



## FACT SHEET

# ElectroSafe™ Dielectric Liquid Coolant

“Not all liquids are made equal. ElectroSafe conducts heat, not electricity!”

## Frequently Asked Questions

### *What is ElectroSafe?*

ElectroSafe is an odorless, non-toxic, single phase coolant that is both electrically and chemically inert. The proprietary blend of high-performance fluids is the result of years of development, testing, and deployments across the globe. ElectroSafe ensures maximum performance and material compatibility, enabling your servers to run efficiently and reliably.

### *How long does ElectroSafe last?*

Unlike 2-phase coolants, ElectroSafe does not evaporate under normal operating conditions and does not need to be replaced through the life of the data center (15+ years). Commercial deployments dating back to as early as 2010 have been running efficiently and reliably, with no degradation in the coolant's performance.

### *How is ElectroSafe better than 2-phase coolants?*

2-phase coolants, as the name suggests, change phase from liquid to gaseous, i.e. evaporate at low temperatures. ElectroSafe, being a single-phase coolant, does not evaporate and stays in the liquid form under normal operating conditions. This enables GRC's patented open rack design that gives you easy access to your servers, making hardware maintenance a breeze.

Further, the lack of evaporation eliminates the risk of inhalation related health risks that 2-phase coolants pose. ElectroSafe is non-toxic and unlike 2-phase coolants, does not pose significant health risks due to inhalation or ingestion.

Finally, in terms of material compatibility and hardware reliability, ElectroSafe is compatible with virtually every electronic and IT component and system out there. GRC has been commercially deploying ElectroSafe based immersion cooling systems since 2010 and hardware reliability data shows a significant increase in the Mean Time Between Failures (MTBF). Initial tests with newer 2-phase coolants have shown some potentially catastrophic issues with material compatibility. A recent study by Lawrence Berkley National Lab (LBNL) showed dramatically high failure rates and vapor leaks that cost 368% of the total cost of IT equipment energy consumption. You can find the complete report here: <https://eta.lbl.gov/sites/default/files/publications/lbnl-1005666.pdf>

### ***How is ElectroSafe™ different from mineral oil or other single-phase coolants?***

Back in 2009, when GRC was founded, we started with simple white mineral oil, but we noticed some material compatibility challenges that it posed with certain types of materials. Hence, we set out to find the ideal fluid that would offer better material compatibility without compromising the ease of material handling and safety that mineral oil offers. ElectroSafe is the result of that research and development process that has now proven its efficacy in commercial deployments across the globe, since 2010.

### **ElectroSafe Coolant Characteristics**

Evaporation Rate	Nil
Percent Volatile	Nil
Auto-Ignition Temperature	-605° F (343° C)
Density	7.10-7.13 lbs/gal

### ***What about fire safety and building code?***

ElectroSafe™ coolant has a very low flammability rate and does not readily ignite. The National Fire Prevention Association (NFPA) 704 diamond rates ElectroSafe as a **0-1-0 substance**.

This means that it poses no health hazard, has a high flashpoint, and is stable even under fire exposure conditions.



ElectroSafe NFPA 704  
Fire Diamond

To Learn More About ElectroSafe and GRC's Patented Immersion Cooling Technology  
Call **512.692.8003** • Email **info@grcooling.com** • Visit **grcooling.com**