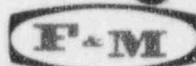


F & M SCIENTIFIC



DIVISION OF HEWLETT-PACKARD

Route 41 and Starr Road, Avondale, Pennsylvania 19311 | Phone 215-268-2281, TWX: 510-663-8268

August 3, 1966

1938

JMB

Mr. J. Bell
U. S. Atomic Energy Commission
Isotopes Branch
Division of Materials Licensing
Washington, D. C. 20545

Dear Mr. Bell:

Further to our phone conversation of July 25, I am supplying the additional information requested. This is numbered for reference purposes as below.

If you require any further information please call me.

Very truly yours,

J. Peters
Radiation Safety Officer

JP:mm

Enclosure detailing:

- 1) Materials of construction of Ni63 electron capture cell
- 2) Wipe test containers
- 3) Temperature limit of cell
- 4) Manual
- 5) American Cyanamid license
- 6) Photograph of electron capture detector installed on a chromatograph

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FOR DIV. OF COMPLIANCE



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1. Materials of construction of N163 cell (electron capture).
Details of drawing 2-6195 (cell assembly high temperature electron capture) detector. The following is a list of materials of construction

Call out number on print 2-6195	Material
(11) Housing assembly cell	Stainless steel
(12) Insulator anode	Alumina
(13) Anode assembly	Stainless steel
(14) Spacer - electrode	Boron nitride
(15) Spacer cathode	Alumina
(16) Nut - retaining	Stainless steel
(17) Cathode assembly	Stainless steel
(18) Insulating beads (surrounding anode wire)	Alumina
(19) Metal O-rings	Inconel x silver plate
(20) Nickel 63 foil	Gold & N163

2. Wipe test containers. The customer will be given several small envelopes of plastic to perform some shielding for any contaminated wipes when sent to F & M for counting.
3. Temperature limit of cell. It is suggested that a temperature limit of 360°C be applied to this cell for the following reasons.
- The cell has been run for over 48 hours with the temperature cycling from 100 to 400°C. During this time no gas leaks developed.
 - The cell was run for a further 24 hrs. while cycling from 100 to 450°C. Some leaks developed at temperatures above 400°C; however on returning to 400°C the leak resealed.
 - A cell with foil enclosed was operated for approximately 96 hours at a temperature of 360°C and with a flow of argon methane (the normal gas flowing through the cell). The gas from this cell was passed into a solution which would absorb nickel (low concentration hydrochloric acid). This solution was evaporated to dryness in a glass dish and was then counted with a gas flow ~~SEAL-800 SCANNING DISHES~~ essentially background level.

Received 8-11-66 W/Letter Dated 8-3-66
Revised by _____

Superseded by _____
Reviewed by MS Date 8-15-66

- d) As we will suggest that the customer always connects his effluent vent to exhaust the carrier gas outside the lab, no contamination of a working area would occur even if nickel loss from the cell did occur
4. Manual. As previously discussed, our Ni63 manual is not yet completed, but we have specified the cleaning procedure as below. The following points will be included in the cleaning procedure.
- a) Do not use any acidic material due to the danger of dissolving nickel from the foil.
 - b) Do not use any ester material (e.g. acetates, butyrates, etc.) as some acid may be present in these chemicals due to degeneration in storage.
 - c) Suitable solvents are hexane, methanol or benzene (all chemically pure). Wash with approximately 50 ml of solvent as specified above. This should be done with the cell not above 50°C. This solvent is then washed down the drain with large quantities of water.
5. American Cyanamid. We will supply them with a preliminary manual containing all safety sections upon delivery of a nickel 63 detector, assuming you grant their license.

JP:nm



