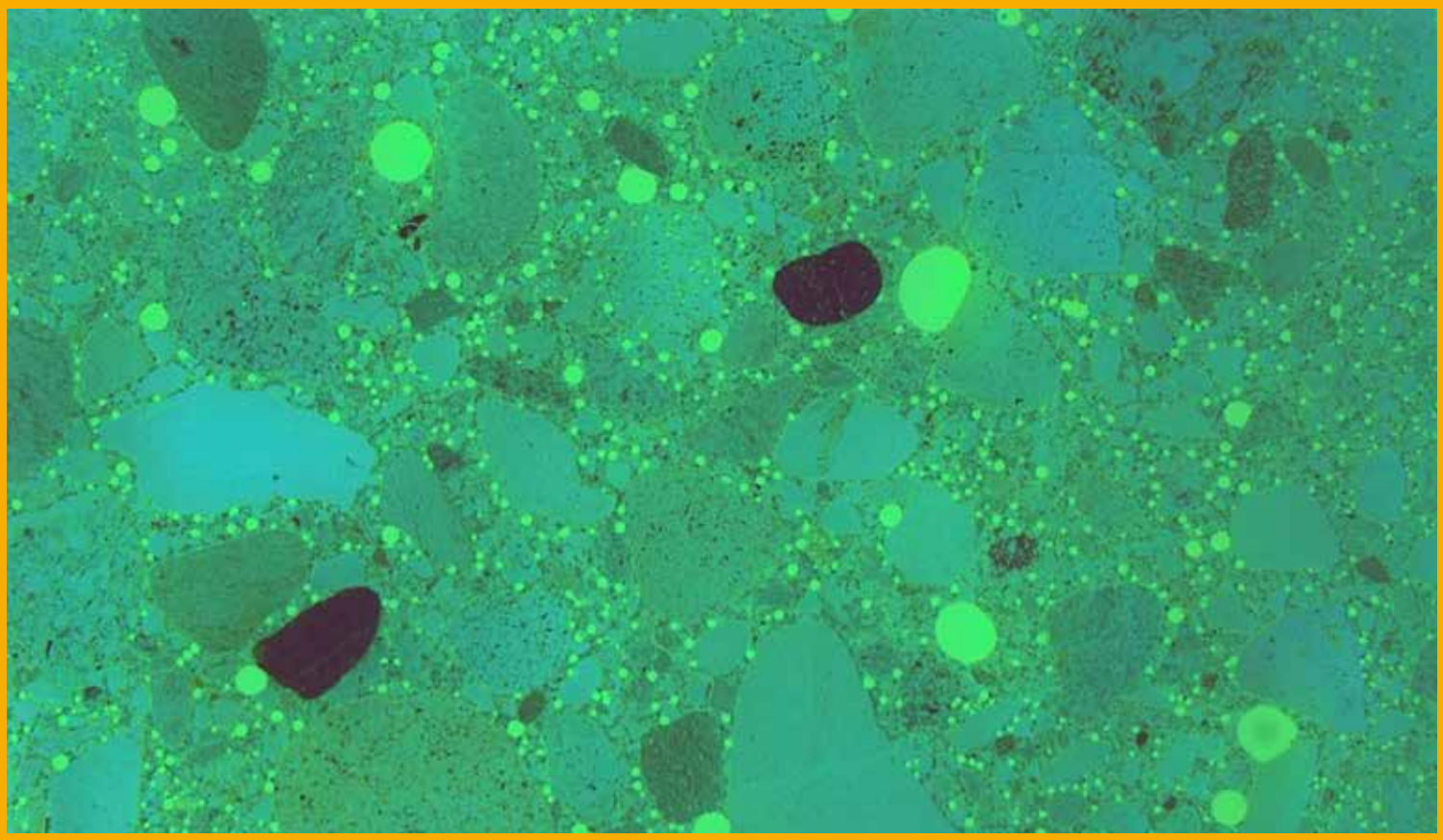


# CONCRETE
# SikaControl® AER-200 P

AIR-ENTRAINING ADMIXTURE

BUILDING TRUST

# SIKA SOLUTIONS FOR A NEW, EFFICIENT AND SAFE WAY OF INTRODUCING AIR VOIDS IN CONCRETE

**FROST OR FREEZE / THAW EXPOSURE** can cause serious damage to a concrete structure. Deicing salts are a serious attack on concrete surface and are one reason for one of the most damaging causes for concrete structures. This damaging mechanism has been underestimated for a long time and periodically extreme quantities of de-icing salt have been applied.

Through appropriate structural technique and observance of basic technological measures pertinent to concrete, the building material can demonstrate permanently high resistance to frost and to the strain which de-icing salt represents.

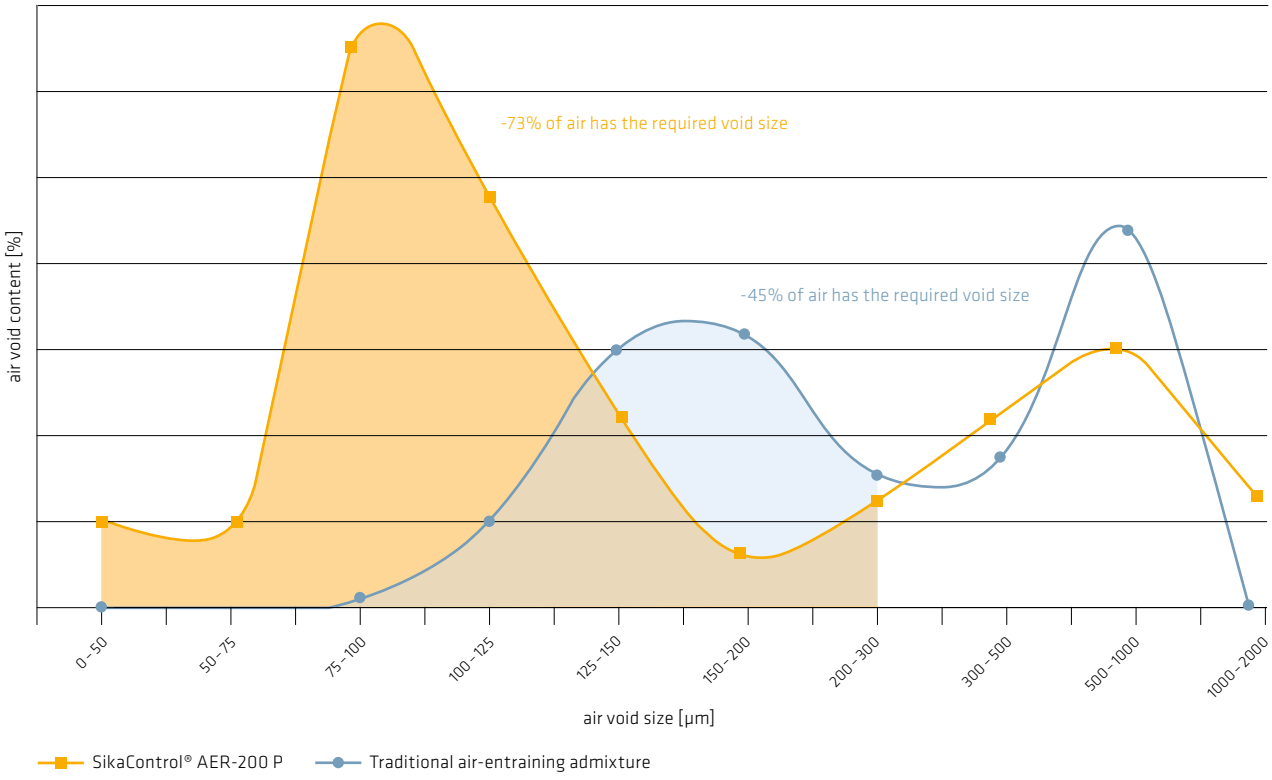
Frost and freeze / thaw resistant concrete must always be used when concrete surfaces are exposed to wet weather conditions and with surface temperature around freezing point. Damage to concrete structures due to frost can generally be expected when those have been penetrated by moisture and are exposed to frequent freeze / thaw cycles in that condition. The damage to the concrete occurs due to the cyclic freezing and thawing of the water which has been absorbed due to capillary suction.

The main factor for the production of frost and freeze / thaw resistant concrete is the introduction of a sufficient amount of artificially entrained air voids in the concrete with the following properties:

- Micro air voids < 300 µm ($A_{300}$)
- Micro air voids content $A_{300}$ >1.5%
- Spacing factor SF < 0.2 mm

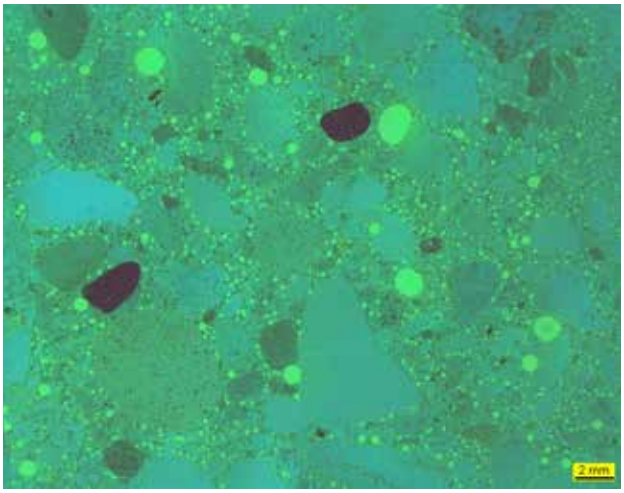
**Air void distribution**

In comparison to a traditional air-entraining admixture, SikaControl® AER-200 P shows a bigger specific surface and a favorable spacing factor in the air void analysis. Furthermore ca. 73% of the air voids created by SikaControl® AER-200 P are under 300 µm compared to around 45% with a traditional air-entraining admixture. (see Graph below)



**Requirements**
Frost and freeze / thaw resistant concrete has to be installed when concrete surfaces are exposed to water and the surface temperature could drop below freezing point.

For the following structures frost and freeze / thaw resistant concrete should be considered:
- Fair-faced concrete facades
- Bridge structures
- Tunnel portal areas
- Traffic areas
- Retaining walls




**Sika Solution**
The newly developed air-entraining admixture named SikaControl® AER-200 P is based on chemical process. Therefore no physical action is needed because it produces the air voids of required size by chemical reaction.

**Advantages of SikaControl® AER-200 P:**
- New technology of introducing air-voids in the concrete
- Air-entrainment system with reduced influence on mixing time
- Reduced sensitivity in respect to aggregate, mixing and other admixtures
- Increased air void stability in concrete
- Suitable for all type of blended cement

# 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.



**SIKA SERVICES AG**
Tueffenwies 16
CH-8048 Zurich
Switzerland

**Contact**
Phone +41 58 436 40 40
Fax +41 58 436 41 50
www.sika.com

BUILDING TRUST