Chemistry Lab Cookbook
ICP Field Report v 210

Instrument:

Jobin Yvon Ultra-Ace 2000

ODP #: 05669

Model #: TX-TF722

Website:

http://www.jyemission.com/

Software:

Jobin Yvon Proprietary, V 5.10

Documentation Available:

Document Name/Title/Number	Source	Type	Associated Instrument(s)	Associated Measurement(s)
ICP Installation/Setup Binder	Jobin Yvon	hardware	ICP	elemental analysis
ICP Instrument Manuals Binder (Final Control Report; User Manual; Image NavigatorUser Manual; Sampler AS421 User's Manual; Schematics)	Jobin Yvon	hardware, software	ICP	elemental analysis
ICP Reprints Binder	scientific journals	data	ICP	elemental analysis
ICP Software V5.1 Binder (User Manual)	Jobin Yvon	software	ICP	elemental analysis
ICP Standards Cert./MSDS Binder	misc.	data	ICP	elemental analysis
ICP Technotes, Software Notes, Concepts, Spreadsheets, Etc. Binder	in-house	hardware, software, data, reprints	ICP	elemental analysis
JY Service Manual	Jobin Yvon	hardware	ICP	elemental analysis

Field Report

The loss of the C reference peak was coming from the spring underneath the grating which was a little loose. This spring is located in the small cylinder under the gear and grating and is used to correct the play associated with the mounting gear and worm gear. The JY service representative Paul Thellier found out that the spring needed to be screwed 1/2 turn. Tightening the spring took care of the C reference problem. Such a simple solution for months of dilemna! Paul did mention that the spring getting loose was a rare occurrence on a new machine and that the problem might have been caused by an accumulation of several power outage and performing zero orders when the grating was stuck on the maximum switch position (We left a diagram in the blue book to show the switch position that cause the grating blockage and spring loosening). Paul left us a spare spring. He also gave us a set up procedure to perform after every power outage to avoid such an incident in the future.

The instrument boards were all checked and prooved to be in fine working order. The instrument was cleaned; i.e. the torch was cleaned, the lens was cleaned, the mounting gear and worm gear were cleaned. The grating is currently set in such a way that the zero order is now found around 7000.

The new RF generator was checked and is working fine with 25W of reflected power at 1000W.

The instrument optics were checked. Specifically, the monochromator was tested with water (order 0-0nm) and Ba (order1--455nm) and it works fine. Paul found it optically good. The angle coefficient was recalculated on C at 193.31 and on Ar at 772.421 to decrease the offset on l (e.g. 0.002 mn for C). The resolution is also good and the sensitivities have been improved as shown by performing Pb BEC test (see blue notebook).

Since leg 189, the nebulizer flow sensor has not been working. On Leg 191, a new fluid board was replaced but the sensor still would not work. Paul noticed that the sensor was actually connected upside down on the fluid board. He switched the connections and adjusted the readings on the screen with the blue potentiometers RV218-RV208. The readings for the nebulizer flow is now 0.78 at 3 bars in reality and on the Automatism screen. These potetiometers should never need adjustments unless one changes the fluid board again.

Paul checked the exhaust vent flow (Fan 166) and measured it to be 193CFM (see blue notebook). He actually measured high up in the fan and he felt that the actual value directly at the ICP vent exhaustl was much lower. He advised us to change our system to a direct hook up from the ICP vent to the exhaust fan (using for example a dryer type stainless steel tube). He said we need better exhaust especially since he found acid stain on top the machine where the metallic frame used to channel flow to the fan touches the machine as wellas acidic dirt in the cone of the fan.

A new Windows version of the JY software (v5.0) was installed and tested by running a pore water calibration with 5 standards left by Dennis in the fridge. The results were OK as far one can expect by doing it on the fly with old standards. There is however a problem for us to use the windows version for the pore water method. This version of the software only allows the user to enter mM values between 0 and 1000 for the calibrations standards. We currently use several standards that have higher values then 1000 mM for several elements. If time permits, we will try to fool the system by using other units. Paul suggested however that we write to JY for them to rewrite the software so that the units can be set up changed by the user with no limit in selecting the range of units.

Document Information:

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Revision History:
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Signature (Department Supervisor)