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## **C2Or4B-01: The Use of Temperature Sensors for Liquid Hydrogen Testing at NASA Glenn Research Center**

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NASA Glenn Research Center has been testing temperature sensors both internal and external to liquid hydrogen tanks for the past 70+ years. A range of sensors have been used including thermocouples, silicon diodes, and Cernox based RTDs. Different application processes for measuring the temperature of the hydrogen fluid, as opposed to solid materials, are used within a tank and within a pipe or hose. Sensors have been used as local wet/dry sensors to determine liquid height. Some of these applications have performed better than others, which is heavily influenced by how the sensors are handled and installed. This paper examines different temperature sensor performance and installation methods that have been used in liquid hydrogen applications at NASA Glenn Research Center and discusses lessons learned from different testing experiences.

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