Advanced Dissolved Gas Analysis for Transformer Health Assessment

Transformer Oil Analyst™ (TOA)

Increased energy demand coupled with aging transformers, long lead times, and increased prices is making it more critical than ever to prolong a transformer's operating life. Transformer Oil Analyst™ (TOA™) helps organizations reduce costly unexpected failures and extend the life of their transformer fleet.

TOA is a risk assessment and decision support tool designed to assess and manage the health of your transformers. Using an advanced interpretation of DGA data, known as Reliability-based DGA, we provide a simple, quantitative health assessment.

Which transformers need attention now?

- TOA streamlines costs with predictive maintenance insights

Identify transformers that will need to be replaced and how likely they are they to fail?

- TOA allows you to make confident long term asset planning decisions

~50%

of all electricity delivered to US consumers runs through transformers supported by TOA

Advanced Health Analytics

TOA uses the only DGA interpretation method that associates fault gas production with transformer failures. Our analysis goes beyond simple, standards based DGA analysis. We take your transformer, compare it to a statistical model of thousands of real world transformers, then give you a likelihood of failure.

Early Warning System

Early detection of faults using advanced DGA diagnostics minimizes unplanned outages. TOA flags and diagnoses problems quickly, while avoiding false alarms.

Vendor Agnostic

TOA is Independent of labs, service providers, and hardware vendors. You choose who you work with and we will work with them too.

Delta-X RESEARCH | Scientific Easy Independent

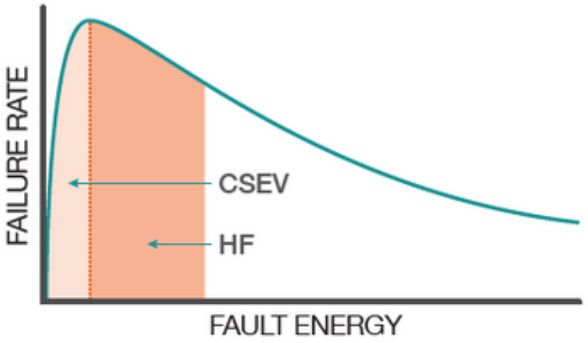
TOA uses the most correct interpretation of dissolved gas analysis

	1 Fault detection Does a fault exist?	2 Fault type What type of fault is it?	3 Fault severity How severe is it?
Conventional Tools	• Simple limits-based approach • No consideration of failure data	• Uses Duval Triangle and Pentagon	• Inconsistent fault assessments
TOA	• Uses Normalized Energy Index for better identification of gassing events • Utilizes failure data • Accounts for gas loss	• Uses 4-Simplex or Duval Triangle	• Quantifies the likelihood of failure

What is Reliability-based DGA?

Reliability-based DGA outperforms conventional DGA

TOA is enhanced with an innovative new method called Reliability-based Dissolved Gas Analysis. Rather than using simple limits or setpoints of conventional DGA, Reliability-based DGA identifies and assesses power transformer abnormalities by associating fault gas production with transformer failures. It is based on a statistical analysis of a large set of real-world transformer reliability failure data. By tracking the fault energy index related to dissolved gases, Reliability-based DGA is able to take your transformer, compare it to the model, and give you likelihood of failure, all while outperforming conventional DGA.



Reliability-based DGA relates gassing events to transformer failures:

- Cumulative Severity (CSEV) - the number of transformers that would have already failed.
- Hazard Factor (HF) - the probability of failure if gas production continues at the same rate.
- Detect critical issues before they escalate to failures via condition-based monitoring.

Add more value with Monitor Watch™

TOA with Monitor Watch brings advanced analytics to DGA monitoring by comparing online DGA monitor data from any manufacturer with laboratory data. It provides consistent interpretation and meaningful, high-quality intelligence from your DGA results in near-real time. It also evaluates data quality to detect early signs of sensor deterioration or problems such as sampling issues, so your staff can implement safeguards. You can be confident that any notifications are truly critical events.