

FREQUENCY DOMAIN INSULATION SYSTEM DIAGNOSIS

FIND

- Evaluation of moisture absorption, degradation, and contamination of Power Transformers.
- Insulation evaluation of High Voltage Rotating Machines.
- Electrical Characteristics and degradation evaluation of Lubricating oil for vehicles.



- **Single measurement enables evaluation of insulation.**

No need to compare past data to analyze insulation degradation factors.

- **Compact • Light weight • Battery-powered.**

Easy on-site measurement with a single unit.

- **No specialized expertise is required.**

The state of insulation is clearly analyzed.

APPLICATION :

Insulation diagnosis of High Voltage rotating machines

Determine the deterioration state in a single test.

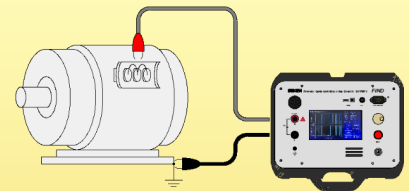
Frequency Response Trends due to degradation factors.

[In a state with moisture absorption]

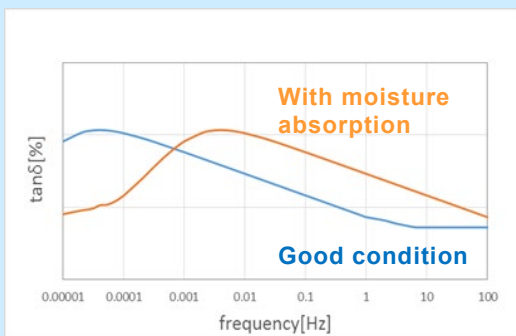
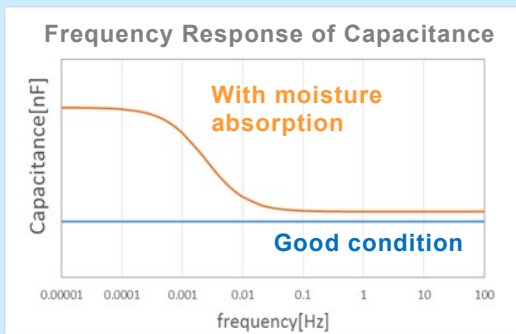
- Capacitance increases at lower frequency.
- The maximum value of $\tan \delta$ shifts to higher frequency band.

[In a state with Surface Contamination]

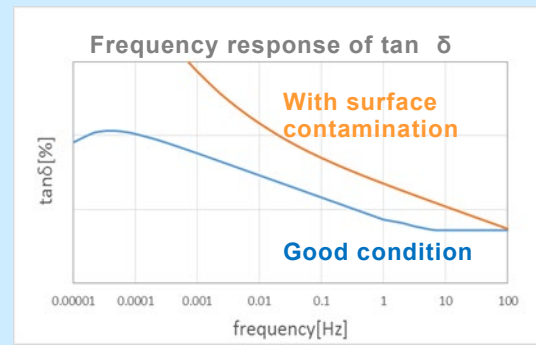
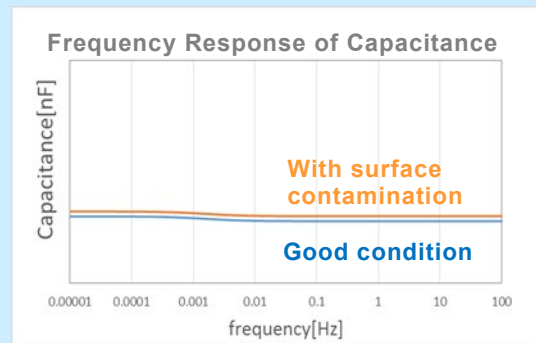
- Capacitance does not change with frequency.
- The slope of $\tan \delta$ becomes $1/\omega$ at low frequency band.



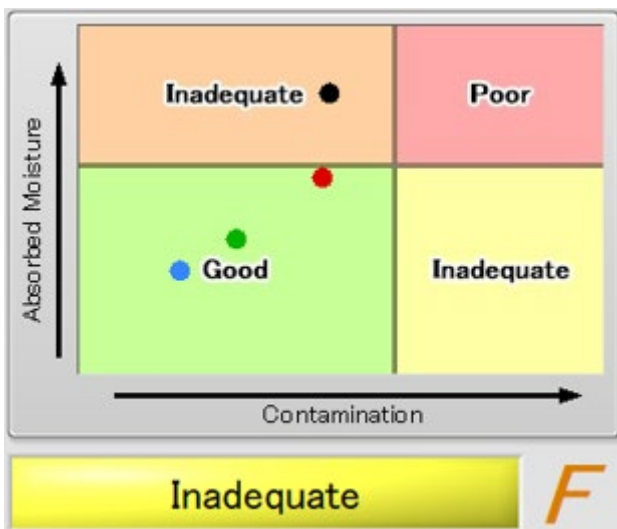
Moisture absorption



Surface contamination



Analysis with software



Based on the analysis results, the degree of moisture absorption and surface contamination are displayed in a scatter plot, and the overall evaluation is output in 7 levels from A to G.

APPLICATION :

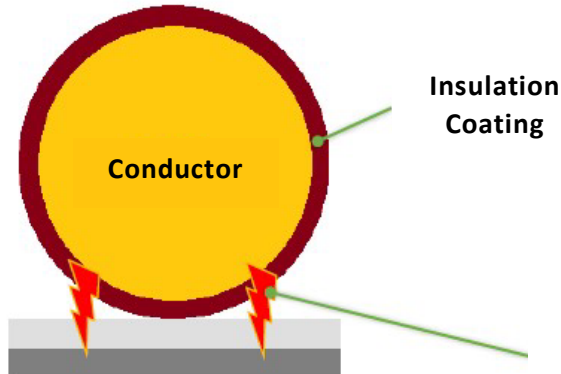
Diagnosis of Enameled wire deterioration.

A new approach to diagnosing enameled wires.

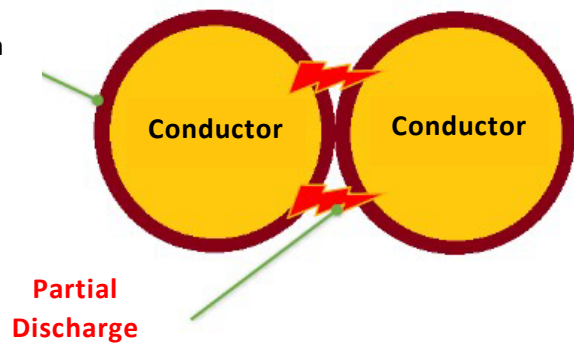
■ Deterioration of enameled wires due to Partial Discharge.

The occurrence of PD accelerates the degradation of the insulation coating.

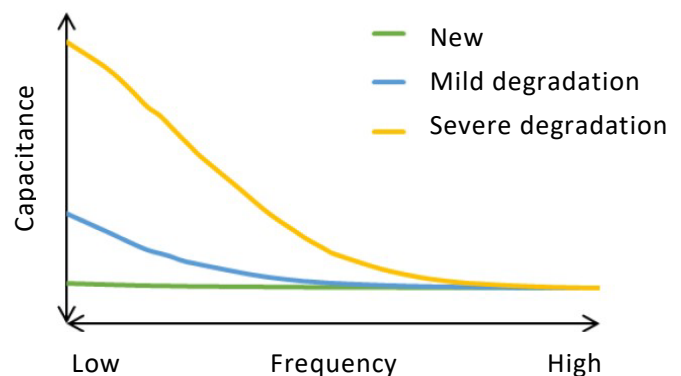
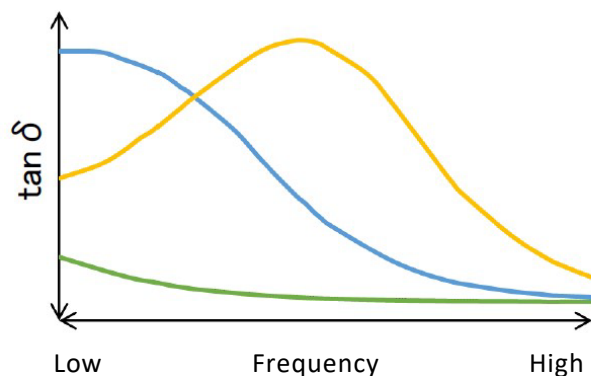
PD in Phase-to-Ground



PD in Phase-to-phase



■ Capture degradation progression by characteristics at low frequencies.



APPLICATION :

Safety Evaluation of Lubricating Oil for Vehicles (EV, HEV).

Electrical evaluation of lubricating oil, Hydraulic fluids, and Oil additives.

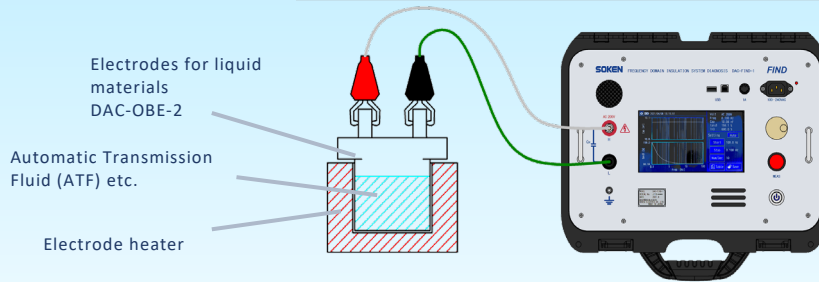
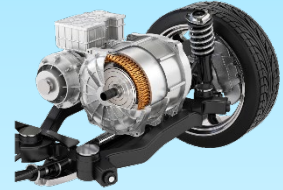
■ Electrical properties required for lubricants.

- Low dielectric constant, high volume resistivity and high withstand voltage are required.
- Stable electrical characteristics over a wide temperature range is required.



■ Advantage of measuring Lubricating oil with *FIND*.

- With test voltage as high as 200Vrms, *FIND* can evaluate dielectric and insulation properties in a state close to the operating conditions.
- *FIND* supports $\tan \delta$ up to about 1000%, enabling temperature testing of Lubricating oil.
- Designed for motor measurement, *FIND* can evaluate the insulation structure of a motor containing lubricating oil.



SPECIFICATIONS

NAME : Frequency Domain Insulation System Diagnosis

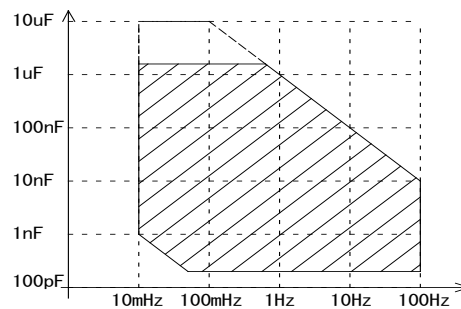
MODEL : DAC-FIND-1

Capacitance	Measurement range	300pF to 2 μ F
	Display	4 digits
$\tan \delta$	Measurement range	0.01 to 999.9%
	Minimum resolution	0.01%
Test power	Frequency	10mHz to 100Hz
	Voltage	200Vrms, 20Vrms
Input power	Battery	Ni-MH 12V 4200mAh 4 hours continuous drive
	AC adaptor	AC100 to 240V
Size and weight	W394 x D307 x H173 (mm) about 7kg	



Measurement range

Frequency	Capacitance
10mHz	1nF – 2 μ F
100mHz	300pF – 2 μ F
1Hz	300pF – 1 μ F
10Hz	300pF – 100nF
100Hz	300pF – 10nF



ISO9001:2015
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