

Solid waste generation

Family



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Solid waste generation is an inevitable consequence of production and consumption activities in any economy (Bennagen, M. E., 2002). Dumping of solid wastes in unauthorized places such as roadside, drains, and undeveloped piece of land leads to accumulation of solid wastes in the environment.

Agricultural wastes are solid wastes that contribute to the amount of accumulated solid wastes in many parts of the world. The Philippines, which is considered as an agricultural country, contributes a large percentage of agricultural wastes in the world. The country contributes more than 10, 000 tons of solid wastes per day (Bennagen, M. E., 2002). This large amount of accumulated solid wastes contributes to problems such as flooding in urban areas, uncollected garbage, and inadequate disposal sites.

The effects of accumulated solid wastes in the environment are becoming one of the major concerns of the country and worldwide. In the field of civil engineering, the effects of solid wastes on the hydration process of concrete have been investigated and the studies provided promising results (Okonkwo, 2012). Attempts have been made by various researchers to convert solid wastes to beneficial applications with high level of success in helping to reduce solid waste.

Therefore, identifying analogous material from the waste products and using for beneficial application is an idea worth embracing. Eggshell is an agricultural waste that litters the environment. It is a common waste product in fast food, restaurants, and other food-related business establishments. This waste material was found out to be mainly composed of compounds of

calcium. Eggshells are composed of 93.70% calcium carbonate, 4.20% organic matter, 1.30% magnesium carbonate, and 0.80% calcium phosphate (Rabiu A. and Mtallib M., 2009).

Eggshell is primarily composed of calcium carbonate, which is the primary raw material in producing cement. This compound, which is naturally occurring and abundantly found in the Earth's crust, can also be found in bones, marbles, stalactites, and stalagmites. On the basis of the common compositional characteristics of cement and eggshells, heating or incineration of eggshells to produce eggshell ash and adding controlled amounts would significantly affect the properties of cement in its application to concrete.