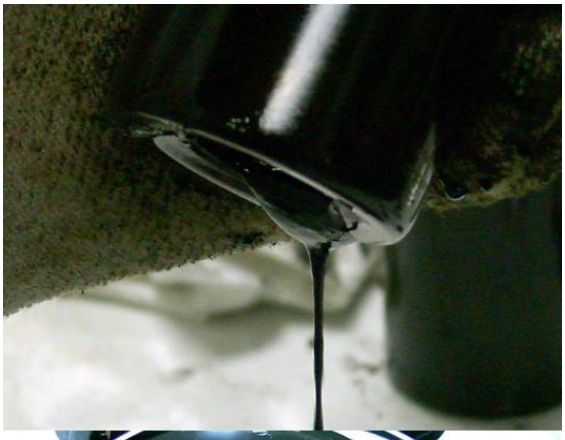
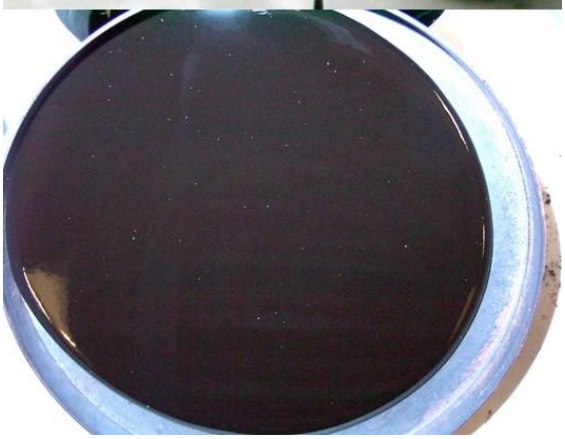
NDSU Engineering Grand Challenge Project

Infrastructure Sustainability and Recycling

The Environmental Protection Agency (EPA) estimates 4 billion tires are currently found in landfills and stockpiles across the nation. This number is growing by approximately 300 million tires each year, which makes the waste tire issue one that will not go away easily. Over 100 million tons of millings, also known as recycled asphalt pavement (RAP) are being generated by pavement rehabilitation projects.





Asphalt applications have the potential to contribute to the solution of the growing solid waste problem provided that raised engineering and environmental concerns are addressed. Recycled materials, crumb rubber modifier (CRM) and recycled asphalt pavement (RAP) as examples, can be engineered and used successfully in pavement applications. Recycling rubber and old pavement materials raises both engineering as well as environmental concerns for their suitability in asphalt applications.

The main goal of this project is to advance fundamental understanding of the interaction of recycled materials, tire rubber for example, with asphalt. The proposed project will promote interest in understanding civil engineering problems through basic science techniques among engineering students.

Grand Challenges Mentor:
Dr. Magdy Abdelrahman
Professor
Civil and Environmental Engineering
Tel. (701) 232-4840
m.abdelrahman@ndsu.edu