



Oil Diagnostics

Turning Oil into Insights



Oil Diagnostics Brochure
Data-driven asset health

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What is Oil Diagnostics and why is it important?

Insulating oil is found in transformers, tapchangers and switchgear, and can provide a vital insight into the condition of your electrical assets.

Oil Diagnostics provides fast, expert analysis of insulating oil to support **evidence-based maintenance** decisions. By detecting early signs of degradation or faults, we help asset owners extend life, reduce downtime, and prevent costly failures.

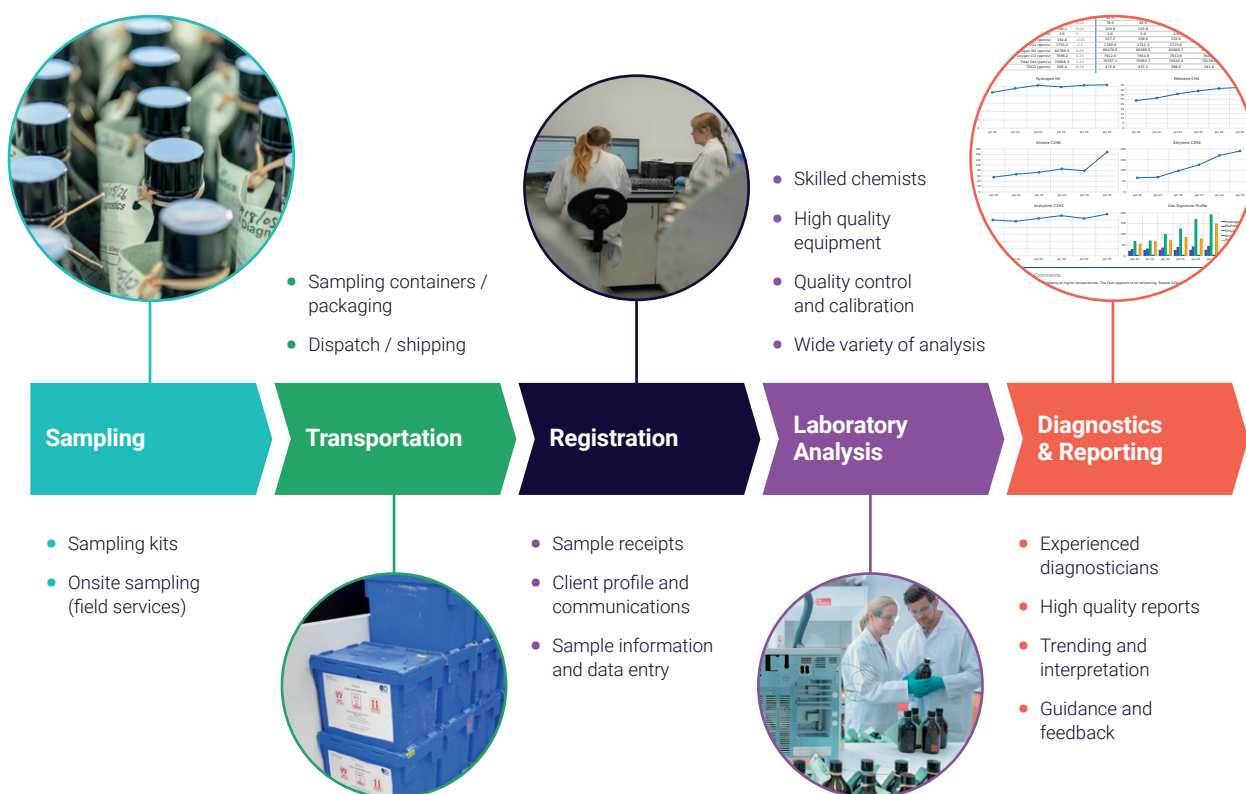
Key Benefits:

- Early fault detection before failures occur
- Improved asset life and performance
- Reduced downtime and financial losses
- Safety assurance and regulatory compliance



Sampling & Reporting Process

Accurate results begin with accurate sampling. EA Technology provides **kits, training, and on-site services** to ensure repeatable and representative oil samples. From there, our laboratories use high-quality equipment and skilled chemists to deliver precise results and clear reporting.



Once your results have been provided, you will have the ability to make informed decisions on the maintenance of your electrical assets.



Transformers

Transformers are critical to network resilience, but insulation breakdown, overheating, and moisture can all lead to costly failures. EA Technology's extensive experience shows that oil analysis is the most cost-effective way to assess the internal condition of oil-filled transformers.

Oil Diagnostics reveals these conditions early through key health indicators, such as:

- **Dissolved Gas Analysis (DGA)** - detects overheating, arcing, and partial discharge
- **Oil Quality (moisture, acidity, breakdown voltage)** – identifies asset maintenance requirements such as oil filtration or replacement
- **Furan (FFA) analysis** – assesses paper insulation condition and end-of-life indicators



Switchgear & Cables

Oil diagnostics is also used to monitor the health of oil-filled switchgear and cables, helping reduce costs and avoid unnecessary time-based maintenance:



Switchgear

Live Tank Oil Sampling (LTOS) avoids over-maintenance and targets only units needing intervention.



Cables

Oil analysis detects contamination, particle build-up, and degradation, preventing failures.

Beyond identifying current issues, regular oil analysis builds a valuable trend history. This enables asset managers to predict emerging problems, extend equipment life, and prioritise investments with confidence.



Health Index: Insights Tailored to You

Health Index is a practical decision-support tool that turns complex test data into a clear, actionable score. By weighting factors such as oil condition, electrical test results, age and duty cycle, it provides a balanced picture of asset health.

This makes it easier to compare assets across a fleet, track deterioration over time and plan interventions with confidence.

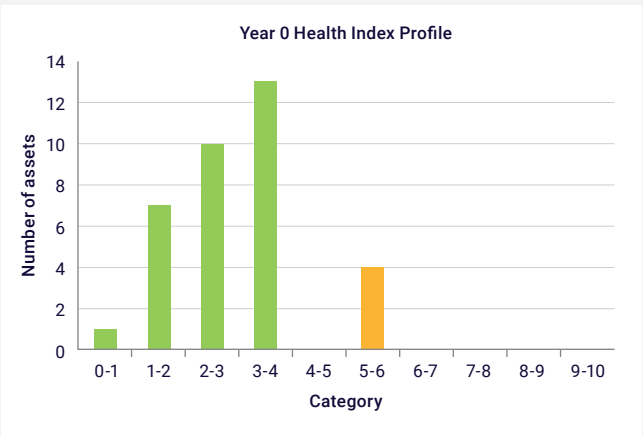
The Health Index condenses complex data into a single score (0–10), helping you see which transformers are closest to end of life (EOL) and where to focus resources for maximum impact.

Condition Codes:

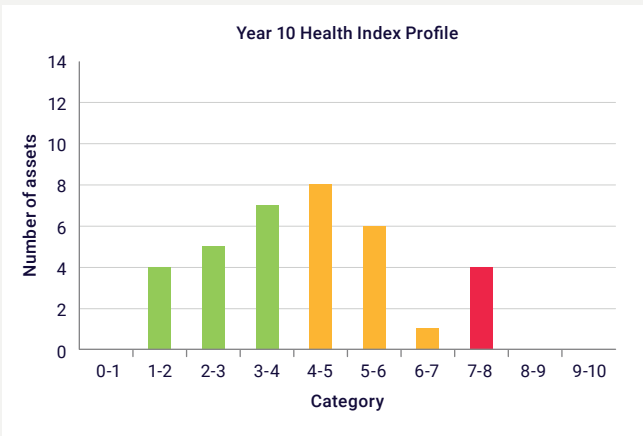
- **Less than 3.5 (Good):** Continue operation/standard maintenance
- **3.5–7 (Moderate):** Enhanced maintenance/refurbishment may be needed
- **Larger than 7 (Poor):** Replacement required to prevent unacceptable failure risk

Tx ID	Serial No.	Current Health Index	Current POF	Health Index Year 10	Year 10 POF	Estimated End of Life (years)
1	1	1.9	0.0019	2.7	0.0032	34
2	2	5.8	0.0134	7.4	0.0241	8
3	3	3.5	0.0048	4.5	0.0081	26
4	4	5.0	0.0098	7.6	0.0256	8
5	5	1.6	0.0016	2.3	0.0025	40
6	6	1.7	0.0017	2.4	0.0027	38
7	7	2.5	0.0029	3.7	0.0054	27
8	8	5.7	0.0130	7.4	0.241	8

Calculated Health Index and probability of failure for transformer population.



Current Health Index profile.



Projected Health Index profile with no intervention.

How can Health Index benefit you?

Health Index turns oil diagnostics into clear, actionable insights. By detecting issues early, forecasting future performance, and ranking assets by risk, it enables smarter maintenance strategies, reduces unexpected failures, and ensures investment is targeted where it delivers the most value.

Its benefits extend across every sector, including:



Industrial Sites

Minimise production disruption.



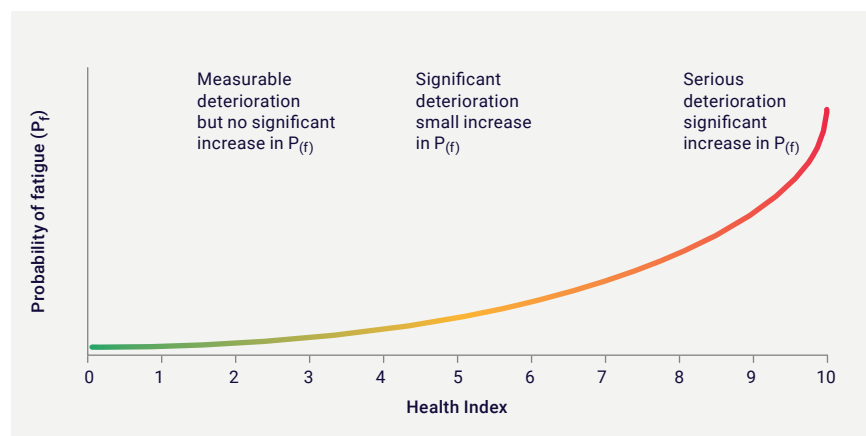
Network Operators

Prioritise replacements and optimise Capital Expenditures.



Renewable Energy

Ensure reliability under demanding conditions.



Health Index probability of failure.

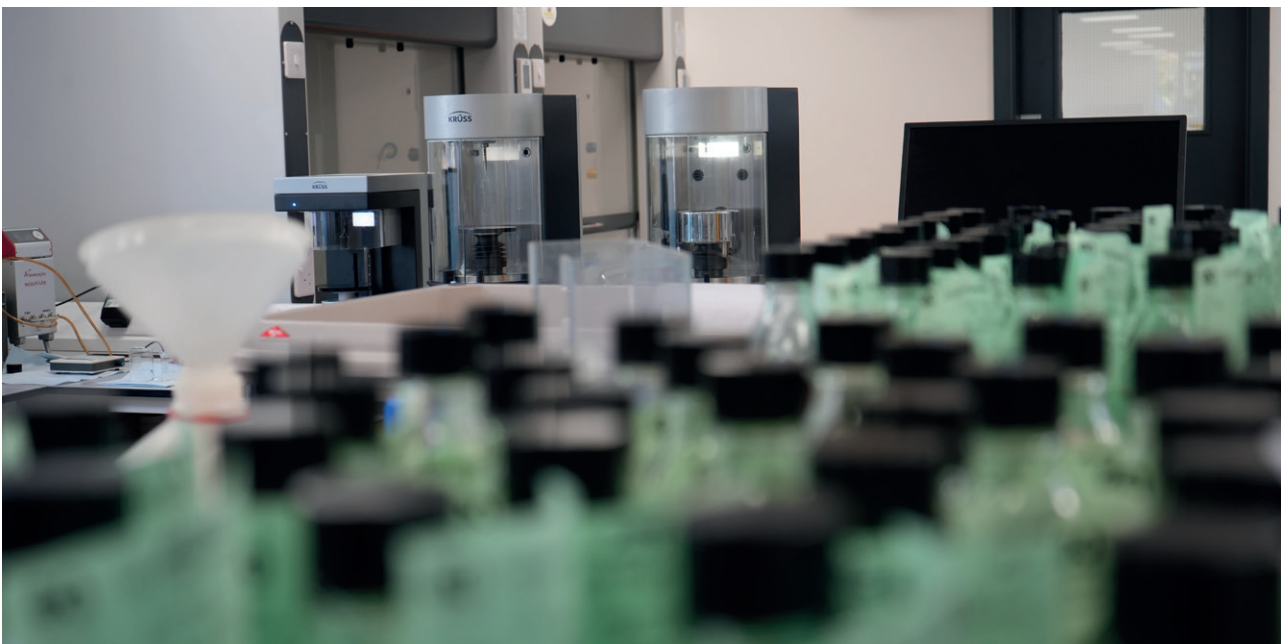
Contact our team today for more information on the **benefits of implementing Health Index.**



Scan for more information

Oil Laboratory

With Oil Diagnostics now established as one of the primary methods for managing electrical assets and detecting developing faults, our recently redeveloped Oil Laboratory is now equipped to process **more than 80,000 samples every year**.



Based in the UK, this capability ensures rapid, reliable results to support asset managers in making confident, data-driven decisions.

Beyond capacity, the laboratory has been upgraded with the latest testing technologies and streamlined processes. From dissolved gas analysis to advanced particle assessment, every stage is designed for accuracy and efficiency, delivering actionable insights that help extend asset life, optimise maintenance and prevent costly failures.



DID YOU KNOW?

Transformers are among the most expensive and critical assets on an electrical network. Regular oil diagnostics can identify issues months or even years before a failure, helping to protect both performance and investment.



Oil Analysis Capabilities

Our new Oil Laboratory offers a wide range of in-house testing capabilities to support evidence-based transformer maintenance. Each analysis contributes to one of **four key pillars of transformer health**, providing asset owners with the insight needed to **extend life, reduce risk, and optimise performance**.



OLIMS Client Portal

Your Data, Anytime, Anywhere

The OLIMS Client Portal revolutionises the way transformer oil diagnostics are managed, digitalising the entire end-to-end process and bringing all of your data together in one secure place.

Traditionally, results would be delivered as stacks of paper documents or endless PDF attachments. This outdated approach slows down response times and increases the risk of missing vital signs of failure.

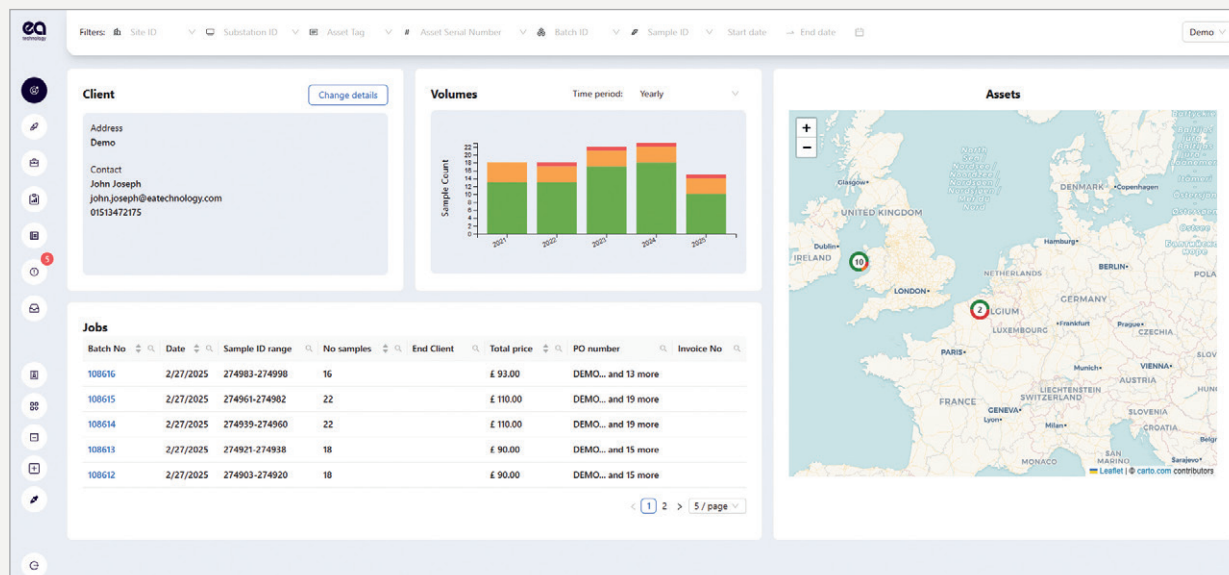
With OLIMS, a **modern, intuitive dashboard** puts your results at your fingertips in seconds. Data is instantly organised, searchable, and actionable, helping you make informed decisions faster and with greater confidence.

Real-Time Results and Reporting

As soon as your analysis is complete, results are uploaded directly to the portal. You can check the condition of a single transformer or your entire fleet at a glance, helping you respond proactively before issues escalate.

Fleet-Wide Trend Analysis

Instead of piecing together reports from different sources, OLIMS consolidates your information and highlights emerging trends across your entire asset base. This gives you a clear, long-term view of asset health and performance.



Faster insights, better planning, reduced risk

Centralising data in OLIMS transforms the way teams work:



Improved collaboration

With all stakeholders accessing the same information in real time, decisions are quicker and more aligned.



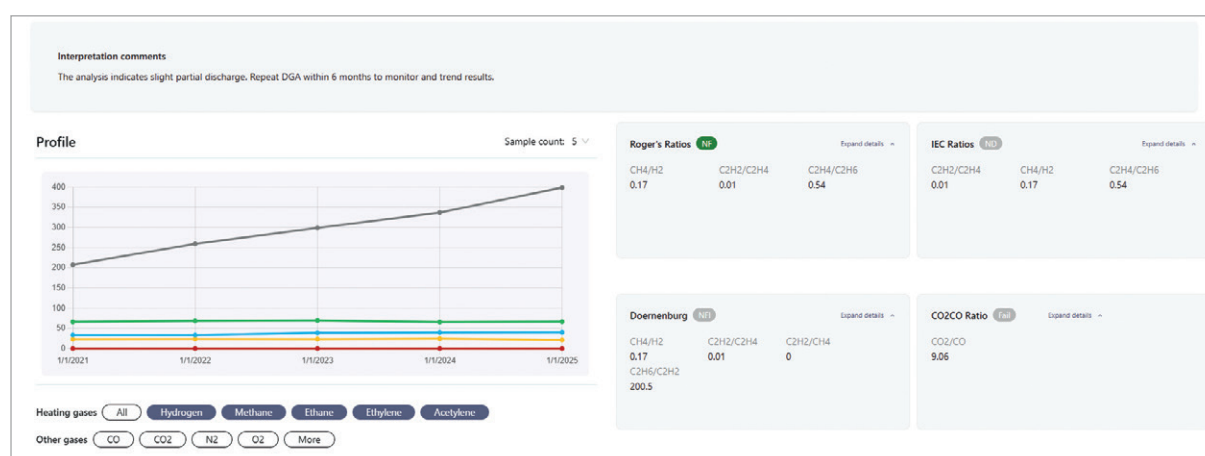
Data integrity you can trust

Independent studies show OLIMS achieves over a **90% improvement in data accuracy** compared with traditional reporting methods.



Time back in your hands

What once took hours of searching through files or email chains can now be achieved in minutes.



Smarter Investment Planning

By combining condition data with fleet-wide trends, OLIMS supports evidence-based maintenance strategies. This enables you to prioritise investment where it's needed most, extend asset life, and reduce unnecessary costs.

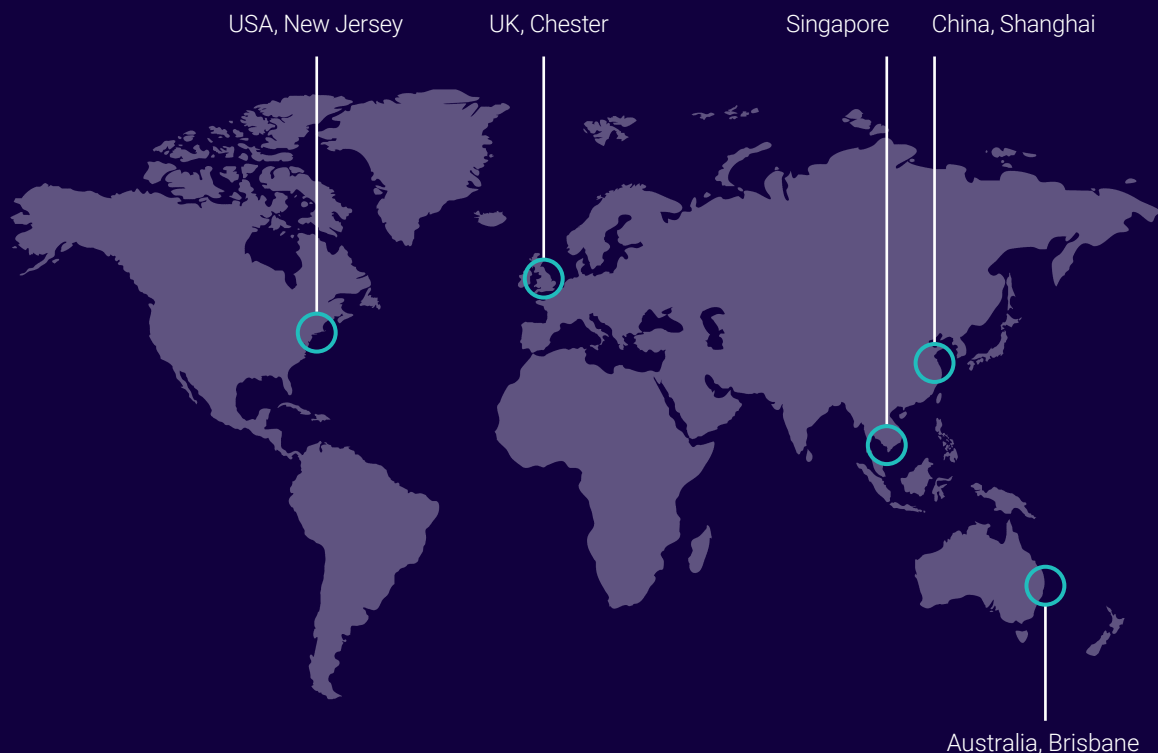
Contact our team today to book a demonstration.



Scan for more information

Global Footprint

At EA Technology we specialise in asset management solutions for owners and operators of power network assets.



Founded in 1966 we have over 50 years' experience in the industry and 5 regional offices around the world to support our global customer base.

We work with a lot of our clients on a long-term basis to help them safeguard their power networks.

We advise our clients on strategy and implementation of a range of technology solutions to manage power assets, delivering maximum life and minimise cost.



Safer, Stronger, Smarter Networks

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