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Recent developments of nuclear forensic signatures of yellow cakes

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Natural uranium is the starting material for the production of nuclear fuels. Uranium of natural isotopic composition is mined from uranium containing ores in different geological formations. The uranium is extracted, chemically purified and pre-concentrated. As an industrial scale material, uranium ore concentrates will carry signatures that provide information on the history and on the origin of the uranium. These signatures may be source material inherited or process inherited. In the present work we investigated the significance and potential application of parameters such as the rare earth elemental patterns or strontium and lead stable isotope ratios. The methodology developed and its application to uranium ore concentrates from different mines around the world will be presented.

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