

Large Resistive Plate Chambers (RPCs) operate with complex gas systems, equipped with re-circulation and purification units, which require a fresh gas supply of the order of $6 \text{ cm}^3/\text{min}/\text{m}^2$, creating logistical, technical and financial problems.

New EU legislation established the progressive phasing out of the main gas used on RPCs (R-134a) due to its Global Warming Potential (GWP), which has further increased constraints on these systems.

In this communication, we present an RPC, with an active area of 2m^2 , operated during more than one month in a ultra-low gas flow regime ($1 \text{ cm}^3/\text{min}/\text{m}^2$) thanks to the R&D performed in its construction, namely the use of polypropylene – which presents excellent water vapor blocking properties – in several parts of the detector.

When the gas flux was reduced to a residual value, the background rate increased 50% in few days. We also show in this presentation the region of the detector that contributed the most to this increase.

