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## Reutilization of tannery waste chrome buffing dust for road pavement construction

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Tannery waste is considered to be one of the world's major industrial wastes. Leather production has expanded in economically developing countries despite having declined in the more developed nations in the last few decades. The waste generated from tanneries in most developing countries potentially ends up in improperly planned landfill sites, resulting in dangerous and serious risks to ecological and human health. Significant amounts of solid and liquid wastes are generated from leather tanneries. Solid waste generated accounts for up to 85% of rawhide. These solid wastes are generated throughout the leather processing stages. One consequence of the finishing operation is known as chrome buffing dust (CBD). Based on the extensive chemicals utilized in the skin and hide processing, CBD contains large concentrations of trivalent chromium alongside organic and other inorganic compounds. Nevertheless, CBD may also be a useful resource if it is managed expertly. In the present research work, CBD is subjected to starved air incineration (SAI) at 800°C in a thermal incinerator to convert the organic fraction into char. The residue is solidified/stabilized using Portland cement and sand and allowed to cure for 28 days. The solidified blocks are tested for unconfined compressive strength and heavy metal leaching. This research demonstrated potential recycling of tannery waste as a partial replacement for fine aggregate to produce construction material as road pavement blocks. Value-added product tannery waste for the purposes of environmentally friendly construction is not only economical advantageous; it also provides a sustainable solution that stops tannery waste ending up at the landfill.

## **Biography**

Solomon Fessehaye Woldeyohannes is a lead researcher and part-time instructor in several universities across the country. Much of his research on topics ranging from industrial water conservation to waste utilization were published and presented at several conferences. Reduction of water used for leather processing by replacing the same with eco-friendly recoverable solvents was one of his works which enabled processing water reduction of more than 70%. As leather processing industries utilize ample municipal water for processing of leather, this project provided a tangible insight on the applicability aspects. Moreover, solid waste generated was insignificant and can easily be treated. Apart from this, he has and is working on several research works with regards to cleaner production and waste utilization.

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