Recycling 'tiny trash' -- cigarette butts

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A new study suggests expanding community recycling programs beyond newspapers, beverage containers, and other traditional trash to include an unlikely new potential treasure: Cigarette butts. Terming this tiny trash "one of the most ubiquitous forms of garbage in the world," the study describes discovery of a way to reuse the remains of cigarettes to prevent steel corrosion that costs oil producers millions of dollars annually. It appears in ACS' *Industrial & Engineering Chemistry Research*.

Jun Zhao and colleagues cite one estimate that 4.5 trillion cigarette butts find their way into the environment each year. Studies show that cigarette butts are more than an eyesore. They contain toxins that can kill fish and harm the environment in other ways. Recycling could solve those problems, but finding practical uses for cigarette butts has been difficult.

The scientists showed that extracts of cigarette butts in water, applied to a type of steel (N80) widely used in the oil industry, protected the steel from rusting even under the harsh conditions, preventing costly damage and interruptions in oil production. They identified nine chemicals in the extracts, including nicotine, which appear to be responsible for this anti-corrosion effect.

More information: "Cigarette Butts and Their Application in Corrosion Inhibition for N80 Steel at 90°C in a Hydrochloric Acid Solution", *Industrial & Engineering Chemistry Research*.

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