Thermal Pyrolysis as an Alternative to the Problem of Plastic Waste in the Landfill of Villa Tambores

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After investigating and selecting the different plastics considering that most plastics are frequently used, we begin to prepare the samples using the following recognition criteria to classify the plastics. The first procedure was to expose small amounts of plastic for 7 min, on a laboratory alcohol burner in a hood to avoid any toxic gas that could be generated. These tests on some samples of plastics, allowed to obtain information on the behavior of the materials and their performance. As well as the products that are obtained as the temperature increases. The product obtained in the three samples was paraffin (the amount varies depending on the plastic) and some non-combustible gases (which were exposed to a lighter) and some gases. In the second stage we increase the amount of the different samples and change the test tubes by flasks of 100 cm3 and 250 cm3. The device is assembled to collect the most gases for subsequent condensation. The 2nd device had a flask for the samples, a simple refrigerant, a spherical flask with water, the glass and rubber tubes for connections and a carafe as a heat source. In the first stage of the experiment we use a flask as a water trap, but because many gases are released, we choose to add another trap. Another problem that arose was that in the coolant, the paraffin condensed and solidified at the outlet of the condenser, which obstructed the passage of the gases, so we decided to remove it. Another problem due to the high temperatures (higher than 300ºC) the rubber and plastic tubes used in the heating flasks deteriorated very quickly so we decided to change them for copper tubes.

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