

**DOWSIL™ High  
Performance Silicones**

**IMMERSING THE CLOUD  
IN SUSTAINABILITY**

**DOW**

# DOWSIL™ Immersion Cooling Technology

## The 5G Cloud/Data center challenge

As hyperscale 5G cloud and data centers become increasingly important for connecting the world, it is imperative that the industry implements more efficient and sustainable cooling technology solutions that reduce the enormous consumption of energy, water and land while adopting more renewable energy sources.

## Dow's game changing solution

DOWSIL™ Immersion Cooling Technology provides a revolutionary approach to thermal management and sustainability in today's dynamic new 5G era of high-speed, high-volume data communications. This breakthrough silicone-organic fluid technology for immersion cooling delivers outstanding thermal conductivity for efficient and cost-effective heat dissipation, combined with an extremely low Global Warming Potential (GWP) score.

Dow's new immersion cooling technology for servers and other data center equipment can boost energy efficiency significantly compared to conventional air cooling systems. A low-carbon solution, DOWSIL™ Immersion Cooling Technology supports the growth of server load densities and increased computer performance, while reducing data center footprint and power usage.

## Awards and recognition



2022 R&D 100 Winner in the  
Mechanicals/Materials Category



Circular Transition Award Finalist in the  
Reuters Responsible Business Awards 2022



Finalist in the ICIS Innovation Awards 2022  
for the Best Product Innovation from a  
Large Company

## The proof is in the performance

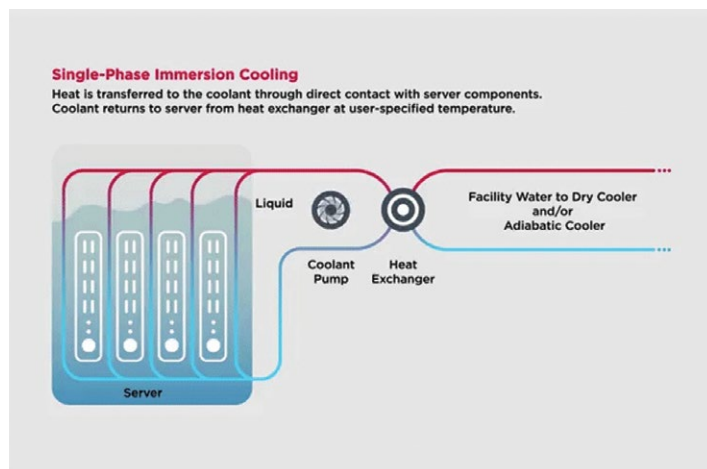
When compared to incumbent immersion cooling fluids, DOWSIL™ ICL-1000 Fluid, the first product in this new technology family, outperforms the competition across several key categories.

## DOWSIL™ ICL-1000 Fluids — Key differentiator

	Fluoro-Carbon	Synthetic oil	Silicone fluid	DOWSIL™ ICL-Fluids
Compatibility with hydrocarbon	●	●	●	●
Compatibility with Si	●	●	●	●
Cost (\$/kg)	●	●	●	●
Leakage	●	●	●	●
Ease of maintenance	●	●	●	●
EHS concern	●	●	●	●
Nonflammability and thermal stability	●	●	●	●

● = Superior    ● = Better    ● = Poor

## The Single-Phase DOWSIL™ Immersion Cooling Advantage



In single-phase immersion cooling, heat is transferred to the coolant through direct contact with server components. Unlike two-phase immersion cooling, the coolant does not boil off. It remains in the liquid phase and is cooled via a heat exchanger.

DOWSIL™ Immersion Cooling Technology is specifically designed for single-phase immersion cooling applications.

Advantages include:

- Superior heat conduction from silicone liquid when compared to air
- The silicone liquid can get into small spaces and closer to materials that need cooling
- No need for chillers, CRACs, CRAHs or raised floors
- Reduced overall cost

## DOWSIL™ Immersion Cooling Technology Benefits Summary:

- Sustainability for a carbon neutral future
  - A low-carbon solution featuring low GWP and zero Ozone Depletion Potential (ODP) to reduce environmental impact
- Stability for data center growth
  - Stable chemical properties, high material compatibility, and low water absorption
- Safety and environmental responsibility
  - A safe, high-temperature resistant and nonflammable liquid
  - No bacteria and mold growing concerns
- Optimized cooling
  - Delivers optimal cooling and thermal conductivity with low dielectric constant (ranging from 2.1 to 2.2), and low viscosity (10-30 cSt at 40C) with multiple selections
- High cost-efficiency
  - Reduction of noise, costs, and leakage risks
  - Easy maintenance in a convenient location that saves space

### Availability

(Global) availability. Contact your local Dow technical representative for sampling.



Visit [bit.ly/DowICInfo](https://bit.ly/DowICInfo) to learn more about DOWSIL™ Immersion Cooling Technology.

## About Dow

Dow (NYSE: DOW) combines global breadth; asset integration and scale; focused innovation and materials science expertise; leading business positions; and environmental, social and governance leadership to achieve profitable growth and help deliver a sustainable future. The Company's ambition is to become the most innovative, customer centric, inclusive and sustainable materials science company in the world. Dow's portfolio of plastics, industrial intermediates, coatings and silicones businesses delivers a broad range of differentiated, science-based products and solutions for its customers in high-growth market segments, such as packaging, infrastructure, mobility and consumer applications. Dow operates manufacturing sites in 31 countries and employs approximately 37,800 people. Dow delivered sales of approximately \$57 billion in 2022. References to Dow or the Company mean Dow Inc. and its subsidiaries. For more information, please visit [www.dow.com](https://www.dow.com) or follow [@DowNewsroom](https://twitter.com/DowNewsroom) on Twitter.

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