MagMAX Pro HT NoSpin Plasmid Miniprep Kit

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™ MagMAX™ Pro HT NoSpin Plasmid Miniprep Kit is designed with an energy-efficient workflow that reduces energy consumption by 48% and has 79% less packaging relative to a comparable product on the market.

Product description

The MagMAX Pro HT NoSpin Plasmid Miniprep Kit is a magnetic bead–based nucleic acid extraction kit designed for automated extraction of plasmid DNA (pDNA) from bacterial cultures.

The kit is compatible with various automated liquid handling platforms to enable efficient processing of a large number of samples on a miniprep scale. It delivers improved performance over traditional anion exchange and silica membrane technologies and eliminates the need for centrifugation or vacuum filtration during the purification process. This enables researchers to save resources and reduce waste while still obtaining reliable and high-quality results.

The MagMAX Pro HT NoSpin Plasmid Miniprep Kit has been optimized to isolate transfection-grade pDNA, which can be used in a wide range of downstream applications such as transfection into sensitive cell lines, preparation of short hairpin vectors, enzymatic modifications, cloning, restriction digestion, sequencing, *in vitro* transcription/translation, and other applications where high-throughput plasmid isolation is required. With its robust performance, the kit delivers consistent and reproducible results, which can make it an essential tool in laboratories managing high sample throughputs.

Green features

More energy efficient

The protocol workflow time for the MagMAX Pro HT NoSpin Plasmid Miniprep Kit is 35 minutes, a 43% decrease compared to the workflow of a comparable high-throughput nucleic acid extraction kit on the market, which requires 61 minutes. This reduction in workflow time helps lead to a corresponding reduction in energy use, from 43.5 watt hours (Wh) to 22.8 Wh, representing a 48% reduction in energy consumption (Table 1). The shorter protocol also enables a higher throughput of samples in consecutive runs.

Table 1. Workflow time and energy use comparison between the MagMAX Pro HT NoSpin Plasmid Miniprep Kit and a comparable product on the market.*

	Workflow time (minutes)	Energy use (Wh)
MagMAX Pro HT NoSpin Plasmid Miniprep Kit	35.0	22.8
Comparable high-throughput nucleic acid extraction product	61.0	43.5
% reduction with the MagMAX Pro HT NoSpin Plasmid Miniprep Kit	43%	48%

* For 96 samples per plate using a Thermo Scientific™ KingFisher™ purification system.

Responsibly packaged

The primary and secondary packaging for the MagMAX Pro HT NoSpin Plasmid Miniprep Kit have a total mass of 0.24 kg, which is significantly lower than the total mass of 1.14 kg of packaging from a comparable high-throughput nucleic acid extraction kit. This amounts to 79% less packaging material than the comparable product (Table 2). The reagent bottles for the MagMAX Pro HT NoSpin Plasmid Miniprep Kit are made from high-density polyethylene (HDPE), a highly recyclable plastic.**

The paperboard box, which is also a highly recyclable material, is 65% smaller in size relative to a comparable product box (2,820 cm^3 for the MagMAX Pro HT NoSpin Plasmid Miniprep Kit as compared to 8,040 cm^3 for the comparable product). Given the box dimensions, this corresponds to a 2.8-fold reduction in volume, enabling more efficient use of laboratory storage space.

** Please consult with applicable federal, state, and local regulatory agencies for waste disposal instructions.

Table 2. Primary and secondary packaging comparison between the MagMAX Pro HT NoSpin Plasmid Miniprep Kit and a comparable product on the market.

	Packaging mass (kg)		
	Primary packaging bottles	Secondary packaging paperboard box and insert	Total
MagMAX Pro HT NoSpin Plasmid Miniprep Kit	0.15	0.10	0.24
Comparable high-throughput nucleic acid extraction product	0.62	0.52	1.14
% reduction with the MagMAX Pro HT NoSpin Plasmid Miniprep Kit	76%	81%	79%

The energy-efficiency and packaging reduction benefits of the MagMAX Pro HT NoSpin Plasmid Miniprep Kit are even greater when considering various throughput scenarios (Table 3). For example, conducting 192 reactions—equivalent to 2 plates per day—over the course of 1 year can result in an energy savings of 10.4 kilowatt hours (kWh) of energy and a reduction of 452 kg of packaging waste.

Table 3. Cumulative savings for various sample throughputs.†

Reactions/day	Plates/day	Time savings/year (minutes)	Energy savings/year (kWh)	Packaging reduction/year (kg)
1,152	12	78,312	62.3	2,711
768	8	52,208	41.6	1,807
384	4	26,104	20.8	904
192	2	13,052	10.4	452

† Assuming 261 working days in a year.

The kit not only contributes to a more energy-efficient workflow and reduced packaging, but also eliminates the need for (and resulting waste from) volatile organic solvents such as ethanol, isopropyl alcohol, and acetic acid.

The MagMAX Pro HT NoSpin Plasmid Miniprep Kit, with its shorter workflow that consumes less energy and its product packaging that uses less material, is a win for both your research and the environment.

Learn more at **thermofisher.com/plasmid**

For Research Use Only. Not for use in diagnostic procedures. © 2024 Thermo Fisher Scientific Inc. All rights reserved.
All trademarks are the property of Thermo Fisher Scientific and its subsidiaries unless otherwise specified. **COL28593 0824**