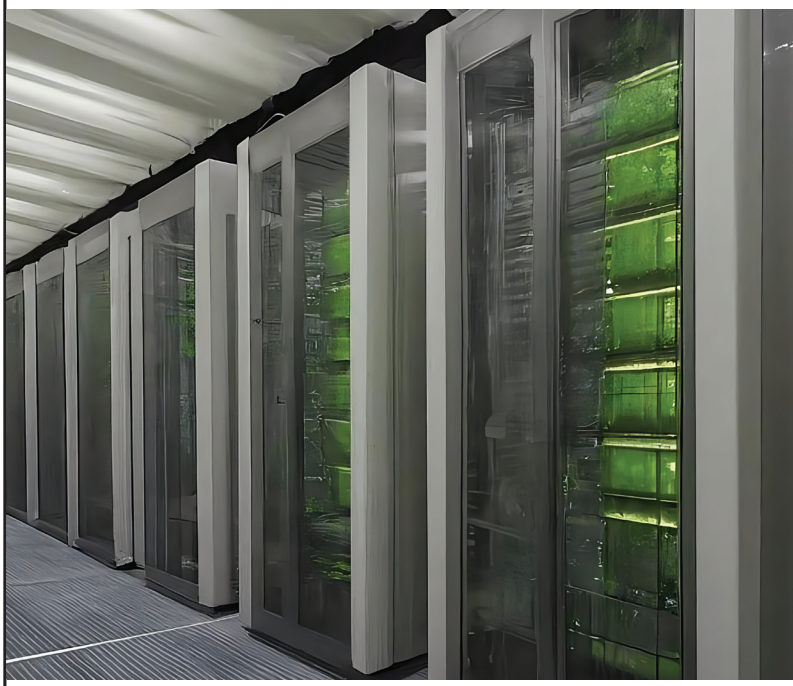
FORANEXT®

Fluids for Data Center Cooling Applications

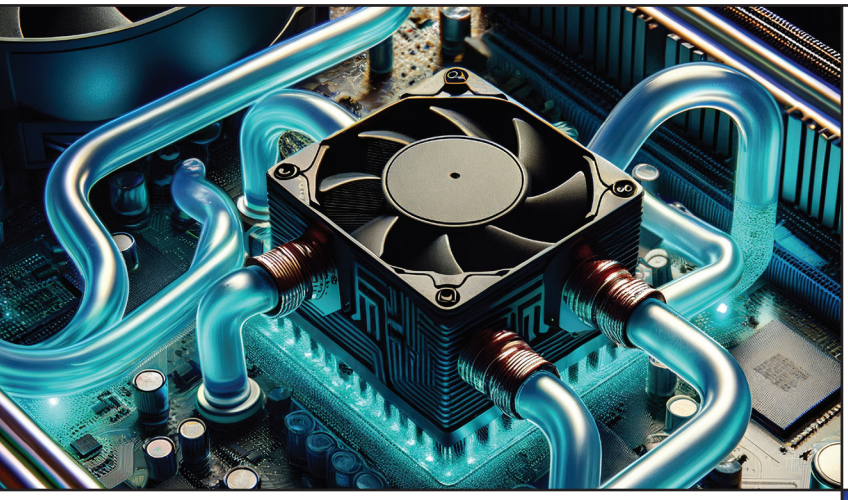
Data centers have become the key to modern technology, business and leisure but their high-power consumption and thermal management needs can make them a challenge when it comes to **sustainability.**

Microprocessors in **artificial intelligence** have a significant increase with rack power density due to their thermal design power (TDP).

Building on our unique set of expertise in materials science, Arkema designs materials to address the ever-growing demand for more efficient and sustainable materials. As companies continue to transition away from air-based thermal management systems, Arkema has developed Foranext® for data center cooling to increase **efficiency, safety and sustainability.**



Foranext® Technology Solutions

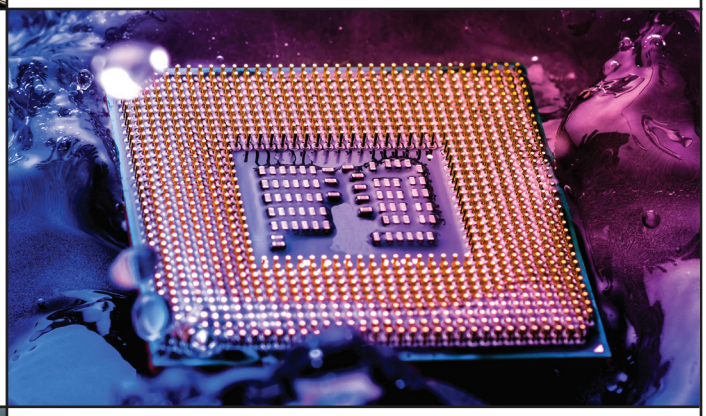


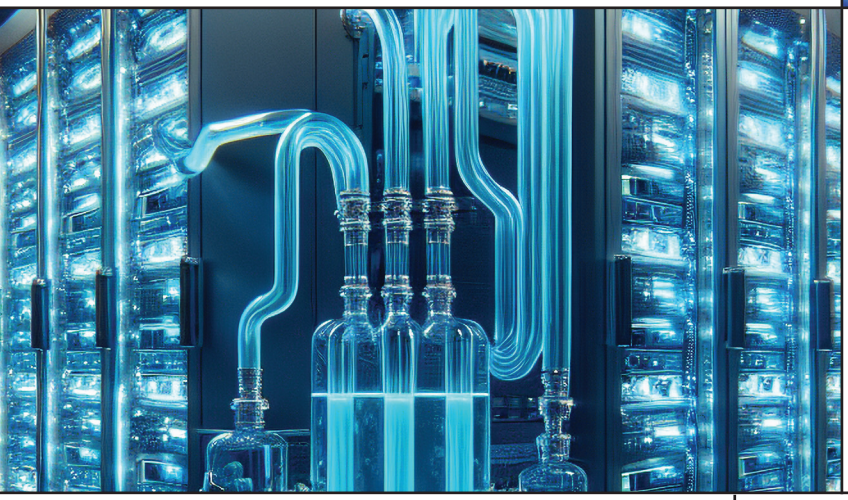
TWO-PHASE, DIRECT-TO-CHIP COOLING

- One of the most effective forms of cooling, Direct-To-Chip cooling uses latent heat, versus sensible heat, to improve the overall thermal performance.
- Foranext® 1233zd for Data Center Cooling, a non-flammable and non-toxic fluid, was designed with to adapt to various boiling points and latent heat making it a valuable option for managing the unique thermal challenges of your data center.
- Arkema maintains a strong and growing patent portfolio of global Forane® 1233zd intellectual property.

ONE-PHASE IMMERSION COOLING

- In on-phase **immersion cooling,** the servers are immerged in a tank filled with a dielectric liquid. While it greatly improves overall efficiency, the fluid itself can be flammable.
- Adding Arkema's Foranext® solution for 1-phase immersion cooling is a fluid additive designed to suppress the dielectric fluid flash point, improving the **overall safety of the data center.**





TWO-PHASE IMMERSION COOLING

- Like One-Phase Immersion Cooling, Two-Phase Immersion Cooling also uses tanks filled with dielectric fluid.
- The difference lays in the use of specific fluid boiling in contact with the processors. It offers tremendous thermal performance adapted to extreme heat generated by any microprocessors.
- **Foranext® solution** for 2-phase immersion cooling consists in a non-flammable fluid whose boiling properties adapt to the application.

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