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C-A OPERATIONS PROCEDURES MANUAL

12.62 Procedure for Floating and Mounting Laser Plasma Ablation (LPA) Carbon Foils

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Hand Processed Changes

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Collider-Accelerator Department Chairman Date

C. Carlson

12.62 Procedure for Floating and Mounting Laser Plasma Ablation (LPA) Carbon Foils

1. Purpose

To detail the proper procedure for the safe floating and mounting of LPA foils

2. Responsibilities

1.1 Preinjector Group personnel trained in the floating and mounting of LPA foils are responsible for compliance.

3. Prerequisites

1.2 Preinjector Group personnel executing this procedure shall be trained in the proper technique to float and mount LPA foils.

4. Precautions

1.3 Only authorized personnel are allowed to perform the following procedure.

1.4 All work with acid shall take place in an operating fume hood.

1.5 A face shield and safety glasses, and an apron must be worn when transferring the foils into and out of the nitric acid solution.

1.6 Nitrile gloves are to be worn when handling acid solutions.

5. Procedures

1.7 Scrape the edges of the glass slide on which the carbon-copper has been evaporated. Then scratch the film into the desired pieces. Gently blow off any loose fragments.

1.8 Float the carbon-copper layer from the glass substrate by dissolving the betaine parting agent in water.

1.9 Fish out the carbon-copper foil with a 1mm thick Teflon sheet and transfer the foil to a small acid filled vessel for dissolving the copper. The acid solution should be 1 part HNO₃ (65%) and 4 parts H₂O (acid shall be poured into the water for mixing).

1.10 After the copper has been dissolved transfer the carbon foil to a fresh water bath using a Teflon strip.

1.11 Transfer the carbon foil to a second water bath using a Teflon strip.

1.12 Mount the carbon foil on the appropriate frame and let dry.

1.13 The used nitric acid shall be mixed with the waste water from the water baths and placed in a properly labeled container. Dispose of all waste properly

6. Documentation

None

7. References

None

8. Attachments

None