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Torta II, nuclear material in stock from monazite processing

The industrial processing of monazitic sands in Brazil began in 1942, by Indústrias Químicas Reunidas SA - Orquima, at the Santo Amaro Plant - USAM, in São Paulo, where the physical purification of zirconite, rutile and monazite was carried out, and there was subsequent chemical treatment of the monazite.

Orquima was nationalized in 1956, becoming an organ of the National Nuclear Energy Commission - CNEN and later the activity was transferred to Indústrias Nucleares do Brasil S / A - INB in 1994, currently responsible for the liabilities of this industrial unit.

When Orquima was responsible for USAM, the chemical processing of monazite generated individual products (thorium sulfate, rare earth chloride and sodium diuranate). After being nationalized, the process was changed and the intermediate product called "Torta II" started to be stored, the production of individual compounds was eliminated and the processing costs were reduced. Torta II is a concentrate of thorium, rare earth and uranium, thixotropic, 50% moisture, pasty with gray color.

The option of eliminating the processing of Torta II that occurred in 1956 and starting to stock it, seemed an adequate option from the technical and economic point of view at the time, as there was no trade for thorium sulfate, the main constituent. The thorium sulfate to be stored had greater radioactive activity than Torta II and the quantities of rare earth and uranium recovered did not justify the cost of the process applied to obtain them, so it was decided to stock Torta II a technological application for thorium was developed.

Storage problems for Torta II accumulated over 60 years in the three warehouses, which affect the integrity of the packages and promote increased exposure to the environment. These problems have provoked complaints and generated different demands from environmental and nuclear control agencies.

In 1992, at the end of the operations at USAM, there were approximately 16,500 tons of Torta II stockpiled, an amount kept until today in three deposits: Caldas, São Paulo and Itu.

In Caldas, the option, at the moment, is the recovery of packaging and storage. The operation's occupational and environmental radiological control plans were submitted to CNEN for evaluation and approval. INB has not yet elaborated a project to recover the São Paulo and Itu deposits.

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