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Environmentally friendly fluids for detector cooling in LHCb

Friday, July 19, 2024 11:50 AM (15 minutes)

Fluorinated fluids used for particle detection and detector cooling in the LHC experiments are the dominant contribution to CERN's direct (scope 1) greenhouse gas emissions. For the first major upgrade of LHCb, installed during the Long Shutdown 2 of the LHC, significant efforts were made to identify and validate environmentally friendly alternatives to perfluorocarbon coolants (in particular C6F14). In this contribution, we present the results of the qualification studies for C6 perfluoroketone (Novec 649) and hydrofluoroether (Novec 7100) fluids, summarise the lessons learned during the construction, commissioning and operation of the LHCb SciFi and RICH detectors, and discuss short- and long-term strategies for the future use of fluorinated coolants.

Alternate track

I read the instructions above

Yes

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