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NORM MANAGEMENT IN BRAZILIAN SCRAP METAL

NORM is often found in steel tubes used in oil and drilling operations from O&G industry. The scale, which contains amounts of radio (Ra), is accumulated in pipes. When the metal is discarded without proper care, it can end up in a scrap mill. The radioactive material associated with scrap metal, when melted, can cause negative health effects, as well as economic and public acceptance problems for the steel industry. This problem has appeared in recent years and concerns have been expressed by the metal recycling and production industries. Although the measured radiation levels are generally not likely to cause damage due to exposure, the existence of radioactive material in the metal components is sufficient to lead to a loss of confidence in the products. Brazil, in addition to not having an effective system to control the scrap and recycling sector, still has another particular problem: there is no definitive solution for the disposal of NORM wastes which currently are accumulated in temporary deposits inside facilities that receive this type of material. Believing that other countries may experience the same problem as Brazil, this study aims to analyze the current reality of steel industries from different countries that receive scrap contaminated with NORM and do not have a predetermined action to manage it, as well as proposing alternatives for disposal in Brazil. Thus, analyzes and radiometric monitoring were carried out on 6 (six) contaminated scrap parts received by units of a large Brazilian steel company and management procedures for this material were suggested in order to obtain a standard for radioactive scrap management. The results of the radiometric monitoring performed indicated results that varied from 0.3 to 20.0 microSv/h and the radiochemical analyzes, performed in a laboratory through gamma spectrometry for Ra-226 and Ra-228, showed an activity concentration mean value of 76.2 ± 26.1 kBq/kg and 8.8 ± 0.2 kBq/kg, respectively. These values are well above the limit established for disposal of solid waste and show the urgency to establish a national procedure so that steel companies can deal with this situation safely.

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