

APPARATUS

CODE	PART NAME	REMARKS
FX-00-010	fxe-400s	EDXRF Sulfur Analyzer
FX-01-001	Control PC	w/ AC Adapter, Dedicated for fxe-400s

STANDARD ACCESSORIES

CODE	PART NAME	SET	REMARKS
FX-01-161	Disposable Sample Cell, Triplex type	1	1000 pcs/box
FX-01-165	PET Film	1	Thickness: 2μ, W140mm x L1000m roll
FX-01-031	Sample Cell Assembling Jig	1	
FX-01-175	AC Adapter for fxe-400s	1	
FX-01-177	USB Cable	1	Connecting fxe-400s and Control PC

OPTIONAL ACCESSORIES

CODE	PART NAME	REMARKS
070-00-069	Printer, BS2-80U	w/ AC Adapter and Connecting USB Cable.

START UP KIT (Necessary when Calibration)

CODE	PART NAME	SET	CODE	PART NAME	SET
RX-02-001	Sulfur Standard Oil, 0.0 mass% level	1	RX-02-004	Sulfur Standard Oil 0.5 mass% level	1
RX-02-009	Sulfur Standard Oil 100 mg/kg level	1	RX-02-005	Sulfur Standard Oil 1 mass% level	1
RX-02-011	Sulfur Standard Oil 500 mg/kg level	1	RX-02-006	Sulfur Standard Oil 2 mass% level	1
RX-02-002	Sulfur Standard Oil 0.1 mass% level	1	RX-02-007	Sulfur Standard Oil 3 mass% level	1
RX-02-003	Sulfur Standard Oil 0.2 mass% level	1	RX-02-008	Sulfur Standard Oil 4 mass% level	1

SUGGESTED SPARES for 2 YEARS

CODE	PART NAME	SET	REMARKS
FX-01-161	Disposable Sample Cell, Triplex type	2	Refer to Standard Accessories.
FX-01-165	PET Film	1	Refer to Standard Accessories.
070-00-093	Printing Roll Paper, W80 x D48	5	2 rolls/pack, when Optional Printer is used

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TANAKA Automatic Petroleum Analyzer

EDXRF SULFUR ANALYZER

fxe-400s



fxe-400s shown with operation "Netbook"

- HIGH PRECISION, LOD=5mg/kg, CONFORMING TO ASTM D4294-10
- X-RAY PASS OPTIMIZATION YIELDS SIGNIFICANT REDUCTION IN BACKGROUND NOISE
- TRIPLEX PAPER CELL MINIMIZES THE RISK OF OIL LEAK AND CONTAMINATION WITH MINIMUM EFFORT
- USER FRIENDLY SOFTWARE EMBEDDED IN PC FOR MORE POWER AND RELIABILITY WHILE IMPROVING USER INTERFACE

Model fxe-400s is Tanaka's latest EDXRF sulfur analyzer equipped with an optimized X-ray pass and a high precision preamplifier developed through collaboration with [Japan Atomic Energy Agency \(JAEA\)](#). JAEA's simulation technology and high speed/high precision electronics have been utilized.

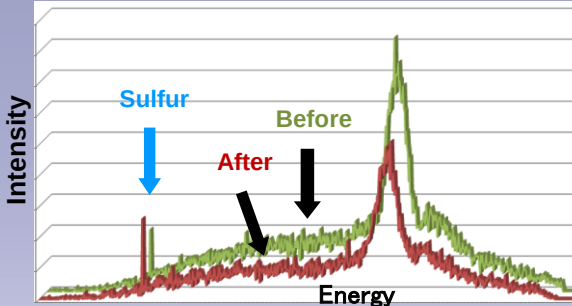
X-RAY PASS OPTIMIZATION BY SIMULATION

Through a collaboration program with Japan Atomic Energy Agency, X-ray propagation from X-ray tube to the detector has been simulated. By comparing simulation result and experimental result, geometries have been optimized.

The parameters for X-ray pass optimization are:

- X-Ray Source (Power, Spectrum, Radiation Angle)
- Materials used for X-Ray Pass
- Shape/Composition of Sample and Film
- X-Ray Pass Geometry (Length, Angle, Filter, etc.)
- Structure of Detector

Performance attributes to the interaction of each parameter.



Typical Result of Simulation*

*Above graph illustrates a typical example of the simulation that we did. A background at lower energy region was reduced and Sulfur peak was increased, thus, measurement resolution was improved.

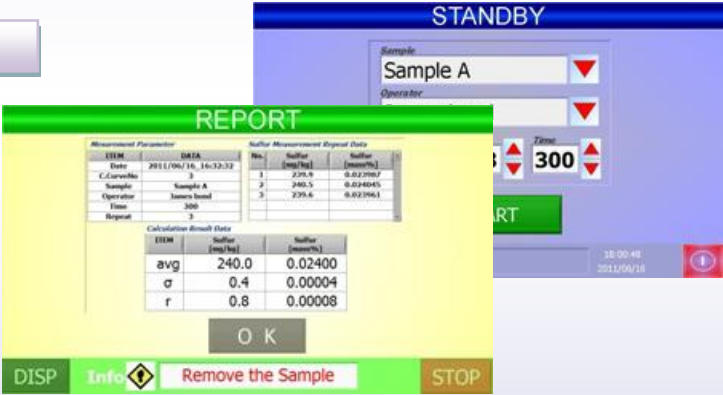
HIGH PRECISION

Thanks to the simulation, optimum filter for unwanted signal from X-ray tube was found. Together with the adaption of newly-designed low background proportional counter, S/N ratio of the sulfur signal area improved spectacularly. The fxe-400s attained 5 mg/kg of LOD with lower power X-ray source.

EASY OPERATION

Interactive computer program and wide color LCD screen help intuitive operation and accurate result can be obtained without any special training.

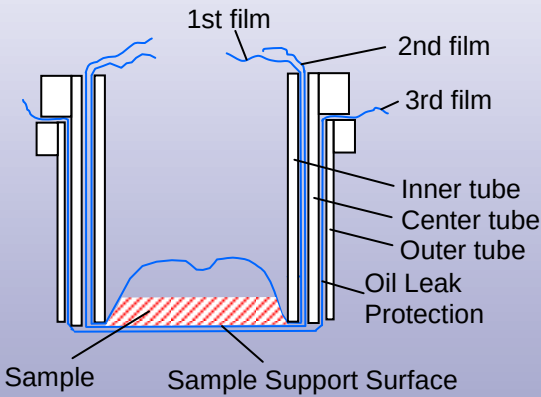
Ergonomically color-coordinated display enhances visibility.



TRIPLEX PAPER CELL

Newly-developed triplex paper cell minimizes the risk of oil leak during a measurement and contamination of the detector.

Once oil is leaked from sample support film, paper cell absorbs leaked oil and an extra film protects from contamination of the detector. Operator can notice oil leak easily by the discolored paper cell.



SPECIFICATIONS of fxe-400s

TYPE	Bench top type total sulfur analyzer for petroleum products by energy-dispersive X-ray fluorescence method
TEST STANDARDS	ASTM D4294-10, ISO 8754 / 20847, JIS K2541-4
LIMIT OF DITECTION	5 mg/kg (3σ: 3 times the reproducibility standard deviation) when He purge
MEASURING RANGE	15 mg/kg to 6 mass% (when He Gas is Used)
MEASURING TIME	10 to 990 sec (300 sec is recommended)
X-RAY SOURCE	Air Cooled X-Ray Tube (rated 1W)
X-RAY DETECTOR	Gas Filled SPC (Sealed Proportional Counter)
X-RAY PASS	He Gas (>99.9%) or N2 Gas (>99.9%)
CORRECTION	C/H Correction, Temperature Correction
SAMPLE CELL	Disposable Paper Cell (Triplex)
SAMPLE SUPPORT	2μPET Film
SAMPLE VOLUME	Approx. 5 ml
CALIBRATION CURVE	Upto10 Points, Linear, Quadratic curve or Broken Line. 10 x Calibration Curve can be stored
X-RAY LEAKAGE	0.6 μSv/Hr or less on instrument surface
SAFETY	Interlock mechanism against accidental X-ray leakage
POWER SOURCE	DC12V (100-240V AC Adapter provided)
POWER CONSUMPTION	22VA MAX
PURGE GAS CONSUMPTION	200ml/min during measurement
OPERATING TEMP. RANGE AND HUMIDITY	10°C to 35°C, RH to be within 80%
DIMENSIONS & WEIGHT	360mm (W) × 410mm (D) × 135mm (H), Approx. 12.5kg

SPECIFICATIONS of Control PC

TYPE	Netbook PC (Touch screen model may be available. Please ask)
OPERATION SOFTWARE	Windows 7
DIMENSIONS & WEIGHT	268 x 197 x 25.5-32.8 mm 1.4kg (Typical)