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1. Scope:

This procedure describes the method used in the preparation of Ultem 6200 end saddles, laminated wedge tips and solid end spacers for use in coil winding. It also describes the attachment of the wedge tips and the preparation of the coil parts kit.

2. Applicable Documents:

12010181	Insulation, Polyimide Film
12010273	Adhesive, G.E. Ultem
RHIC-MAG-Q-1004	Discrepancy Reporting Procedure

3. Requirements:

3.1 Material/Equipment:

3M Grit No. 400 non-conducting garnet paper or equivalent (BNL Stock No. I-65546)  
LPS Electro Contact Cleaner (BNL Stock No. I-78279)  
Desiccant (Vendor Part No. 315CG03)  
Plastic bags with zip lock seal, 6x9 (BNL Stock No. I-79887)  
Acid brush (BNL Stock No. I-56840)  
PVC vinyl gloves (BNL Stock No. K-62646)  
Approved non-conductive marking pens (Staedler 317 wp4 marker or equivalent) (BNL Stock No. S-23755)  
S&EP approved exhaust hood  
Kim wipes (BNL Stock No. I-83312)  
Craft paper (BNL Stock No. I-81200)  
Safety glasses (BNL Stock No. K-63408)  
Beaker (BNL Stock No. C-00650)  
Razor blades, safety (BNL Stock No. H-32985)  
Vacuum extractor

3.2 End Saddle Preparation:

3.2.1 Clean out the threaded holes in the saddles and chase the threads with a tap.

3.3 Parts Cleaning Procedure:

3.3.1 Mark each part with their respective drawing number and revision using approved non-conducting marking pen if not already marked.

3.3.2 Place parts in beaker under exhaust hood. Turn ventilation on. Spray all surfaces with LPS Electro contact Cleaner. Remove parts and wipe clean with Kim wipes.

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**CAUTION: Caution is to be used in the proper disposal of LPS Electro Cleaner and Kim Wipes.**

3.3.3 Place all like parts in plastic bag, with desiccant, labeled with part number, revision and drawing title and store for later procedures.

3.4 High Temperature Adhesive Application to End Saddles:

**SAFETY PRECAUTION:** Caution is to be used in the handling of the Ultem 6200 polyetherimide composite material and Xytrex 240A adhesive compound. Safety equipment including safety glasses, dust mask (for use during sanding operation), gloves, and lab coat. All filing or sanding operations shall be done under an S&EP approved exhaust hood. **CAUTION: Failure to observe these precautions may result in eye, skin, or respiratory irritation or burn.**

3.4.1 Set end saddles under exhaust hood with surface to accept adhesive facing up.

3.4.2 Using an acid brush, apply one coat of Ultem adhesive to the end saddle surface to bond to the coil. See applicable Coil Winding and Curing Assembly drawing for surface to be coated.

3.4.3 Allow adhesive to set for 5 minutes or until tack free at room temperature.

3.4.4 Apply a second coat of adhesive over first coat and allow to set for 5 minutes or until tack free at room temperature.

3.4.5 Apply a third coat of adhesive over second coat and allow to set for 5 minutes or until tack free at room temperature.

3.4.6 Lightly sand adhesive coated surface to remove all sharp edges, lumps or bubbles using 3m Grit No. 400 garnet paper.

3.4.7 Attach brass shim to slot on midplane surface of lead end saddle using .0005 inch thick Kapton tape. (Note Proper Orientation)

3.4.8 Place end saddles in individual plastic bags, labeled with applicable part number, revision and title, with desiccant and place into a box, also labeled with applicable part number and title.

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3.5 High Temperature Adhesive Application to Solid End Spacers:

**Safety Precaution: Caution is to be used in the handling of the Ultem 6200 poethermide composite material and Xytrex 240A adhesive compound. Safety equipment including safety glasses, dust mask (for use during sanding operation), gloves, and lab coat. All filing or sanding operations shall be done under an S&EP approved exhaust hood. CAUTION: Failure to observe these precautions may result in eye, skin, or respiratory irritation or burn.**

- 3.5.1 Set solid end spacers tips under exhaust hood.
- 3.5.2 Using an acid brush, apply one thin coat of Ultem adhesive to the inside surface to bond to cable. See applicable Coil Winding and Curing Assembly drawing for surface to be coated.
- 3.5.3 Allow adhesive to set for 5 minutes or until tack free at room temperature.
- 3.5.4 Apply one thin coat to adhesive to the outside surface to bond to the cable. See applicable Coil Winding and Curing Assembly drawing for detailed surface.
- 3.5.5 Allow to set for 5 minutes or until tack free at room temperature.
- 3.5.6 Remove any excess adhesive flashing on surfaces not requiring adhesive using 3M Grit No. 400 non-conducting garnet paper (or safety razor blade). **CAUTION: Cut hazard exists using sharp single edged razor blade.**
- 3.5.7 Place all like parts in plastic bag, with desiccant, labeled with part number, revision and drawing title.

3.6 Laminated Wedgetip Assembly.

- 3.6.1 Assemble the wedge tips per the applicable drawing. Hold the laminations together with alligator clips.
- 3.6.2 Apply adhesive to the area indicated on the drawing.
- 3.6.3 Place all like parts in plastic bag, with desiccant, labeled with part number, revision and drawing title.

3.7 Attachment of Wedgetips to Wedges:

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- 3.7.1 Attach wedgetip to wedge as per applicable drawing.
- 3.7.2 Wrap the wedgetip with Kapton per applicable drawing.
- 3.7.3 Mark title of wedgetip on outer radial surface of each wedgetip: example "1A lead" with approved non-conducting marking pen.
- 3.7.4 Package like wedge-wedgetip assemblies together (for example all Wedge-wedge tip #1 assemblies: 1A, 1B, 1C and 1D) and wrap in craft paper labeled with applicable assembly drawing number, revision and title.
  
- 4. Quality Assurance:
  - 4.1 The Quality Assurance Provisions of this procedure require compliance with the procedural instructions described above.
  - 4.2 All discrepancies shall be identified and reported in accordance with RHIC-MAG-Q-1004.
  
- 5. Preparation for Delivery:
  - 5.1 Assemble Coil Parts Kit
    - 5.1.1 Place one lead end saddle and one non-lead end saddle into their respective kit boxes in individual plastic bags with desiccant, labeled with applicable part number, revision and title.
    - 5.1.2 Insert solid end spacers into proper location of coil parts kit boxes.
    - 5.1.3 Place end spacer laminations into proper location of coil parts kit boxes.
    - 5.1.4 Package wedge-wedge tip assemblies and insulated wedges in PVC tube carrying case for delivery with coil kit boxes to coil winding area.