

Investigation of Potting Compounds for Hermetic Feed Through Applications

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The research consists on the upgrade of electrical parts for the Hires spectrograph used at the Keck Telescope in Hawaii. These instruments usually contain a chamber of light-sensitive detectors that because of their efficiency and accuracy must be kept in a vacuum environment. Those detectors are crucial to the telescope since they transform images into digital data via electronic signals through the use of feedthroughs. Therefore, these electrical feedthroughs must be hermetic in order to preserve the vacuum. Observatories require the use of hermetic feedthroughs or customized connectors that may be too expensive and require long time for fabrication. The ideal solution was to buy connectors and make them hermetic by the use of quality potting compounds. These potting compounds were subjected to a series of environmental, electrical, and mechanical tests to evaluate sealing ability and out-gassing rate. Sample specimens and connectors using these compounds were also tested by a residual gas analyzer and a leak detector to examine leakage and system contamination. Further results are expected at the end of the research.

Sandra Toro was born and raised on the beautiful island of Puerto Rico. She grew up loving the environment and beaches. Therefore, she enjoys helping the environment as much as she can. Currently she is a junior at the University of Puerto Rico at Mayaguez pursuing a bachelor's degree in industrial engineering. After graduating she plans to pursue a master's degree in computer science. She would like to follow in her father's footsteps, with a career in the organization management of industry.

