Paper and Ink: An Alternative Strategy for Reusing Paper and Ink

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The Research group SYNAPSES of the Educational Institution Ismael Perdomo Borrero, noted that the use of the notebooks is set in a problem because they are discarded after fulfilling their main purpose, causing detriment of the environment Because the cellulose of the trees is extracted for the production of the paper, and with greater demand of paper greater deforestation. For this reason, the main objective of the investigation was directed towards the separation of the ink of the notebooks without losing their original composition so that the students can reuse them. The research was raised from a mixed approach with experimental design, for its development, conceptual references were taken into account, from which it was determined that the ink in an organic mixture separated with organic solvents due to its polarity. For this reason, to determine which substance could separate the ink from the sheets of notebooks, a practice of trial and error was carried out, with several of them. Finding that the organic compounds tested are most effective in separating the ink from the paper is acetone. After finding the right substance, several tests were performed modifying the amounts of acetone, this is how in 4 hours with 50 ml of acetone 20 leaves are cleaned and 43 ml of a homogeneous mixture of ink and acetone is obtained. For this reason, in a third moment different methods of separation of mixtures were worked; where it was found that distillation is the proper method for this separation. With this method, using 43 ml of the mixture, it is possible to separate 0.5 ml of ink and 42 ml of acetone. Finally, in order to improve the results, it is planned create a machine that optimizes the quality and duration of the processand has started with 3D designs.

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