

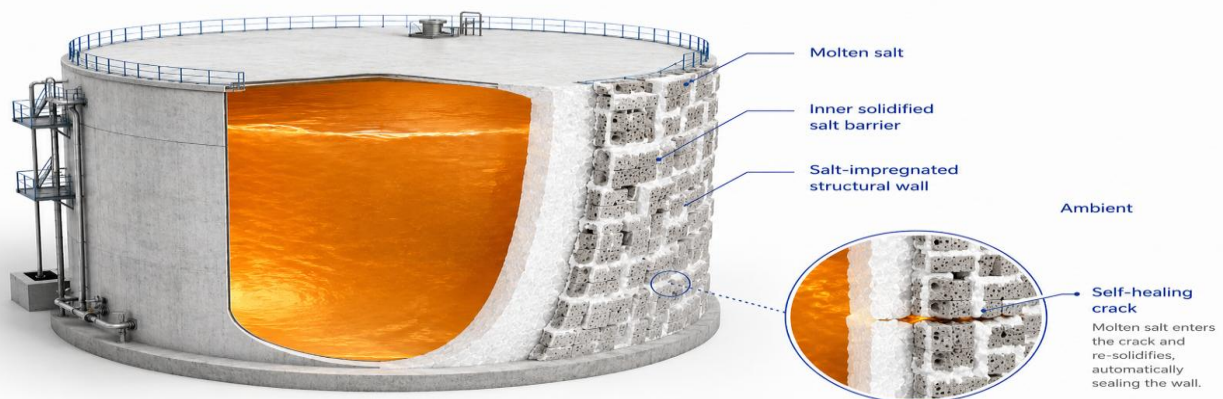


IGLOO

Self-Contained Molten Salt Tanks for Scalable Thermal Energy Storage

Breakthrough tank concept using solidified molten salt as part of the containment wall to reduce corrosion risk, overcome size limitations and enable next-generation CSP storage.

STRATEGIC CO-DEVELOPMENT / DEMONSTRATION OPPORTUNITY FOR CHINA



In molten salt storage, the tank wall becomes the weakest link. IGLOO turns the storage medium itself into part of the solution.

Why IGLOO matters

Conventional molten-salt tanks rely on steel structures exposed to high-temperature corrosive salts and repeated thermal cycling. This increases maintenance risk, limits tank dimensions and constrains the scale-up of long-duration thermal storage.

Why IGLOO is different

- Solidified salt becomes part of the containment wall, acting as a chemically compatible barrier.
- Liquid molten salt is kept away from the structural wall by a solid or phase-change salt layer.
- Civil-engineering construction with modular porous cementitious or ceramic elements enables scale-up.
- Cracks can self-seal as molten salt enters and re-solidifies during the next thermal cycle.

Self-contained
salt-based containment

No steel contact
with liquid molten salt

Self-healing
crack sealing behaviour

TRL 3→6/7
demonstration pathway

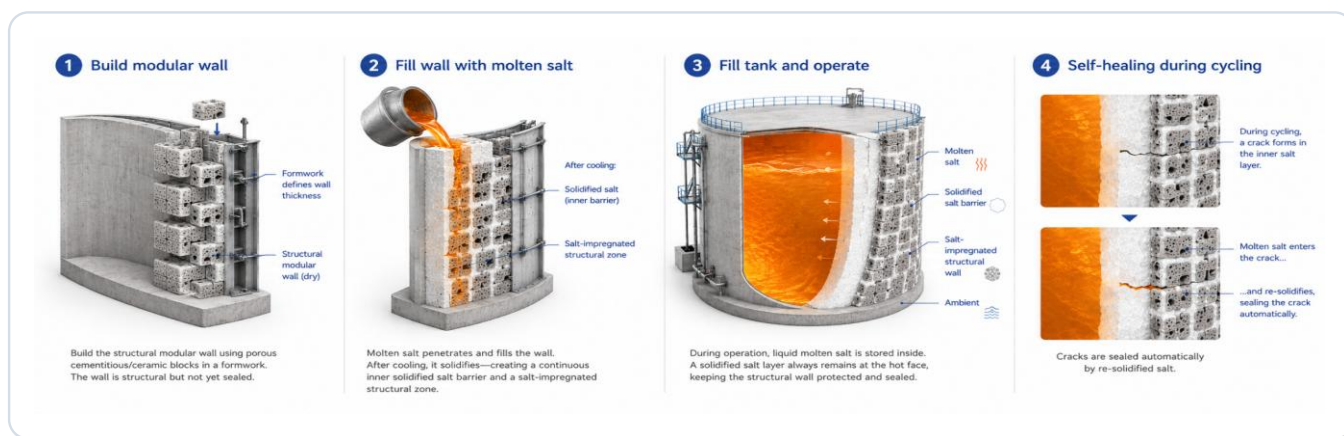
IGLOO Technology

From protected concept to relevant-scale demonstration and industrial deployment

EARLY-STAGE CONCEPT READY FOR CO-DEVELOPMENT

How it works

IGLOO uses a porous modular wall that is filled with molten salt during construction. Once cooled, the salt solidifies inside the wall and becomes part of the containment system. During operation, only the inner phase-change zone cycles between liquid and solid, while a solid salt barrier protects the structural wall.



Technical edge

- Corrosion risk addressed at the root: same material as the storage medium.
- Potentially larger tanks through civil-engineering modular construction.
- Lower-cost materials: cementitious / ceramic elements plus molten salt.
- Compatibility pathway for nitrates today and chlorides/carbonates in future high-temperature CSP.

Applications

- Molten salt thermal energy storage in CSP tower plants
- Power-to-heat-to-power systems and grid-scale storage
- Repowering of existing thermal assets
- High-temperature next-generation CSP storage

Current maturity

Protected early-stage concept supported by small-scale tests and thermal modelling. Relevant-scale demonstration is required before industrial deployment. Current development pathway targets a demonstrator in representative molten-salt conditions and a scale-up strategy for commercial tanks.

Partnership model

CENER is seeking industrial partners to co-develop, demonstrate and industrialize IGLOO for molten-salt storage applications in China. Ideal partners include CSP developers, EPCs, tank manufacturers, molten-salt technology companies and utilities with long-duration storage ambitions.

Protected IP

- European priority application: EP22383208.0
- International and national-phase patent filings in progress, including China
- Publication details to be disclosed once officially available

Partner with CENER to validate and scale a breakthrough molten-salt tank concept for China's next generation of dispatchable solar tower plants.