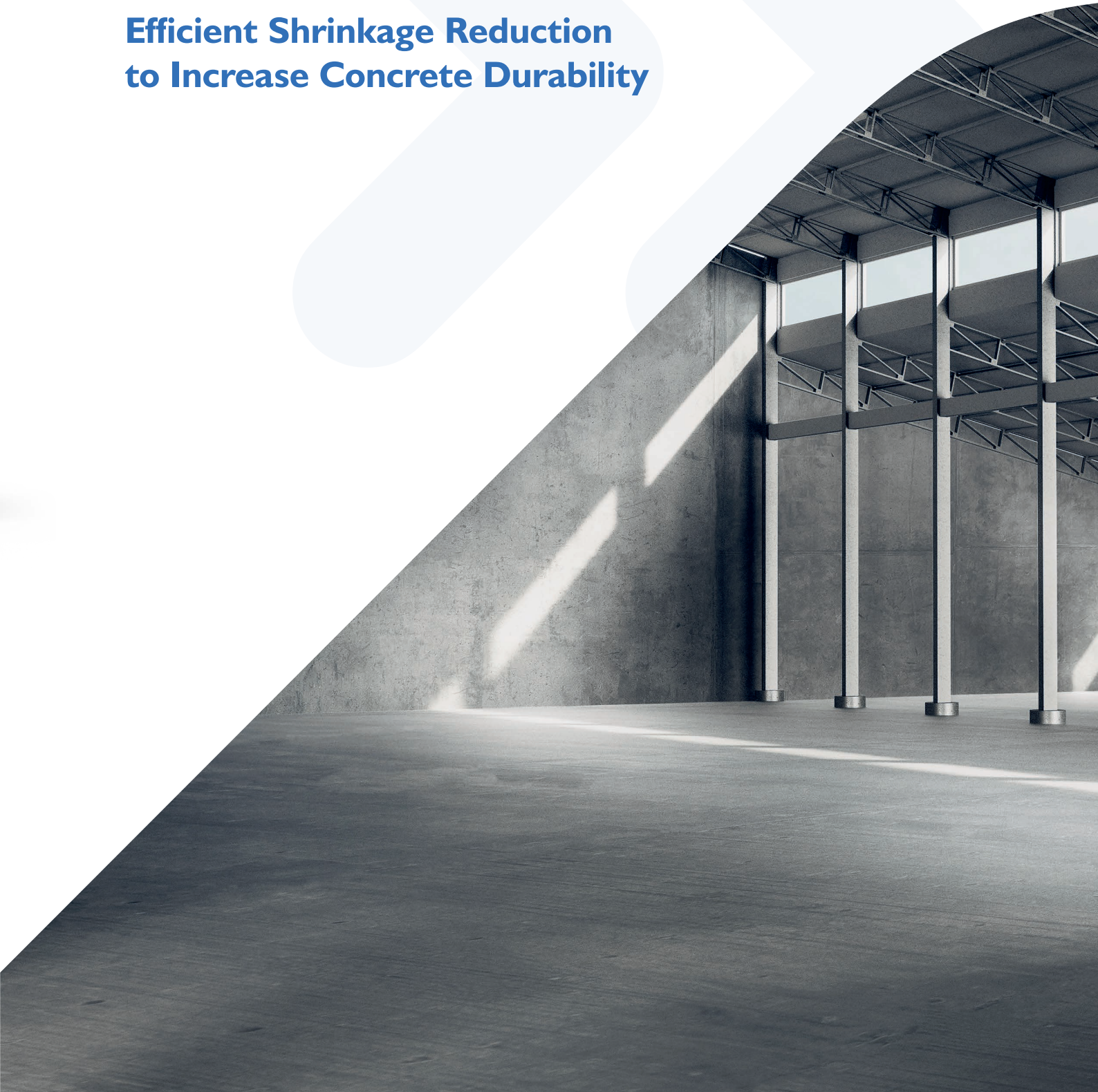




MasterLife[®] SRA

**Efficient Shrinkage Reduction
to Increase Concrete Durability**



Master Builders Solutions®

As Master Builders Solutions®, we are a leading global producer of responsible solutions for the construction industry, focussed on delivering our vision: **Inspiring people to build better.**

We provide value-added technology and market-leading R&D capabilities to improve the performance of construction materials and to enable the reduction of CO₂ emissions in the production of concrete. The comprehensive portfolio under the Master Builders Solutions® brand encompasses concrete admixtures, cement additives, and solutions for underground construction.

We collaborate across areas of expertise and regions and draw on the experience gained from countless construction projects worldwide, leveraging global technologies, as well as our in-depth knowledge of local building needs, to develop innovations that help make you more successful and drive sustainable construction.

Founded in 1909, Master Builders Solutions® operates 35 production sites globally, supporting you in mastering your building challenges of today and tomorrow – for a decarbonised future.












MasterLife[®] SRA

Next Level of Shrinkage Reducing Admixtures

What is MasterLife[®] SRA?

Master Builders Solutions[®] offers a broad range of tailored products covering all requirements regarding concrete durability and serviceability. MasterLife[®] SRA are liquid shrinkage reducing admixtures which reduce both the autogenous and drying shrinkage of concrete while maintaining its mechanical properties. This results in customer benefits which comprise both economic

and technical advantages for the whole value chain of concrete industry. The admixtures do not contain any expansive material, but chemically reduce the internal capillary forces.

Product benefits at a glance		MasterLife [®] SRA 915	MasterLife [®] SRA 833	MasterLife [®] SRA 900
	Target group	Ready-Mix Precast	Ready-Mix Precast	Ready-Mix Precast
	Indication	Economic	Benchmark	Premium
	Shrinkage reduction	**	***	****
	Cement compatibility	***	***	***
	Strength retention	***	***	***
	Retardation tendency	**	***	***
	Efficiency	**	***	****
	CE marking	Yes		No
	Further aspects	Very low emission of VOC (reaching highest class A+ acc. to EN ISO 16000-9:2006 in combination with French decree 321/2011)		

* = mild

** = good

*** = very good

**** = excellent

Shrinkage of Concrete – A Complex Story

Overview on shrinkage characteristics

Shrinkage describes the external changes in the volume of concrete (contraction) which are independent of the loading and caused by changes in the water regime and the chemical reaction (hydration) of the concrete. Shrinkage can be separated into the four types: plastic shrinkage, autogenous shrinkage,

drying shrinkage and carbonation shrinkage (usually negligible for construction concrete). Due to shrinkage, concrete may exhibit a severe crack development which favours the ingress of harmful substances, potentially leading to a decreased durability.

Plastic shrinkage



Autogenous Shrinkage



Drying shrinkage



Definitions

Water loss on concrete surface

Self-desiccation due to cement hydration

Environmental water loss due to drying of concrete

Mainly influenced by

- Relative humidity
- Wind conditions
- Temperature
- Setting behaviour (retarder, low cement content, SCM)

- w/c ratio < 0.40
- Cement type
- Cement content
- Stiffness of aggregates

- w/c ratio ≥ 0.40
- Cement type
- Concrete mix design
- Ambient conditions
- Concrete member size

Measures to compete

MasterKure®
surface treatment

MasterFiber® 012
synthetic micro fibers

MasterLife® SRA I50
expansion agent

MasterLife® SRA
organic shrinkage reducing admixtures
recommended dosage: 1 – 2.5 % bwc

Proof of Performance – See the Difference

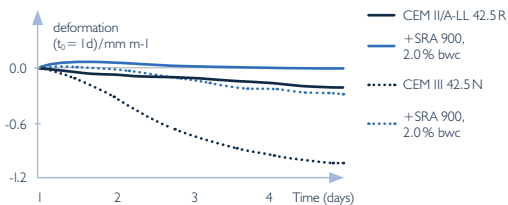
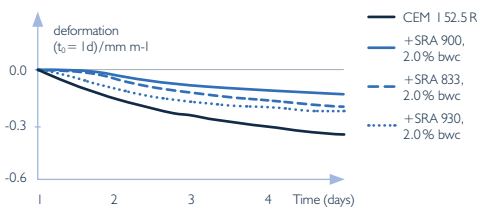
Next level MasterLife® SRA: Enhanced performance all along the line

The highly efficient shrinkage reducing admixtures reduce the autogenous and drying shrinkage already at usual dosages of 1% by weight of cement (bwc). They are beneficial for ready-mix producers, precast industry and/or general contractors, which intend to reduce the life cycle costs of a construction.

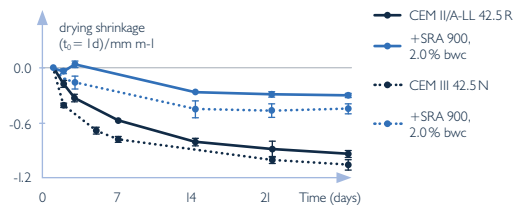
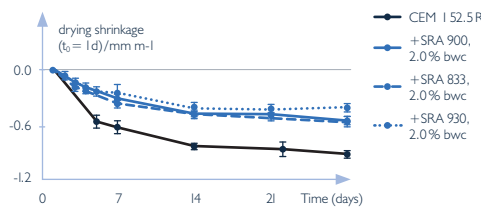
Reduced crack widths lead towards a higher durability and an increased joint spacing in slabs may help saving further costs, while a high cement compatibility and excellent strength retention properties guarantee practical application possibilities.

Experimental results with cement mortars (w/c ratio = 0.35)

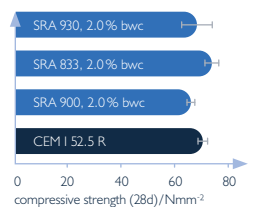
Autogenous shrinkage ASTM C 1698



Drying shrinkage DIN 52450

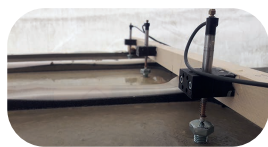
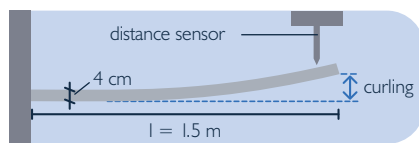


Strength DIN EN 12390-3

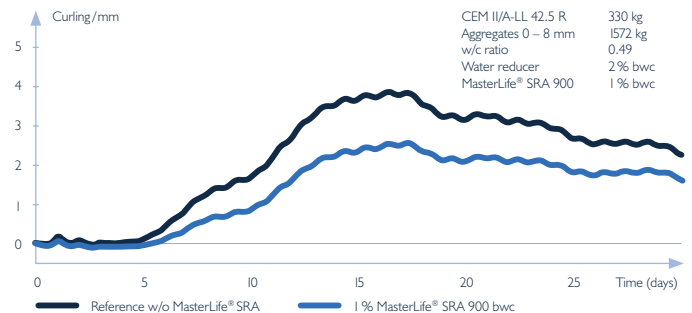


Analogous dependencies were found for further cement class/SRA combinations and results are available upon specific project request!

Curling of thin self-levelling screed (SLS)



Slabs with width of 25 cm exposed to ambient climate conditions



Contact us!

For recommendations regarding compatibility with other chemicals or building materials, please consult your local Master Builders Solutions® Technical Advisor.



Master Builders Solutions® for the Construction Industry

MasterAir®

Complete solutions for air entrained concrete

MasterCast®

Solutions for the manufactured concrete product industry

MasterEase®

Low viscosity for high performance concrete

MasterFinish®

Solutions for formwork treatment and surface improvement

MasterFiber®

Comprehensive solutions for fiber reinforced concrete

MasterGlenium®

Solutions for high performance concrete

MasterLife®

Solutions for enhanced durability

MasterMatrix®

Advanced rheology control for concrete

MasterPel®

Solutions for hydrophobization, anti-efflorescence and surface protection

MasterPolyheed®

Solutions for mid-range concrete

MasterPozzolith®

Solutions for water-reduced concrete

MasterRheobuild®

Solutions for high strength concrete

MasterRoc®

Solutions for underground construction and surface improvement

MasterSet®

Solutions for set control

MasterSure®

Solutions for extraordinary workability retention

Master X-Seed®

Advanced accelerator solutions for concrete

Quantified sustainable benefits. Advanced chemistry by Master Builders Solutions®.

Let the numbers do the talking: We have portrayed some of our most eco-efficient product solutions for concrete and precast production, construction, civil engineering, and flooring.

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