3500xL Genetic Analyzer

Introduction

We are committed to designing our products with the environment in mind. This fact sheet provides the rationale behind the environmental claims that the Applied Biosystems™ 3500xL Genetic Analyzer is more energy efficient and utilizes fewer raw materials than the preceding model. Additionally, the 3500xL Genetic Analyzer is safer and easier to recycle because it is designed free of key hazardous substances commonly found in electronic products (e.g., lead, mercury, cadmium, hexavalent chromium, and polybrominated flame retardants).

Product description

The 3500 Genetic Analyzer platform can be used for a wide variety of applications, including de novo sequencing and resequencing (mutational profiling), microsatellite analysis, MLPA, AFLP, LOH, MLST, and SNP validation and screening. The majority of applications can be run on a single polymer and capillary array, and the 3500 Series Data Collection Software integrates seamlessly with several downstream Applied Biosystems™ software packages to provide comprehensive analysis of genetic data.

Green features

Less waste and fewer rescources

The 3500xL Genetic Analyzer contains less material than its predecessor, the 3130xL Genetic Analyzer (Table 1). Because this product weighs less, the fuel consumption and greenhouse gas emissions associated with its transport are lower. Useing less material also reduces waste at end-of-life.

More energy efficient

The 3500xL Genetic Analyzer draws 58% less energy when idling (Table 2) and 85% less energy to process one sample plate (Table 3), compared to the Applied Biosystems™ 3130xL Genetic Analyzer. To compare energy usage during a run, each instrument was run at nominal voltage, and the recommended protocol and number of wells were used in order to best reflect actual usage. For the 3500xL instrument, 24 wells of a 96-well plate were prepared with Applied Biosystems™ BigDye™ Terminator v3.1 Sequencing Standard according to product insert instructions, and the plate was injected once with the FastSeq50_POP7xl module. The instrument was set up to run on nominal voltage, 117.6 VAC at 60 Hz, and the “FastSeq50_POP7xl” protocol was run.

For the 3130xL instrument, the entire 96-well plate was prepared with BigDye Terminator v3.1 Sequencing Standard according to product insert instructions, and the plate was injected once with the FastSeq50_POP7 module. The instrument was set up to run on nominal voltage, 208.62 VAC at 60 Hz, and the “FastSeq50_POP7” protocol was used. Although instrument power usage was measured at different nominal voltages, there is a negligible impact on energy measurements.

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Table 1. Comparison of instrument weight and footprint.

Instrument/model	Weight (kg)	Footprint (cm^2)
3500xL	82	3,721 cm^2 (61 cm x 61 cm)
3130xL	130	4,070 cm^2 (74 cm x 55 cm)
Reduction	37%	8%

Table 2. Comparison of energy usage during idling.

Instrument/model	Average power usage (kW)	Run time (hr)	Energy consumption (kW-hr)
3500xL	0.08	1.00	0.08
3130xL	0.19	1.00	0.19
Energy conservation			58%

Table 3. Comparison of energy usage during a run.*

Instrument/program	Average power usage (kW)	Run time (hr)	Energy consumption (kW-hr)
3500xL “FastSeq50_POP7xl”	0.13	1.00	0.13
3130xL “FastSeq50_POP7”	0.72	1.21	0.88
Energy conservation			85%

* Condition: Instrument running one sample plate according to product insert.

Find out more at **thermofisher.com/3500**

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