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# of materials for improved adsorption of xenon at IMS radionuclide stations

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Xenon monitoring systems are a crucial component of the verification system of the CTBT. As part of the IMS, these systems are monitoring the atmosphere for potential xenon releases originating from nuclear explosions. The efficient adsorption and desorption of the xenon isotopes in adsorbent materials is essential for their detection.
Recent studies on xenon adsorption in porous materials have shown promising results for possible use in the IMS noble gas systems. In the framework of the two previous EU Joint Action programs, SCK CEN developed a laboratory set-up to perform breakthrough experiments on different adsorbent materials and developed a model for the simulation of the adsorption process. Although this research was performed in a different context, it was obvious that the studies performed and the methods developed could be beneficial also for xenon monitoring purposes.
The SCK CEN has been contracted by the CTBTO under the EU JA VII program to perform a fundamental comparative study of xenon adsorption materials which, depending on the results, may be used for future alternatives for noble gas monitoring at IMS stations with the aim of higher detection capability. The project was completed end of 2020 and the results will be presented.

Promotional text

During this project, new Xe adsorption materials were investigated for potentially improving or providing future alternatives to current IMS noble gas systems with the aim to enhance the detection capability of the noble gas component of the IMS.

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