

than lead causes the surfaces of the lead crystals to be at a slightly higher (negative) potential than the surrounding material, thus giving more effective ion cleaning. Second, the very good fit of the crystals, due to never having been removed from the mold, made it possible to plate the entire surface with no fear of silver plating the cylindrical sides of the crystals. Third, leaving the crystals in the mold protected them from deformation and general contamination due to handling.

Prior to putting the lead in the vacuum system, the system was pumped down overnight and outgassed by turning on the ion bombarding apparatus for twenty minutes. The strip furnace for evaporating silver and the ion gauge were also outgassed. The system was then opened. The lead was put in place and a 1 mg pellet of Ag^{110} , specific activity .012 mC/mg, was placed in the dimple of the strip furnace (see Figure 1). The system was pumped down to 30 micro-torr before the cold trap was filled with liquid nitrogen and to approximately 3 micro-torr before Argon was introduced into it. The bell jar was flushed for one-half hour with Argon entering at the top and being pumped out the bottom. The amount of Argon flowing through the system was regulated by means of a needle valve and limited by the ability of the forepump to keep up with the diffusion pump--the forepump pressure being maintained at less than 100 torr.

When the flush was completed, the pressure in the bell jar was raised to 18-20 torr by partially closing a baffle valve between the diffusion pump and the bell jar, meanwhile still maintaining maximum