Eco-Friendly Rubberized Concrete

sidi mohammed khalil cherif louazani
Kennesaw State University

Amaal Al Shenawa
Kennesaw State University

Metin Oguzmert
Kennesaw State University

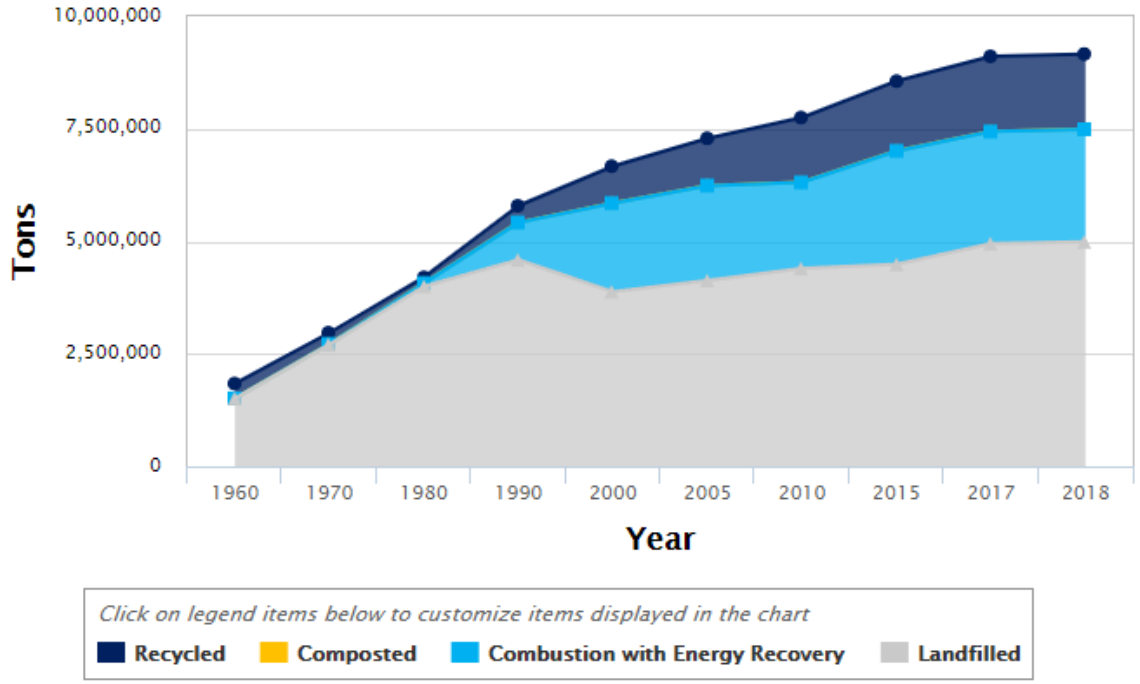
Eco-Friendly Rubberized Concrete

Sidi Mohammed Khalil CHERIF LOUAZANI, Graduate Research Assistant, Graduate Student in Construction Management, Construction management Department, CoACM

Amaal Al Shenawa, Ph. D., Assistant Professor, Construction management Department, CoACM

Metin Oguzmert, Ph. D., Associate Professor, Department of Civil and Environmental Engineering, SPCEET

Tire waste (rubber) causes serious environmental issues because of the rapid rise in and numerous variations of modern developments worldwide. According to the U.S. EPA, 9.16 million tons of rubber and leather was generated in the U.S. in 2018, more than 50% ends in the landfill, while just 1.67 million tons, or about 18 % was recycled. With recycling rates in the U.S. remaining low, there is a strong need to find other ways to keep rubber waste out of the landfill. Using rubber waste in concrete not only conserves raw materials but also provides an alternative to landfilling or burning, the latter of which increases CO_2 emissions and releases hazardous gases. Using recycled rubber aggregate lightens concrete, increases its workability, and improves its ductility. In this research, tire waste (recycled rubber) aggregate used to replace fine aggregate in concrete mixture up to 40%. Its impact on the physical and mechanical properties of concrete was examined. The experimental results showed improvement in the workability and unit weight while dropping in the compressive strength with increasing replacement ratios.



https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/rubber-and-leather-material-specific-data#Rubber&LeatherTableandGraph