

Evolution of Sample Tube Preparation Techniques for Planetary Drill Testing

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Electric Vehicle Controllers Ltd. and The Northern Centre for Advanced Technology have been developing prototype planetary drilling technology for more than a decade. During the course of the drilling equipment evolution, a parallel development of testing hardware has occurred that included the manufacture of two generations of lunar highland simulant as well as the vessels in which to contain them during testing. Early simulant preparation efforts closely followed established ASM soil preparation techniques in an effort to characterize the density of the media. In understanding the density of the material, one variable was consistently controlled, thus allowing other drilling parameters to be evaluated.

Continued advances in drilling hardware capabilities dictated increased sophistication of the test vessels and the simulant preparation techniques. This presentation will review the test vessels and sample preparation strategies developed for testing drilling technology under the Regolith and Environment Science and Oxygen and Lunar Volatile Extraction (RESOLVE) experiment.

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