



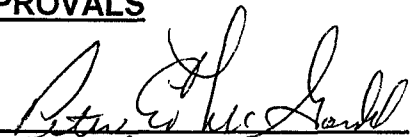
PROCESS SPECIFICATION
TITLE: QUARTZ TUBES
RADIOACTIVE (RA) BY-
PRODUCT MATERIAL
APPLICATION-COBALT 60

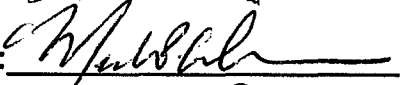
P-012
ISSUE: A
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DOCUMENT REVISION STATUS


REVISION LEVEL	DESCRIPTION OF CHANGE	DATE	ECN #
1	ORIGINAL ISSUE	N/A	ON FILE
2	UPDATE SEE FILE FOR DCN #	1/71	ON FILE
3	REVISED PER CONFORMANCE TO ECN REQUIEREMENT	2/00	12674
A	REFORMATTED DOCUMENT TO MEET CURRENT HNE PROCEDURE STANDARDS. ADDED SECTION 1.0. REVISED ALL SECTIONS. SEE ECN.	2/13/07	14559

APPROVALS

APPROVED: PROCESS ENGINEERING:  DATE: 2-22-07

APPROVED: ENGINEERING MANAGER:  DATE: 2/22/07

APPROVED: MANUFACTURING MANAGER:  DATE: 2-22-07

APPROVED: QUALITY ASSURANCE MANAGER:  DATE: 2/13/07
For B.S.

1.0 SCOPE:

This document describes the procedure for injecting Radioactive Cobaltous Chloride (Cobalt 60) into quartz tubes.

2.0 EQUIPMENT:

- a. Lead Storage Container for radioactive (RA) material
- b. Hamilton Syringe Gas-tight Pt # 8110 Model 1725 250 μ l.
- c. Hamilton Needle 22 Gauge Pt # 91072
- d. Hamilton Repeating Dispenser Pt # 83700 Pb 600-1 5 μ l per dispense
- e. Heat Lamps or Oven capable of 100°C
- f. Lead Glass Shield
- g. Spill Tray
- h. Kimwipes
- i. Safety Glasses
- j. Gloves
- k. Survey Meter

3.0 MATERIALS:

Radioactive Cobaltous Chloride (Cobalt 60) solution packaged in 10 ml bottle, 200 μ Ci per bottle

4.0 PROCEDURE:

- 4.1 Spread Kimwipes over spill tray.
- 4.2 Place lead glass shield in center of spill tray.
- 4.3 Remove lead pig containing Cobalt 60 from lead safe and place behind lead glass shield.
- 4.4 Slowly remove cover from lead pig.
- 4.5 Remove screw cap from Cobalt 60 bottle.
- 4.6 Insert syringe needle into Cobalt 60 solution and draw solution into syringe. When complete replace screw cap on bottle and place lead cover on pig.
- 4.7 Slide syringe needle into quartz tube.

4.0 PROCEDURE (cont.):

- 4.8** Place two (2) drops of RA material in the center of the quartz tube and then rotate, keeping drops centered in tube.
- 4.9** Repeat above until all quartz tubes are processed.
- 4.10** Once all quartz tubes are filled; return unused portion of Cobalt 60 solution to bottle. Secure cap to bottle and lead cover to pig.
- 4.11** Return lead pig containing Cobalt 60 to lead safe.
- 4.12** Place quartz tubes in heated oven or under heat lamps until Cobalt 60 solution is dry.

5.0 SAFETY:

- 5.1** Only qualified workers to have access to RA facility.
- 5.2** The work area to be kept clean, bench tops to be covered with paper (Kimwipes).
- 5.3** No more than 20 tubes may be processed at a time.
- 5.4** Vinyl or latex gloves and vinyl apron to be used while filling the tubes. Gloves, apron and waste paper are to be disposed of in compactor.
- 5.5** Film badges must be worn by operators.
- 5.6** Isotope bottles and syringes must be kept at least 20 inches from eyes.
- 5.7** Area must be checked for radiation with calibrated survey meter before securing. Readings greater than twice background are considered significant.
- 5.8** A meter reading of the hands, clothing and nearby floor and bench area should be taken as well.
- 5.9** Each time Cobalt 60 is used; a survey meter reading should be taken of the hands, clothing and work area and entered in the log.