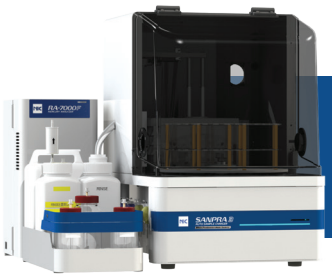
A Rigaku Company

TECHNICAL SPECIFICATIONS FOR RA-7000F

Item

Measurement principle	Non-dispersive Double-beam Cold Vapor Atomic Fluorescence Spectrometry
Measurement Mode	**TRiFLEX** Operation Mode: Mode 1 - **DIRECT** Mode with Reducing Vaporization Mode 2 - **GOLD-ENRICHMENT** Mode with Reducing Vaporization Mode 3 - **DUAL** Mode (Combination of Direct Mode and Gold Enrichment Mode in Sequence)
Measured sample	Water/Aqeuous samples and Digestates
Sample Volume (liquid sample)	Available in 5/10mL or 20mL
Limit of Detection (LOD)	≤0.1pg/10mL (≤0.01ppt) **With Gold Enrichment LOW Mode* *(Quantification limit subjected to reagents purity used in chemical pretreatment)*
Maximum Range	500ng/5mL (100ppb) *With Gold Enrichment HIGH range of DUAL mode
Measuring time	180sec (optimum) ~ 900sec (Subjected to choice of operation mode)
Measuring flow rate	0.04～0.4L/min (Automatically adjusted by operation mode)
Detector	SIG : Wavelength Specified UV Photoelectric Tube REF : Semiconductor sensor (w/254nm bandpass filter)
Light source	Low pressure mercury discharge lamp
Wave length	253.7nm
Dehumidifier	Nafion Tube
Flow control	Mass Flow Controller
Flow monitor	Digital Flow sensor
Carrier gas	UHP Argon Gas (Purity 99.999% or better - Argon 5.0)
Mercury removal (exhaust filter)	Absorption by chemically-treated activated carbon filter
Signal Output	Control of one SANPRA ：RS232C（DSUB9pin） Communication with SANPRA : USB type B
Power supply	AC100-240V 50/60Hz
Instrument dimensions	177W×204D×350H mm *Excluding protrusions
Installation dimensions	300W×450D×350H mm *Excluding PC installation space
Condition Display	RGB LED
Weight (KG)	7.0
Option	SANPRA™ 3F, Large Volume Impinger Unit 20mL, EPA QC Software (245.7 & 1631E) Plug-In



SANPRA™ 3F

Item	SANPRA™ 3F
Number of sample / sample volume	80 tubes / 5mL or up to 10mL (max) The number of STD and actual samples can be arbitrarily assigned.
Sample tube/holder	NIC Glass tube or Disposable Glass tube *(see recommended supply below)*
Stirring method	Gas bubbling
Gas Scrubbing	Soda Lime
Drive system	Turn table system
Sample Tray	Polycarbonate table
Tube Presence Sensor	Infrared Sensor
Bubbler material	PEEK
Rinse bottle material	Polypropylene (PP)
Dispensing method	Peristaltic Dosing Tube pump (0.1mL - , Adjustable)
Dispensed reagents	For EPA 1631E/EPA 245.7 Bromine Monochloride (BrCl), Hydroxylamine hydrochloride solution ($NH_2OH \cdot HCl$), Tin (II) Chloride ($SnCl_2$) solution
Exhaust system	Rear exhaust with Φ50 duct hose Exhaust capacity 1m³/min(Option)
Electrical protection system	Earth Leakage Circuit Breaker (ELCB)
Power supply	AC100-240V 50/60Hz
Control	Communication control via RS-232C from RA-7000F
Condition Display	RGB LED
Instrument dimensions	without RAir™ Filter Unit : 365×450×530mm * Excluding protrusions with RAir™ Filter Unit : 365×611×530mm *Excluding protrusions
Installation dimensions	640×650×950mm *Excluding Duct hose routing space and PC installation space
Weight	without RAir™ Filter Unit : 24kg with RAir™ Filter Unit : 25kg

Compatible Sample Tubes for SANPRA™ 3F - Manufacturer Recommended Sources and Supply

1. Disposable glass tube: FISHER SCIENTIFIC (16X 125mm) 14-958G

Large Volume Impinger Unit 20mL

Item	Specification
Impinger Unit	Glass Inpimger Manual Reducing Vaporization Kit
Bubbler	glass (G1 filter)
Sample Capacity	20mL
LOD	≤0.01ppt **With Gold Enrichment LOW Mode*
Measurement Time (Reduction time)	180sec
Flow rate	0.04～0.4L/min (Adjustable)
Maximum range	~25ppb (500ng) *With Gold Enrichment HIGH range of DUAL mode
Piping to RA-7000F	Teflon tubes and joints, soda lime tube, membrane filter, PP fitting

RAir™ Filter Unit

Item	Specification
Filter Material	Activated carbon and Polyamide filters
Mercury Removal Effiency	Equal or more than 90% *Mercury removal rate of air coming out of filter unit
Filter Lifespan	Filter unit : 2000H use Fan : 10000H use

Control and Data Processing Unit

Item	
OS	Windows 10 Pro, 11 Pro
Communication	USB (between PC and RA-7000F)
Display (Japanese/English)	Peak waveform, calibration curve graph, measurement progress, measurement result
Instrument control	Before digestion or measurement : Test tube presence/absence detection, automatic sample volume adjustment Digestion : Dispensed reagents(type and volume), digestion time Measurement : Object of measurement, start, stop, time
Data Processing	Calibration curve (linear formula 3 types, cubic formula 3 types), unit setup, concentration calculation, baseline correction, statistical calculation (average, standard deviation, CV%), Peak shape judgement, Self check
Printing	Memo, calibration curve formula and graph, measurement value table, statistical calculation, peak waveform, measurement date and time, Self check result

ISO and EPA QC Software Plug-In (Optional)

Item	
EPA QC Software	EPA 245.7 QC Software include: Calibration Blank Average, Calibration Factor (CF) RSD and Recovery, Initial Precision and Recovery (IPR) RSD and Recovery, Method of Detection Limit (MDL), Method Blank, Matrix Spike (MS), Matrix Spike Duplicates (MSD), Relative Percentive Difference (RPD) of MS, Ongoing Precision and Recovery (OPR), Accuracy, Quality Control Sample (QCS). EPA 1631E QC Software Include: Calibration Blank Average, Calibration Blank SD, Calibration Factor (CF) RSD and Recovery, Initial precision and Recovery (IPR) RSD and Recovery, Method of Detection Limit (MDL), Method Blank, Matrix Spike (MS), Matrix Spike Duplicates (MSD), Relative Percentive Difference (RPD) of MS, Ongoing Precision and Recovery (OPR), Accuracy, Quality Control Sample (QCS).
ISO Software	ISO 17852 Software Include: Customized Method for Manual & Semi-Auto Sequences Operation

Installation Environment

Item	
Temprature	10 - 35 degree
Humidity	10 - 80% RH (There shall be no condensation.)
Argon Gas Supply	Purity: 99.999% or better (Argon 5.0)
Installation Space for RA-7000A	300W×450D×350H mm *Excluding PC installation space
Installation Space for SANPRA™ 3F	640×650×950mm *Excluding Duct hose routing space and PC installation space

Specifications may subject to change without prior notice.

Nippon Instruments Corporation
A Rigaku Company

Osaka office /Tech. cent : 110 Nishikujō Gawarajōchō, Minami Ward, Kyoto, 601-8424, Japan
TEL : +81 75-748-6200 FAX : +81 75-748-6208
EMAIL : info-nic@rigaku.co.jp URL : www.hg-nic.com
ISO 9001:2015 & ISO 14001:2015 Accredited

Singapore office : 61 Bukit Batok Crescent
#04-04A, Singapore 658078
TEL : +65 6873-7068 FAX : +65 6873-6362

XEarPro S.r.l.
Distributore esclusivo italiano
S. legale: Via delle Primule, 16
Cogliate (MB), 20815, Italia
S. operativa: Via XXV Aprile, 41
Barlassina (MB), 20825, Italia
+39 02 9646.0317 info@xearpro.com
www.xearpro.it