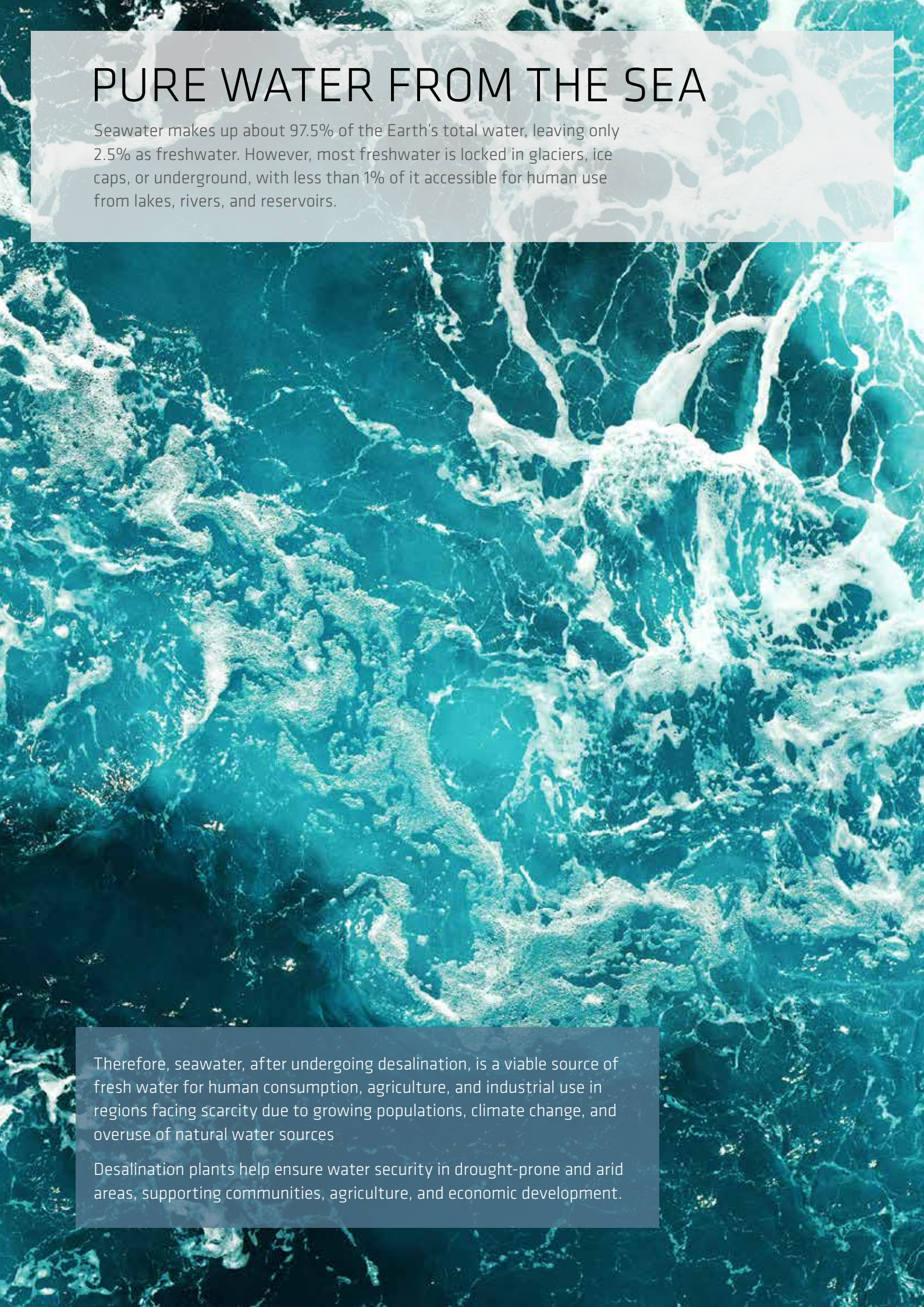
YOUR TRUSTED PARTNER IN DESALINATION PLANTS

BUILDING TRUST

PURE WATER FROM THE SEA

Seawater makes up about 97.5% of the Earth's total water, leaving only 2.5% as freshwater. However, most freshwater is locked in glaciers, ice caps, or underground, with less than 1% of it accessible for human use from lakes, rivers, and reservoirs.



Therefore, seawater, after undergoing desalination, is a viable source of fresh water for human consumption, agriculture, and industrial use in regions facing scarcity due to growing populations, climate change, and overuse of natural water sources

Desalination plants help ensure water security in drought-prone and arid areas, supporting communities, agriculture, and economic development.

EXTENDING STRUCTURAL LIFESPAN AND PREVENTING LEAKS IN ENVIRONMENTS WHERE SEVERE CORROSION IS A CONSTANT THREAT.

Precise engineering, premium materials, and effective solutions are required to ensure reliable equipment performance and efficient freshwater production in desalination plants.

TYPICAL DAMAGES IN DESALINATION PLANTS

Corrosion of concrete reinforcement due to chloride attack:
Chlorides from salt, can penetrate concrete and cause corrosion of the embedded steel reinforcement. When chlorides reach the steel, they break down its protective layer, causing rust. The rust expands, creating internal pressure that leads to concrete cracking, spalling, and structural damage.

Sulfate attack:
Reacting with calcium hydroxide and tricalcium aluminate (a component of cement) in the concrete and forming expansive compounds like ettringite and gypsum, which can cause the concrete to crack and deteriorate.

Leaching of Calcium Compounds:
Seawater can cause leaching of calcium hydroxide from the cement matrix. This leaching weakens the concrete structure by reducing its density and strength, making it more porous and susceptible to further chemical attacks.

Soft water:
After salt extraction, soft water becomes slightly acidic and has high dissolving capacity, which can potentially harm concrete and metallic elements.

Other attacks:
Carbonation, magnesium Attack, Freeze-Thaw Cycles (in cold climates), Abrasion, etc.

PREMIUM SIKA SOLUTIONS FOR DESALINATION PLANTS

A tailored solution for the complex demands at every stage of the plant's process.

Choosing high-performance materials that resist corrosion ensures the plant's durability, safety and long-term operational cost efficiency.

Sika is the reliable partner who supplies full range of quality materials for the construction and refurbishment of the desalination plant.

1

CONCRETE STRUCTURES
Sika® Viscocrete® water reducing and Sika® Fume admixtures to improve concrete quality, workability and resistance to chlorides and sulphates.

2

COAGULATION, FLOCCULATION AND SEDIMENTATION UNITS
Protection with Sikagard® coatings or Sikalastic® liquid-applied waterproofing membranes.

3

CONCRETE REPAIR
Sika MonoTop® or SikaEmaco® sulphate resistant repair mortars to restore and rehabilitate damaged structures.

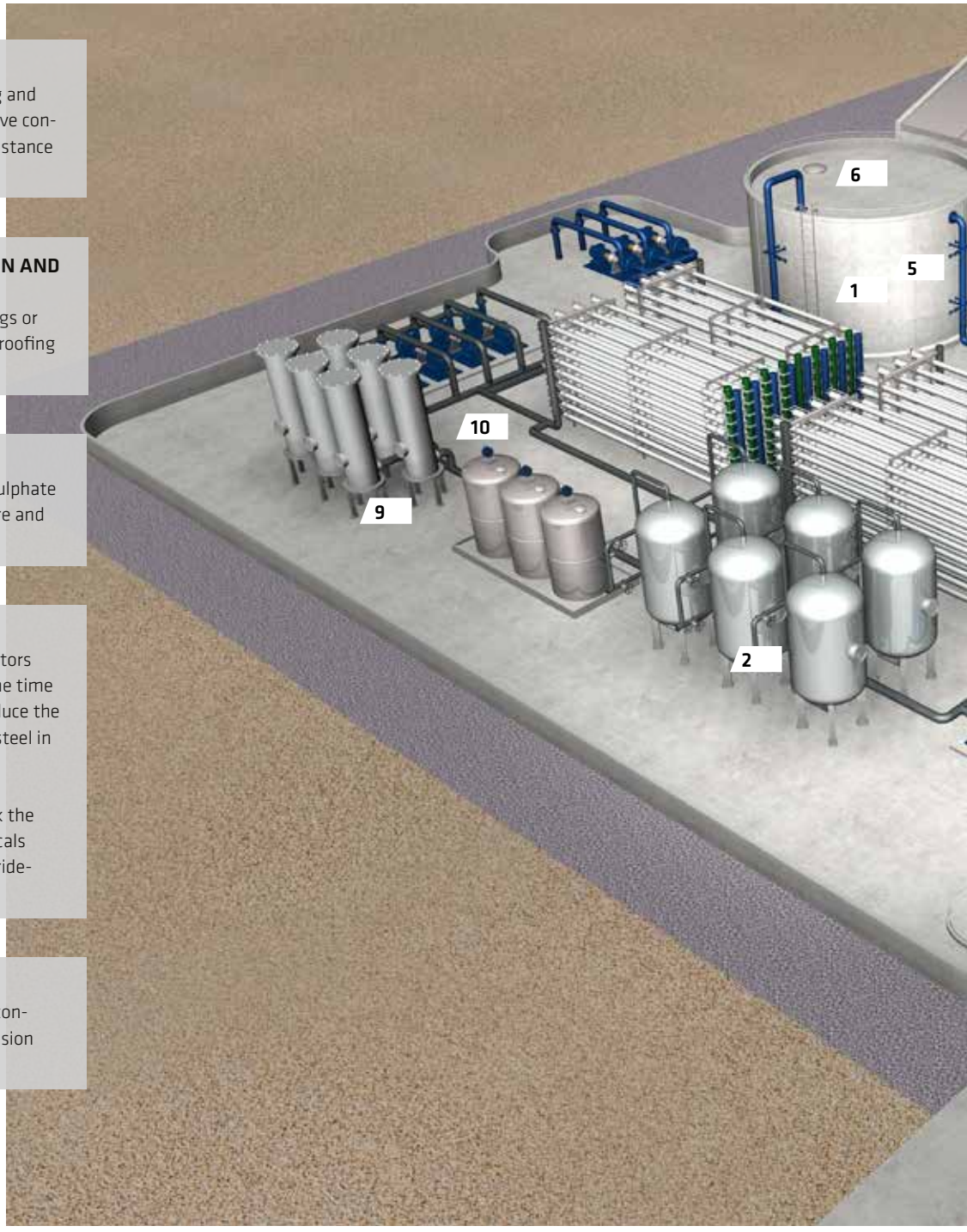
4

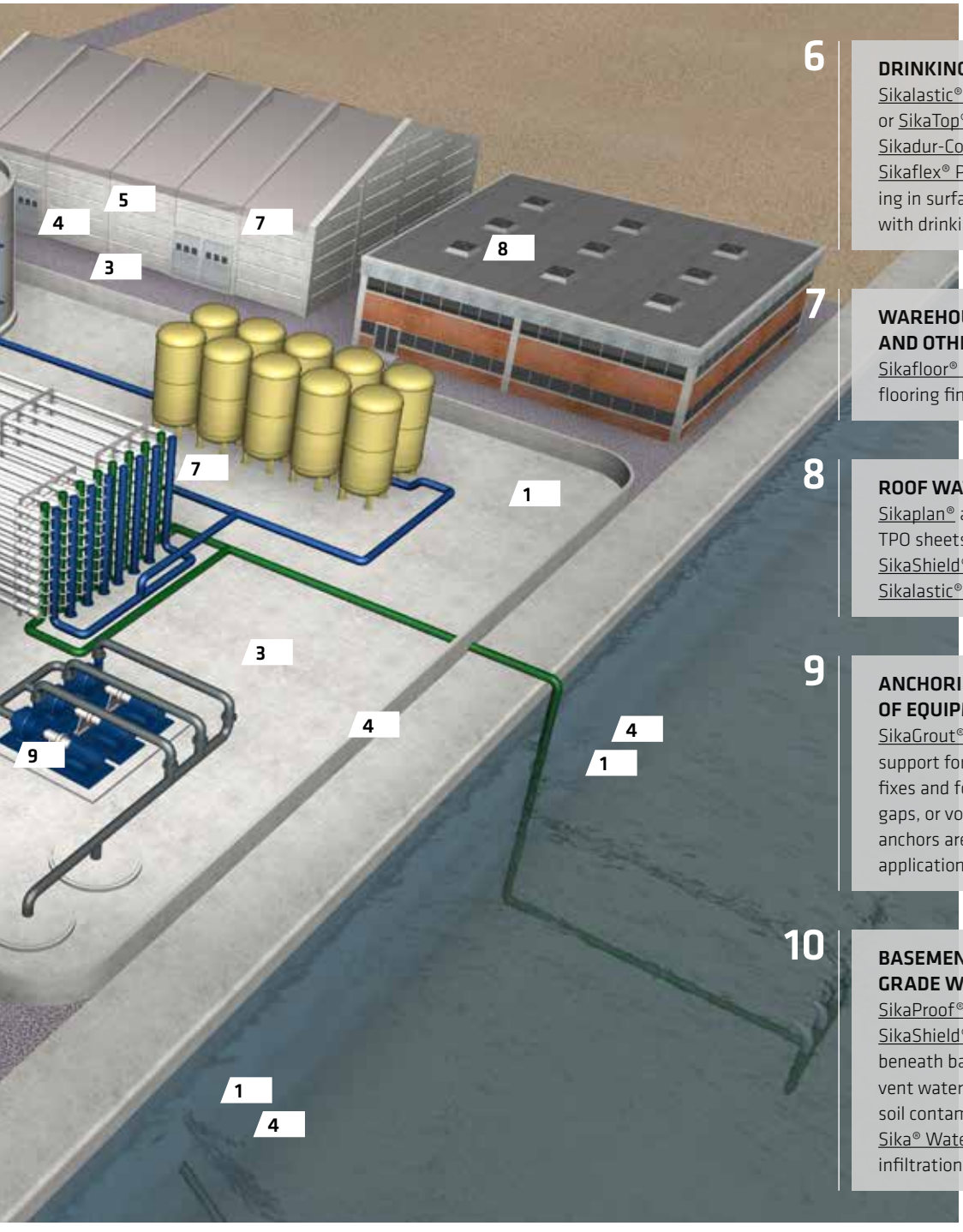
CONCRETE PROTECTION
Sika® FerroGard® corrosion inhibitors and galvanic anodes to extend the time before corrosion initiates and reduce the corrosion rate of the embedded steel in concrete.

Sikagard® reactive coatings block the penetration of aggressive chemicals preventing carbonation and chloride-induced corrosion.

5

CONCRETE MONITORING
Sika Ferrogard® sensor monitor concrete structures exposed to corrosion environment.





6 DRINKING WATER TANKS

Sikalastic® liquid-applied membranes or SikaTop® cementitious mortars and Sikadur-Combiflex® SG or Sikaflex® PRO-3 Purform® for joint sealing in surfaces exposed to direct contact with drinking water.

7 WAREHOUSES, BATTERY ROOMS AND OTHER ANCILLARY BUILDINGS

Sikafloor® MultiDur® high performance flooring finishing.

8 ROOF WATERPROOFING

Sikaplan® and Sarnafil® PVC / TPO sheets
SikaShield® bituminous sheets
Sikalastic® liquid membranes

9 ANCHORING AND FASTENINGS OF EQUIPMENT

SikaGrout® and SikaFlow® offer reliable support for base plates, post-installation fixes and for filling and sealing cavities, gaps, or voids. Sika AnchorFix® chemical anchors are perfectly suited for high-load applications.

10 BASEMENT AND SLAB ON GRADE WATERPROOFING

SikaProof® fully bonded FPO sheet or SikaShield® bituminous sheets, installed beneath basements or foundations, prevent water damage to the structure and soil contamination. Sealing joints with Sika® Waterbar FB-125 prevents water infiltration through them.

JOB REFERENCES

FRESH WATER STORAGE TANK, DESALINATION PLANT

Location: Vasiliko (Cyprus)
Construction year: 2016

PROJECT REQUIREMENTS
A concrete tank designed to store desalinated water, with a total internal surface area of 1.500 m², failed during its first filling. The concrete had developed cracks, leading to significant water leakage.

SIKA SOLUTION
Seal and level the surface with Sikagard®-720 EpoCem®, an epoxy-cementitious mortar, then prime the surface using Sikafloor®-161, at the end apply a two-component, sprayed, pure polyurea-based liquid waterproofing membrane Sikalastic®-841 ST.

This system provided durable and reliable waterproofing for the cracked tank.

ASHDOD DESALINATION PLANT

Location: Ashdod (Israel)
Construction year: 2015

PROJECT REQUIREMENTS
The project required a waterproofing membrane which is resistant to abrasion caused by sand in seawater and chemically resistant against saltwater and chemicals used in the treatment process.

SIKA SOLUTION
Seal and level the surface with epoxy-cementitious mortar Sikagard®-720 EpoCem®, then prime the surface using Sikafloor®-156, at the end apply a two-component, sprayed, pure polyurea-based liquid waterproofing membrane Sikalastic®-841 ST.

AGADIR DESALINATION PLANT

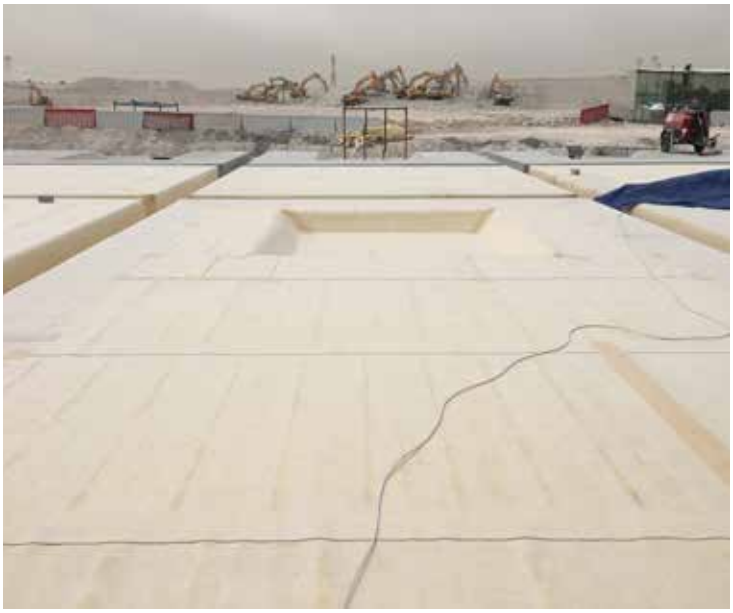
Location: Agadir (Morocco)
Construction year: 2021

PROJECT REQUIREMENTS
The concrete repair and protection materials were required to have resistance to saltwater and compatibility with drinking water depending on the stage of the treatment. All repair and protection products must comply with EN 1504 standard.

SIKA SOLUTION
Concrete repair was carried out using SikaTop®-122, while waterproofing was achieved with SikaTop®-121 and SikaTop®-209 Réservoir.

Additionally, 264 LANKOCAST SW 20, SikaCor®-299 Airless and 705 Clavex+ were supplied.

MEGA RESERVOIR PRPS 4

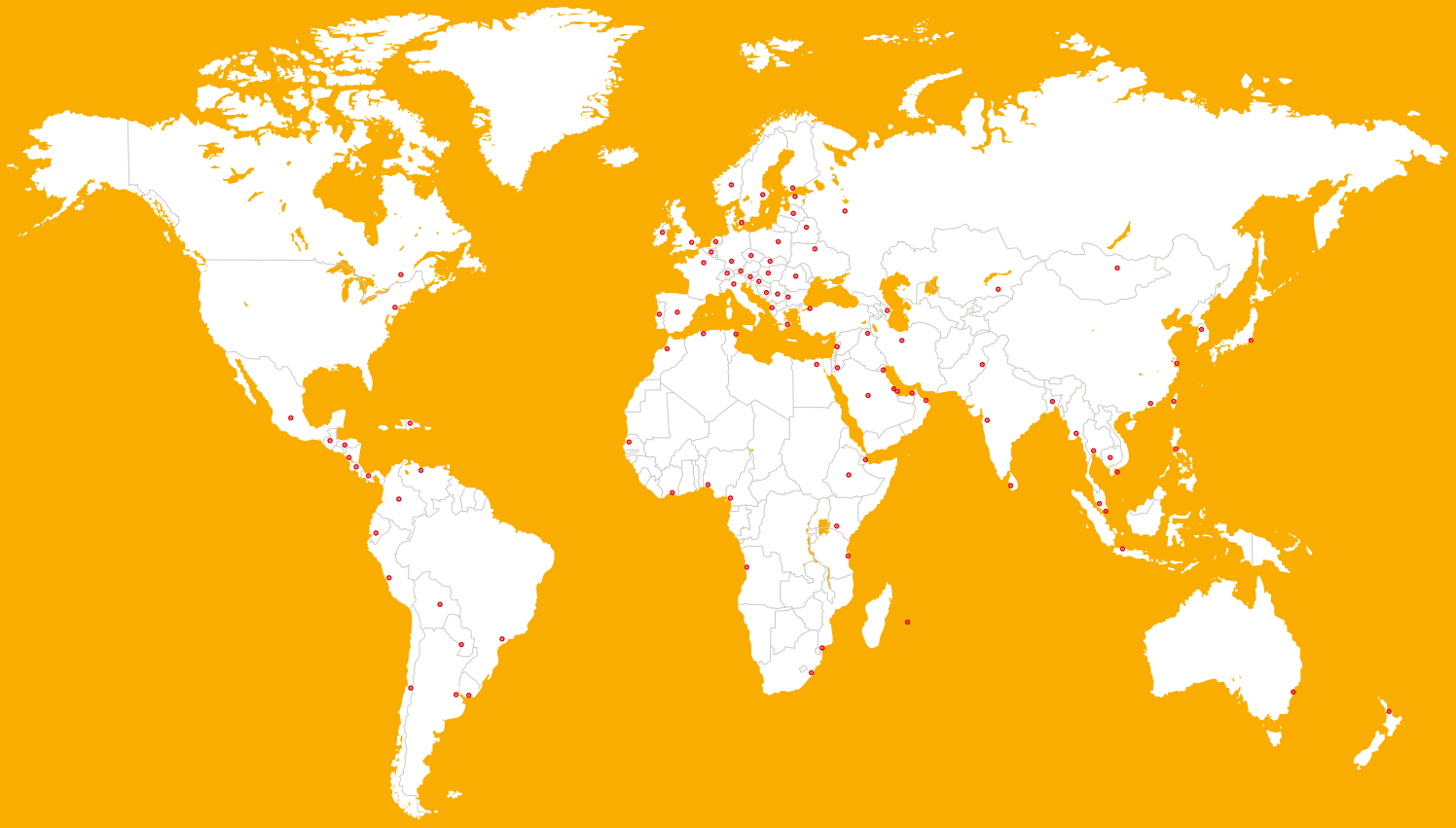


Location: Abu Nakhala (Qatar)
Construction year: 2018

PROJECT REQUIREMENTS
The project required the installation of a waterproofing system prior to the placement of reinforcement and the casting of the slab concrete. The waterproofing system had to effectively prevent any potential water ingress and lateral migration between the membrane and the concrete structure, ensuring enhanced durability and water resistance.

SIKA SOLUTION
More than 111,000 m^2 of Sikaproof® A-12 HC were installed under the base slab including sealing tapes and other ancillary products.

GLOBAL BUT LOCAL PARTNERSHIP



FOR MORE 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, industrial flooring as well as roofing and waterproofing systems.

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