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# Purification of sodium iodide powder for the COSINE-200 experiment

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The COSINE experiment has performed an extensive R&D to develop ultra-low background NaI(Tl) crystals for the next phase COSINE-200 experiment. A ton of radio-pure NaI powder should be prepared for the 200 kg NaI(Tl) detectors. A large-scale recrystallization facility was built and had been operating to mass-produce pure NaI powder. The successful reduction of radioactive contamination in the purified NaI powder was confirmed by an Inductively Coupled Plasma Mass Spectrometer (ICP-MS) and HPGe detectors. Crystals that grew with the purified powder prove a principle of the low-background NaI(Tl) detector. This presentation will discuss NaI powder purification from an R&D to the mass production process.

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