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CHALLENGES AND SOLUTIONS

METAL AND RADIONUCLIDE AVAILABILITY IN TREATED COAL MINING WASTES FROM SANTA CATARINA STATE - BRAZIL

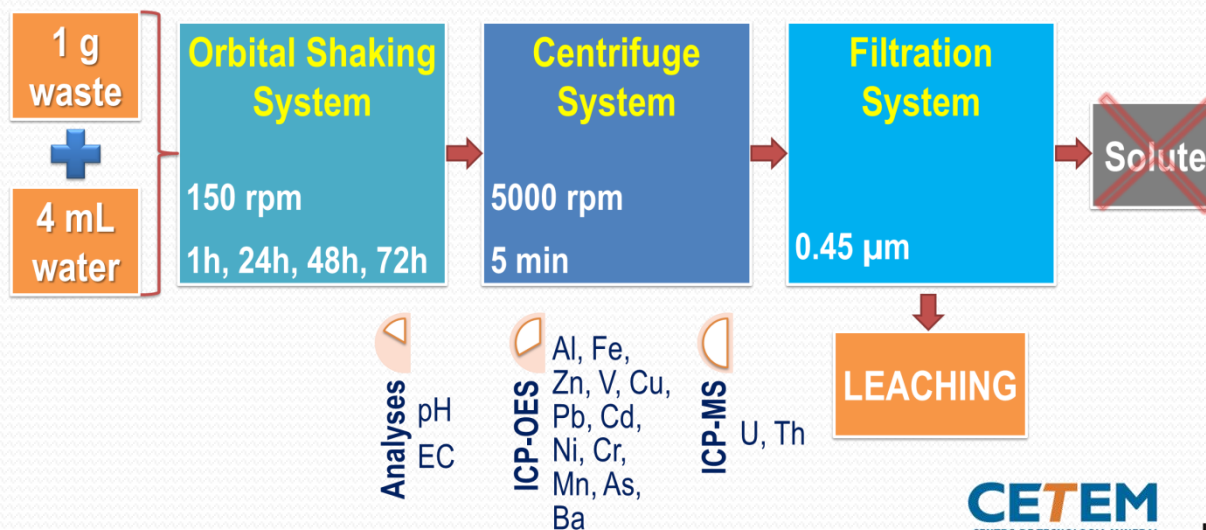
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Objectives and Methodology

- A tailing from a coal mine situated in Santa Catarina (SC) State received a mineral processing treatment consisting of the separation of the particles according to their density, generating 3 fractions: (i) heavy one, (ii) mixed one and (iii) light one; with high, intermediate and low pyrite contents, respectively. This study aimed to evaluate the mixed fraction, which is the largest and will be deposited on soil.
- Leaching were evaluated in triplicate by mixing the waste samples with water type 2 as shown bellow:



Summary of Results

- The preliminary results were compared to Brazilian environmental legislation - Conama Resolution 357 (2005):
 - Both pH and electrical conductivity (EC) increased as per the contact time of the mixtures, but pH levels still remains low (<5).
 - Levels of As, Cd, Cr, Cu, Pb, V, U and Th were below the limit of detection;
 - [Ba] were under the limits.
 - Although [Al] and [Fe] decrease with time, high [Fe] was still detected at the last interval. [Al] was above the referred limit only in the 1st hour.
 - [Zn] remained above the limits but to the last interval.
 - [Mn] and [Ni] presented nonacceptable values in every interval.
 - There are distinct kinetic leaching profiles for each metal.
- [Metals] are lower and pH values are higher in comparison to impacted local freshwater previous studies in SC area (Castilhos et al; 2010);
- Although preliminary, these results indicate the effectiveness of this coal tailings treatment.