**Double WearCheck™** √√ is a special Spectrometric Analysis that combining RDE with RFS Spectrometric Analysis in order to detecting concentration (in ppm unit) of both fine wear particles and coarse wear particles .

During machinery in operations , wear debris particles are generated by rubbing motion of mechanical component parts , are either normal wear or abnormal wear .

Normal wear particles will tend to have particle size in fine wear particles or small wear particles or less than 5 micron in size .
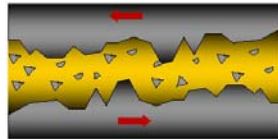
Normal Wear

In which abnormal wear mechanism (high load ; high speed) , often tend to proceed gradually with many fine wear particles together with coarse or large wear particles (larger than 5 micron).
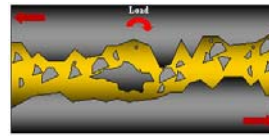
Abnormal Wear

Traditional Spectrometric Analysis that are widely used for measuring concentration (in PPM units) of wear metal elements ,additives and contaminants in used oil analysis are RDE Spectrometer or ICP Spectrometer . Those spectrometer methods are blinded or unable to detect large wear particles indicating abnormal wear .

Most understanding , ICP spectrometers **can not** detect wear metal particles more than 3 micron in size while RDE Spectrometer, particles large than 8 microns often are undetected .

RFS Spectrometer technology was developed specifically to detect large particles of wear metals and contaminants particles in used oil.

FOCUS LABORATORIES LTD.

√ **ISO 9001 : 2000 Certified**

Oil Analysis for Predictive Maintenance

Focus Laboratories has integrated the RFS method with RDE spectrometer (for fine wear metals ,additives and contaminants) to provide an excellent Spectrometric Analysis .

Double WearCheck™ √√ are named for this dual spectrometric analysis (RDE + RFS).

Double WearCheck™ √√ will give more advanced warning than traditional or conventional spectrometric analysis in used oil analysis –conditioning monitoring .
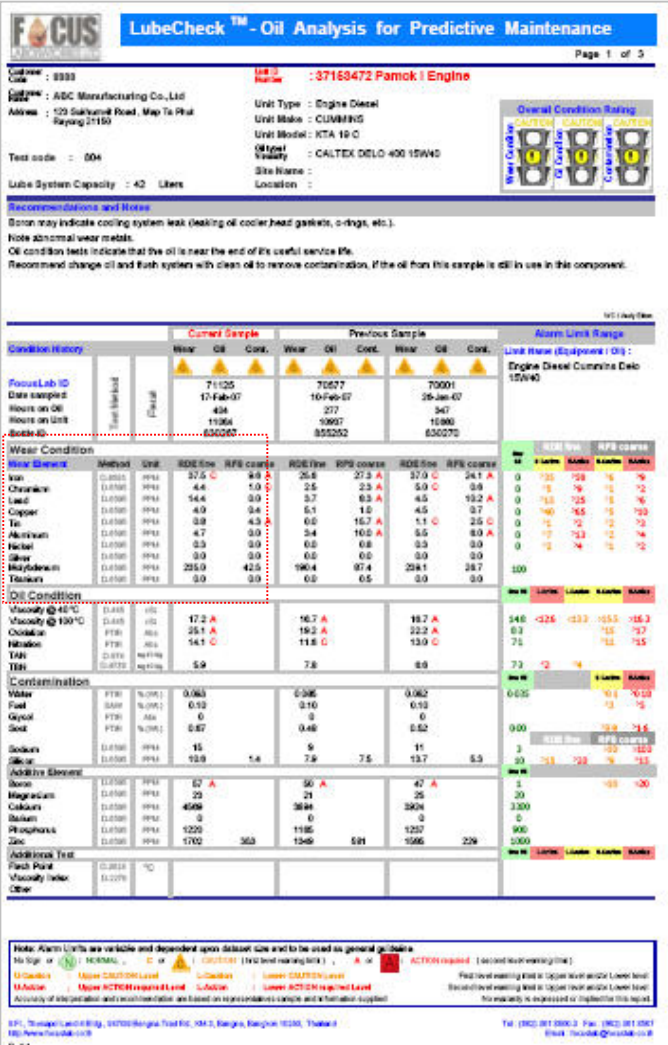
If **Double WearCheck™ √√** detects any abnormal or severe wear , then we can perform further analytical testing such as **Ferrographic Analysis** to find out Root Cause.

RFS Spectrometric (Course Wear Particles)

RDE Spectrometric (Fine Wear Particles)

Wear Condition

Wear Element	Method	Unit	RDE fine	RFS coarse
Iron	D-6595	PPM	37.5 C	9.6 A
Chromium	D-6595	PPM	4.4	1.0 C
Lead	D-6595	PPM	14.4	0.0
Copper	D-6595	PPM	4.0	0.4
Tin	D-6595	PPM	0.8	4.3 A
Aluminum	D-6595	PPM	4.7	0.0
Nickel	D-6595	PPM	0.3	0.0
Silver	D-6595	PPM	0.0	0.0
Molybdenum	D-6595	PPM	235.0	42.5
Titanium	D-6595	PPM	0.0	0.0

LubeCheck ™ - Oil Analysis for Predictive Maintenance

Abbreviation :
RDE Spectrometer : Rotating Disk Electrode Spectrometer
ICP Spectrometer : Inductively Coupled Plasma Spectrometer
RFS Spectrometer : Rotrode Filter Spectroscopy Spectrometer
PPM : part per million

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