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Radiopurity control in rare event experiments using micromegas

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Micromesh gas amplification structures (Micromegas) are being used or considered as readout of Time Projection Chambers (TPCs) in the field of Rare Event searches (dealing with dark matter, double beta decay or solar axions). The topological information of the events offered by these gaseous detectors could provide a very powerful tool of signal identification and background rejection. But in addition, in this kind of experiments the radiopurity of the detector components and surrounding materials must be thoroughly controlled in order to keep the experimental background as low as possible. A screening program based mainly on gamma-ray spectrometry using an ultra-low background HPGe detector in the Canfranc Underground Laboratory is being developed for several years, with the aim to measure the activity levels of materials used in the micromegas planes and also in other components involved in the experimental set-up: gas vessel, field cage, electronic boards, calibration system or shielding. The techniques and equipment used to measure the radiopurity of materials will be described and the main results will be presented and discussed. In particular, first measurements of the activity levels of micromegas readouts of the microbulk type produced at CERN indicate that they are already comparable to the cleanest readout systems in low background experiments and it should be possible to further improve these levels after dedicated development

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