrete hardening in several challenging conditions. Application of SikaRapid® technology leads to the following benefits:

SikaRapid®-1

- Increased early strength at cold temperatures
- Application in ready mix concrete
- Earlier de-moulding, after 9 - 18 hours

SikaRapid®-2

- Early setting of concrete and improved concrete finish
- Increased green strength of concrete
- Application with slipforms

SikaRapid® C-100

- High early strength development after 6 - 12 hours
- Application in low, normal and heat curing conditions
- Significant potential for OPC (clinker) replacement leading to an optimized binder system
- Reduction / elimination of heat / steam curing
- Utilization of minimum cement content offering improved cement paste volume concept (durability)

SikaRapid® S-System

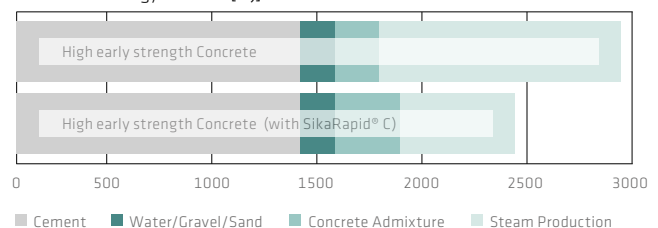
- (Application in pre-stressed concrete possible)
- Highest early strength development after 4 - 8 hours
- 2 component system
- Application in low, normal and heat curing conditions

CUMULATIVE ENERGY DEMAND [MJ]

Total amount of primary energy from renewable and non-renewable resources.



Cumulative Energy Demand [MJ] for 1 m³ concrete



ALSO AVAILABLE FROM SIKA



FOR MORE CONCRETE INFORMATION:



WE ARE SIKA

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, flooring as well as roofing and waterproofing systems.

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



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