

HIGH THROUGHPUT DNA PURIFICATION OF SAMPLES ARCHIVED ON FTA® CARDS

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FTA® Cards provide an effective method of collecting, shipping, archiving, and processing nucleic acids from a wide variety of biological sources. They offer room temperature storage, pathogen inactivation, and rapid purification of nucleic acids. FTA® Cards are commonly used for genetic screening, pathogen detection, human identification and diagnostics, as well as many other applications.

In order to meet high throughput demands, Whatman has automated the purification procedure of DNA stored on FTA® Cards using a Beckman Coulter Biomek® 2000 Liquid Handler. The automation of this process facilitates handling, reduces labor, and standardizes DNA sample purification. Automated liquid handlers have not been designed to effectively process solid phase discs from cards such as FTA®. The discs would either adhere to the side of the well, resulting in insufficient washing, or be removed by the pipette tips and transferred to waste. We have successfully automated the wash protocol by optimizing common liquid handling parameters. The processing takes about one hour for the purification of 96 samples, and requires no operator intervention. Nucleic acid from blood, buccal, and plant cells has been purified in this manner.

Using this process internally, we illustrate the ability to achieve a high throughput means of producing superior quality DNA for PCR-based downstream applications, including STR profiling.