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Department of Chemistry and Biochemistry

The Chemical Complexity of Recycling Plastics Found in Electronic Waste

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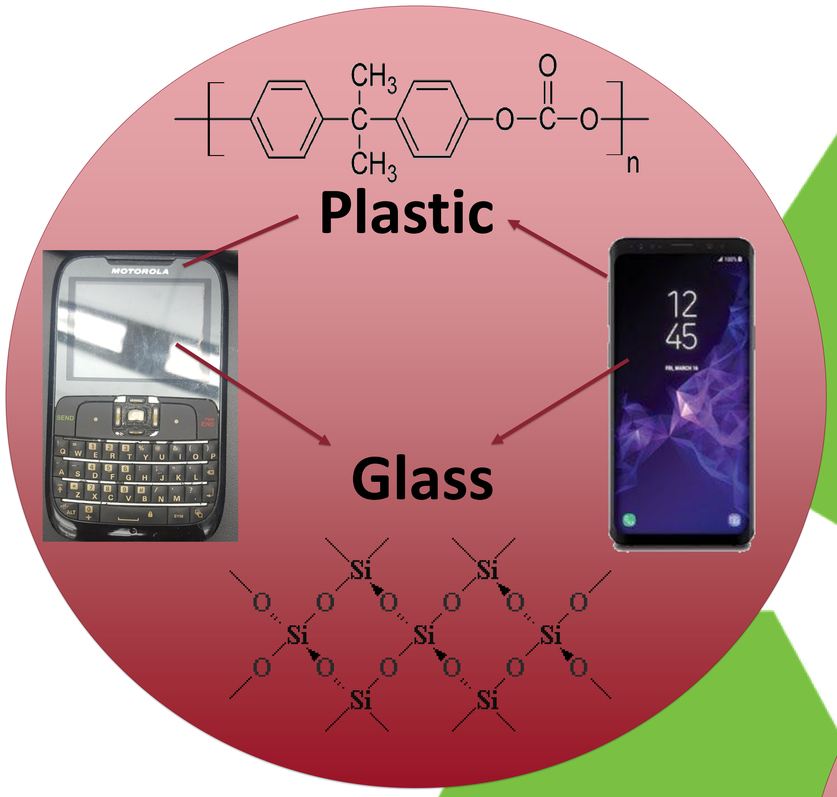


Introduction and Background

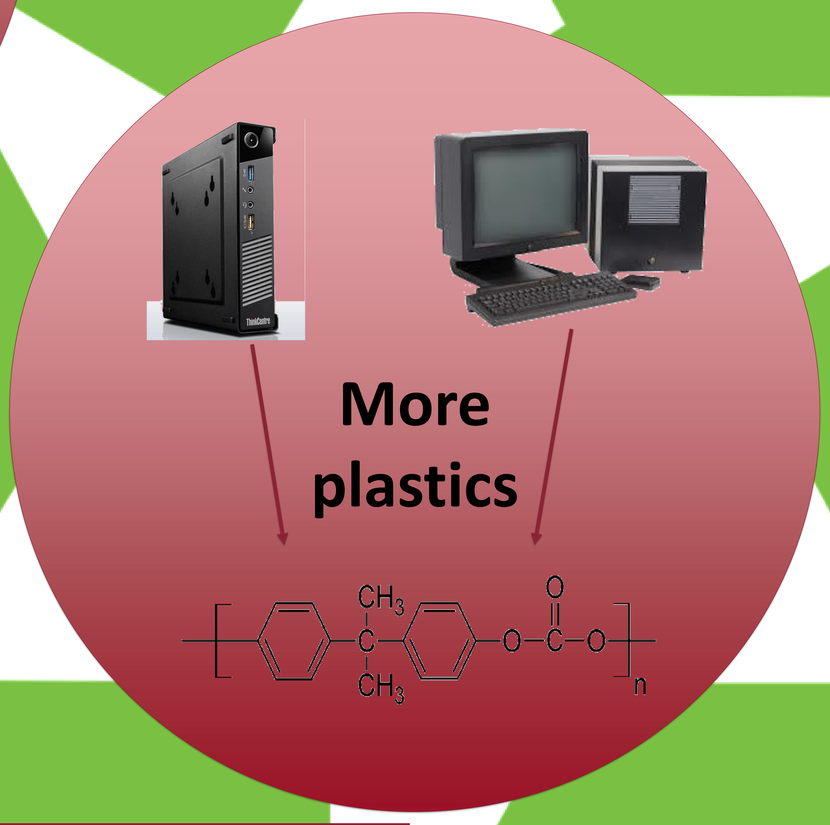
Electronic waste (e-waste) can be defined as waste material from electric appliances. Currently, a large quantity of e-waste ends up in landfills, where it can have adverse effects on the environment. Furthermore, e-waste management is rapidly becoming a global issue due to the difficulty of recycling the key components for reuse.

Why Should We Care?

Lead along with rarer metals from e-waste do not go away, but bioaccumulate. In other words, they will linger in the environment and only grow leading to poisoned groundwater supplies and destroyed wildlife.

Three Categories of E-waste

E-Waste can be divided in three categories: (1) Glass, (2) plastics and (3) Metal.



Current Difficulties of Managing E-waste

Each component within e-waste arrives with its own difficulties when it comes to recycling; in fact, some electronic devices go through either lead or bromine treatment in their manufacturing to make them fire resistant. Consequently, their chemical recycling process cannot be addressed by combustion and/or pyrolysis since brominated chemicals can leak into the environment.