

Abstract Submitted  
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**Utilization of recycled neutron source to teach prompt gamma analysis activation-PGNA** CAMILO DELGADO-CORREAL, HECTOR MUNERA, university Nacional of Colombia — Neutron activation analysis based on prompt gamma ray emission has significantly developed during the past twenty years. The technique is particularly suited for the identification of low atomic number elements, as nitrogen that is a main component of drugs and explosives. Identification of these substances is important in the context of humanitarian demining, and in the control of illicit traffic of drugs and explosives. As a good example of recycling of radioactive sources, a  $^{241}\text{Am}$ -Be neutron source emitting  $10^7$ neutron/s, that was not longer in use for other purposes at Ingeominas, was used to build a neutron irradiator that can be used to teach prompt gamma ray analysis, and other nuclear techniques. We irradiated individual samples, each about 4 gram, of three different elements: nitrogen in urea, silicon in milled rock, and cadmium in cadmium oxide. The prompt gamma rays emitted in the nuclear reactions  $^{112}\text{Cd}$  (neutron,gamma)  $^{113}\text{Cd}$ ,  $^{28}\text{Si}$  (neutron,gamma)  $^{29}\text{Si}$  and  $^{14}\text{N}$  (neutron,gamma)  $^{15}\text{N}$  were identified using a well-type NaI (Tl) detector, connected to a multi-channel analyzer.

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