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APPLICATION OF ZAPON TECHNIQUE  
TO THE PREPARATION OF FOILS

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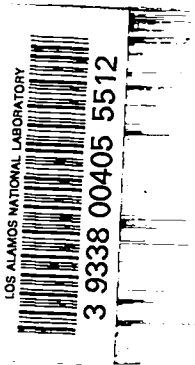
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Application of Zapon Technique

To the Preparation of Foils

The following pages are an extract from the Los Alamos  
Technical Series, Volume I, Chapter 17, pages 11 and 12.

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Application of Zapon TechniqueTo the Preparation of Foils

When the volume of solution to be evaporated is too large to cover the plate with an array of fine drops, it can be confined to the desired region by a border of Zapon lacquer. After the solution has been evaporated to dryness, the Zapon can be removed by ignition provided the active material is present in a nonvolatile form. Ignition serves also to remove small amounts of volatile extraneous substances, if such are present in the deposit.

The above technique is modified slightly when applied to solutions containing sulfuric acid, and to solutions having very low surface tension. (1) Upon evaporation, solutions containing sulfuric acid tend to creep away from the heat source. This is very disconcerting since often the active solutions will creep through the zapon border and underneath or off the plate. This problem can be solved by placing a brass washer under the foil on top of an electric hot plate. If there is contact between foil and washer at all points of the foil-washer interface, the cooler portion of the platinum foil will be in the center of the foil. In this way the sulfuric acid will remain in the center of the foil during evaporation, and creeping of the active solution over the edge of the foil will be eliminated. One of two methods can be applied to assay a low surface tension solution such as a hexone solution of plutonium. An aliquot of

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(1) L. Magnusson, Private Communication

  
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hexone can be diluted with a suitable solvent having a higher surface tension, such as ethyl alcohol, and the whole dilution and rinse evaporated to dryness, or the aliquot can be evaporated directly but stepwise, a microliter at a time, holding the tip of the pipet against the foil throughout evaporation, thus keeping the solution in the center of the disc. The rinse solution can be alcohol.

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