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### Abstrak

#### **ABSTRAK**

The fractionation of five heavy metals in a washing aggregate sludge, a sewage sludge, a clay-rich sediment, the mixtures of these materials and the lightweight aggregates manufactured with them has been determined by applying the optimized European Community Bureau of Reference sequential extraction procedure in order to evaluate the effects of the heating process on the extraction of these elements. Additionally, preparation of eluates by aggregate leaching has been performed in accordance with the UNE-EN-1744-3 standard. The availability of all the studied heavy metals has been reduced by the thermal treatment, since most of the heavy metals have become part of the undigested material in the lightweight aggregates. Nickel has been the heavy metal that has presented the highest concentration in the eluates obtained after completion of the single extraction procedure in the lightweight aggregates. The studied lightweight aggregates may be used in lightweight concrete manufacturing from the standpoint of heavy metal leaching.