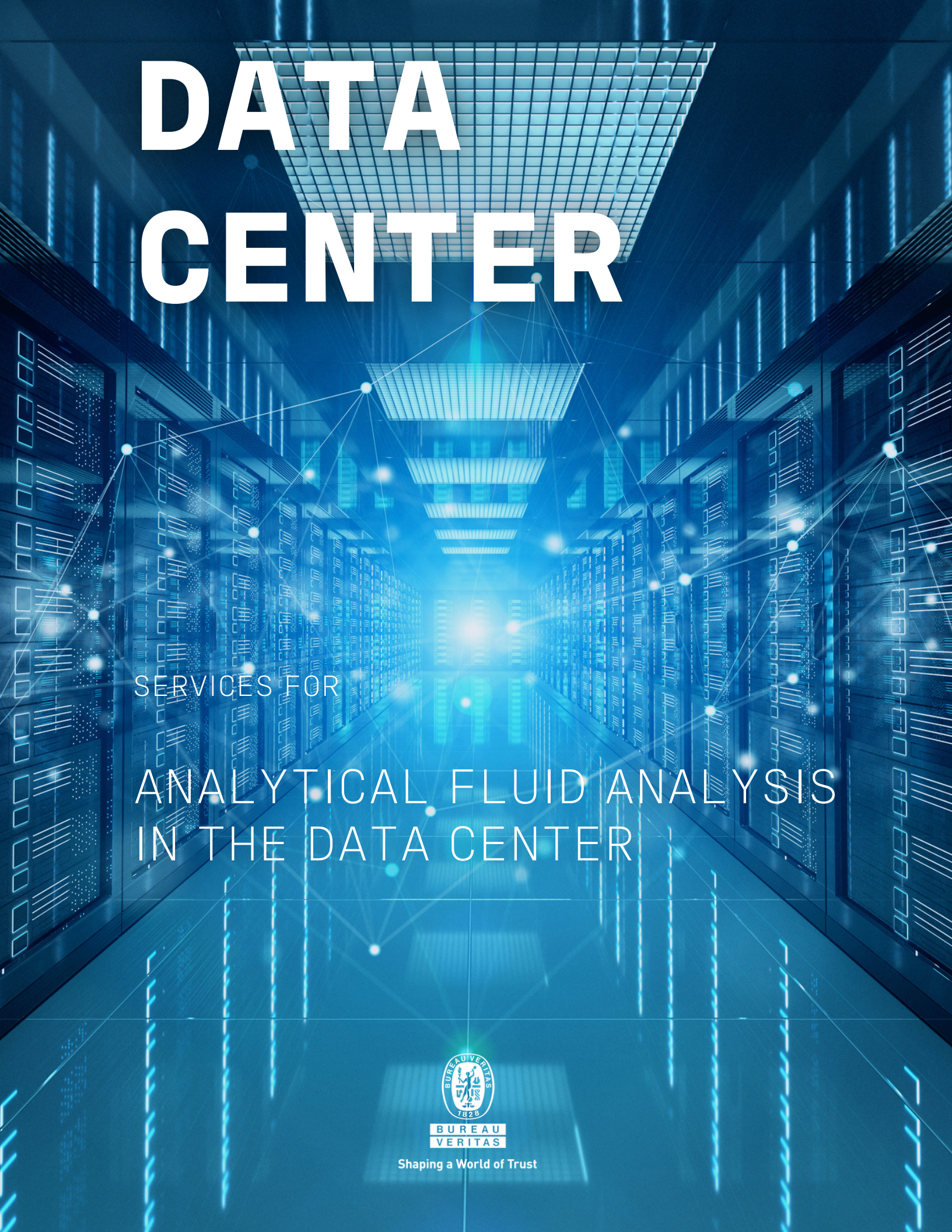


DATA CENTER

SERVICES FOR

ANALYTICAL FLUID ANALYSIS IN THE DATA CENTER

BUREAU VERITAS

Shaping a World of Trust



Data Center Coolant Analysis

Identify Problems Within Equipment Reliability

OVERVIEW

There are approximately 11,000 globally operational data centers across 174 countries. The U.S. accounts for roughly 37% or around 4,000+ of these centers. Reports indicate that there are 487 actively under construction and 975 facilities upcoming or in the pipeline in the U.S. Globally there are roughly 670 to 780 hyperscale or large scale data center projects in the pipeline.

Currently 20% of these systems are liquid cooled with expectations rising to 53% in 2026. This necessitates adopting best maintenance practices and quality monitoring of the fluid. This is where Bureau Veritas can partner with you to ensure the cooling fluids in your operations are doing the job needed to maximum efficiency and longevity.



Why It Matters

Liquid cooling is a more efficient way to control the heat.

The efficiency will be dependent upon properly maintaining the cooling fluid.

Data centers are literally getting hotter. With AI and high performance computing turning out massive amounts of power, the traditional air cooling just can't keep up with the task at hand.

Liquid transfers heat around a thousand times more efficiently than air, delivers more kilowatts per pack, reduces energy costs by approximately 10%, reduces noise, extends equipment lifespan by reducing thermal stress and packs more power into a smaller footprint thus making it the clear choice for high-capacity data centers.

LABORATORY SERVICES

Equipment reliability begins with a consistent fluid analysis program. Bureau Veritas global network of state-of-the-art testing facilities provides accurate, reliable results you can depend on to keep your data center up and running efficiently.

Testing frequency depends on many factors but industry standards recommend quarterly testing. Best practices recommend testing glycol-based coolants quarterly (at least 4 times per year) for the following:

- Glycol concentration
- pH balance
- Inhibitor depletion
- Corrosion indicators
- Visual assessment

PROTECTING PERFORMANCE. POWERING RELIABILITY.

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P 800-655-4473 | **E** ocminfo@bureauveritas.com | www.oil-testing.com



DIRECT-TO-CHIP FLUIDS

Modern data centers increasingly rely on liquid cooling to manage the thermal demands of high-density computing. Bureau Veritas provides comprehensive fluid analysis programs to monitor coolant health, detect contamination, and prevent costly failures. Our testing covers:

- Direct-to-chip cooling fluids
- Immersion cooling dielectric fluids
- Chilled water loop analysis
- Glycol-based coolant systems

DATA CENTER COOLING: PRECISION FLUID MANAGEMENT FOR PEAK UPTIME



LIQUID COOLING SYSTEMS

Semi-annually is acceptable for lower-risk systems with stable operating conditions, closed-loop systems having minimum exposure and well maintained filtration. A more frequent test schedule may be necessary if the system operates at higher temperatures, functions in full or partial open-looped mode, has a history of coolant degradation, is in its startup phase, has experienced leaks or contamination issues, or mission critical data center operation.

Innovation
Pioneering solutions in Fluid diagnostics techniques

Operational Efficiency
Optimize your operations with data-driven insights

LOAMS
Streamlining Fluid analysis with smart data management

Trend Analysis
Predicting machinery health through advanced trend insights

LOAMS
Lube Oil Analysis Management System
Powered by Bureau Veritas

WHAT WE ANALYZE

CONVENTIONAL & ELC

CONTAMINANTS	INHIBITORS	DEGRADATION ACIDS
Chloride	Nitrite	Glycolate
Fluoride	Nitrate	Formate
Sulfate	Phosphate	Acetate
		Oxalate



TRANSFORMER OIL ANALYSIS:
The analysis of insulating oils provides information about the oil, but also enables the detection of other possible problems, including contact arcing, aging insulating paper and other latent faults and is an indispensable part of a cost-efficient electrical maintenance program.

STORED DIESEL FUEL ANALYSIS:
Testing the diesel fuel in standby power generators is critical for the reliability of facilities to operate in the event of outside power loss. Our testing complies with NFPA 110 and ASTM D975 for determining the serviceability of on-site stored fuel.

OIL & ANTI-FREEZE/ COOLANT TESTING:
Emergency and standby generators must work when you need them, failure is not an option. Lubricants and coolants used in standby generators will degrade over time. If not managed properly this can result in unexpected generator shutdown, operational disruptions and costly repairs. Our testing assesses the condition of the oil and coolants in your emergency and back-up power generators as part of your facility's asset condition monitoring program.

INDUSTRIAL COOLANT TESTING:
From refrigerants to cooling water, data center cooling systems are fundamental to facility operations. Testing these fluids on a routine basis ensures your equipment never overheats.

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POWERING RELIABILITY

From Power Generation to Precision Cooling
Fluid Analysis Keeps Data Centers Running at Peak Performance

BUREAU VERITAS
Shaping a World of Trust

1 POWER GENERATION: MANY SOURCES, CRITICAL FLUIDS, ONE GOAL | RELIABILITY

NUCLEAR



ANALYSIS

Turbine oils, transformer fluids, and coolants require regular analysis to prevent failures.

COAL



ANALYSIS

Boiler feedwater, turbine oils, and hydraulic fluids need monitoring to optimize performance and extend asset life.

NATURAL GAS



ANALYSIS

Turbine oils, compressor oils, and hydraulic fluids require testing to ensure reliable starts and prevent contamination.

WIND & SOLAR



ANALYSIS

Gearbox oils, coolants, hydraulic fluids, and transformer oils need analysis to detect wear, water ingress, and support uptime.

2 AT THE DATA CENTER: COOLING, BACKUP AND POWER QUALITY DEPEND ON CLEAN FLUIDS

FLUID ANALYSIS

- Turbine Oils
- Transformer Insulating Oils
- Hydraulic Fluids
- Compressor Oils
- Gear Oils
- Glycol-Based Coolants
- Dielectric Fluids
- Heat Transfer Fluids
- Immersion Fluids
- Chilled Water Systems

DATA CENTER COOLING SYSTEMS
Keeping Servers Cool. Fluids Make It Possible.

BACKUP DIESEL GENERATORS
Ready When You Need Them.

TRANSFORMER
Deliver Clean. Stable Power.



LIQUID COOLING FLUID ANALYSIS

Chilled Water / Glycol • Corrosion Inhibitor Levels • pH • Microbial Growth • Particle Count

Protects chillers, pumps, and prevents downtime.



DIESEL FUELS ANALYSIS

Water • Microbial Growth • Cetane Index

DIESEL ENGINE COOLANT ANALYSIS

COOLANT: Corrosion Metals • Contaminants • Acidity/ Alkalinity • Corrosion Protection

OIL: Wear Metals • Soot • Viscosity • Fuel Dilution • Oxidation • Coolant

TRANSFORMER OIL ANALYSIS

Dielectric Strength • Moisture • Dissolved Gases (DGA) Acidity • PCB Screening

Detects insulation breakdown and prevents catastrophic failure.

3 THE BENEFITS OF ANALYTICAL FLUID ANALYSIS

EARLY WARNING DETECTION

Identify fluid degradation and contamination before equipment failure occurs.

EXTENDED EQUIPMENT LIFE

Optimized fluid maintenance extends the operational life of critical systems.

REDUCED DOWNTIME

Proactive monitoring prevents unplanned outages and costly emergency repairs.

COST SAVINGS

Targeted maintenance based on fluid condition reduces unnecessary fluid changes.

REGULATORY COMPLIANCE

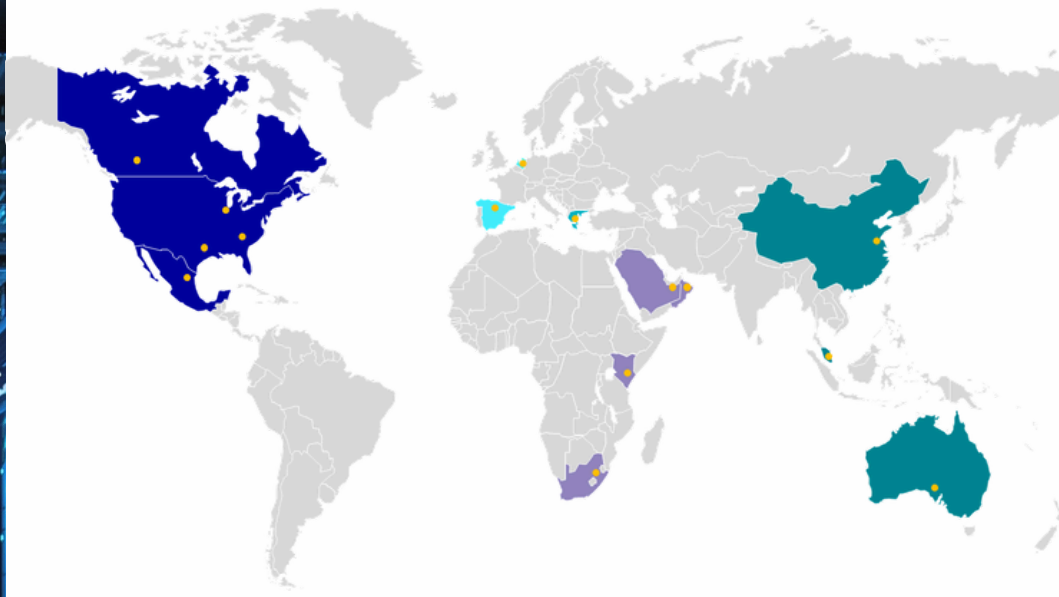
Meet industry standards and environmental regulations and support organizational energy efficiency goals

PROTECTING PERFORMANCE. POWERING RELIABILITY.

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GLOBAL FOOTPRINT
OIL CONDITION MONITORING



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	Atlanta		
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Saudi Arabia	**+966-13-361-7960**
Singapore	**+65 627 52 776**

EXPLORE OUR RANGE OF FLUID ANALYSIS SERVICES

Our solutions and services help our clients reduce risk, improve their performance and meet the challenges of equipment maintenance and reliability.

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OUR MISSION

Bureau Veritas works each day to become our clients' trusted technical partner by supporting their mission-critical facilities through exceptional levels of service and quality. In order to do so, we create a collaborative environment between our employees and clients that fosters the highest level of professionalism and leadership within the data center industry. As an independent laboratory partner Bureau Veritas provides dependable data and consistent recommendations for each sample analyzed. With test packages tailored to suit each piece of equipment and a dedicated reporting portal we provide the data in a useful format for use in maintenance recommendations all the way through to big data projects. Working from a global platform of labs Bureau Veritas is unique as it can offer the same consistent testing program and reporting portal worldwide.

Bureau Veritas has been providing testing, inspection and certification services for nearly 200 years to clients in hundreds of industries from automotive to manufacturing, data center & renewable power to navigate market changes and make a demanding new world safer. With 7,500 employees and 130 locations in North America alone, and a network of 78,000 in 1,500 local offices and laboratories in 140 countries across the world, Bureau Veritas' global operations and digital solutions go beyond simple compliance to help organizations large and small reduce risk, improve performance and promote sustainable development.

Our mission is simple. We work each day to shape a world of trust. We help ensure assets, products, infrastructure, and processes comply with client specifications or standards and regulations, while improving performance in quality, health and safety, environmental protection (QHSE), and social responsibility.

SHAPING A WORLD OF TRUST
QUESTIONS? CONTACT US!

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