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Hydrogen spark gap performance after long-term storage under various gases

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The performance of hydrogen insulated, triggered 3-electrode spark gaps after long-term storage in argon, hydrogen and nitrogen has been investigated. 15 spark gaps were characterised and for each of the 3 different gases, 5 of those sparkgaps were stored for periods between 1 & 5 months. Those spark gaps with a storage period of 1 & 2 months were subjected to repeat tests. Before each testing point the sparkgaps were flushed and refilled with hydrogen. This paper presents data comparing the number of self-break events and non-trigger events after each storage period. In order to understand the influence of the storage gases upon the spark gap performance, the trigger voltage and the charge voltage were measured for each pulse. The effect of storage time on the amplitude of the required trigger voltage for each storage gas is also presented.

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