Patent Pending

monoLyser™

Bead Beating in the field or in the lab!

"Take me anywhere"

Catalog Number:
MLYS01

RotaPrep
sample preparation systems

For Research Use Only

Ver. 1.0

PRECAUTIONARY INSTRUCTIONS

Be sure to read all safety instructions in this manual carefully and thoroughly. Pay attention to warnings before using the *monoLyser™*. *Failure to follow all instructions may lead to injury*.

⚠ **Warning:** Indicates a potential hazard that should be avoided.

Electrical Safety

⚠ Avoid contact with grounded surfaces.

⚠ Outlets for charging must match the plug on the battery charging station.

⚠ Do not use the *monoLyser™* in the rain or under wet conditions.

⚠ Do not *misuse the cord.*

Safety Equipment

✓ The *monoLyser™* can be very loud so it is recommended to use **ear protection** during use.

✓ Always use **eye protection** while operating the *monoLyser™*.

⚠ For further safety information regarding the rotary tool, battery, and charging station please see accompanying literature.

Operation Precautions

⚠ Operation of the *monoLyser™* with a plastic tube at full speed for more than 10 seconds may cause the grinding matrices within the tube to overheat, leading to sample degradation and/or tube failure. If grinding of a sample for over 10 seconds is desired, lower speeds should be used and/or periodic stopping and cooling of the tube should be performed.

⚠ When using metal or ceramic grinding matrices greater than 2mm in diameter, do not operate at a speed greater than 25 (4,000 cycles per minute) or tube failure may result.

⚠ Although the modular design of the *monoLyser™* allows it fit on many off-the-shelf rotary tools from different manufacturers, using the *monoLyser™* with a rotary tool with an electric stop (stops immediately after switching it off) will damage the *monoLyser™* and void the warranty. **Use the *monoLyser™* only with the rotary tool included with it**, which has been specifically modified to disable its electric stop and coast to a stop when switched off.

It is recommended to keep the original packaging in case you need to return the product for any reason to your distributor or RotaPrep, Inc.

Note: *RotaPrep, Inc. is not responsible for any harm or damage resulting directly/indirectly from the use of the monoLyser™ or related product components, materials, or technologies.*

Some reagents in kits are irritants. Wear protective gloves and eye protection and follow the safety guidelines and rules enacted by your research institution or facility. Refer to product/reagent specific MSDS information from the manufacturer.

TABLE OF CONTENTS

TABLE OF IMAGES

INTRODUCTION

The monoLyser™ is an attachment for a rotary tool developed for vigorous cell disruption (bead beating) that allows the researcher/investigator to process samples in out in the field, at the site of sample collection. It can be used to lyse microbes in soil, sediment, sludge, and fecal samples and can effectively process tough-to-lyse fungal, algal, plant, and animal tissues. It can be used at any remote location and in most weather conditions when immediate sample collection, processing, and preservation are required by the researcher. The device is compatible with most 2 mL tubes containing lysis matrix.

The monoLyser™ consists of a unique, reciprocating grinding mechanism mounted on a rotary tool. It is designed to operate at 600 to 4,800 cycles per minute as long as charge remains in the battery. This allows the researcher to maintain control of the speed and time of sample lysis. Overall, the monoLyser™ is ideal for cordless, portable, and convenient processing of tough-to-lyse biological and environmental samples, both in the lab and in the field.

PRODUCT CONTENTS

1) One (1) monoLyser™
2) One (1) Rotary tool
3) Two (2) Lithium Ion Rechargeable Batteries
4) One (1) Battery Charging Station
5) Ten (10) sample tubes
6) Four (4) tube support plugs
7) Product Manual

Image 1: Picture of contents

***MONOLYSER™* OPERATING INSTRUCTIONS**

Battery Charging

Connect the battery charging station to an appropriate power outlet (use an appropriate power converter to use the charging station outside of North America)

Place the battery in the charging station by aligning the raised ribs of the battery pack with the slots in the charging station. The light on the charging station should flash green while the battery is charging. The battery pack is fully charged when the green light stops flashing and remains on.

Holding the monoLyser™

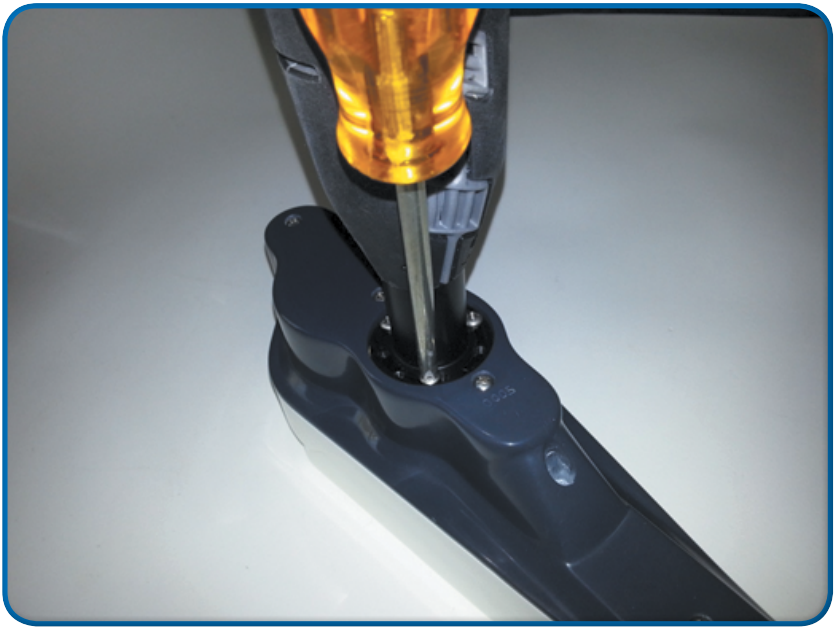
During operation, hold the *monoLyser™* as in the picture below.

Image 2: Holding the monoLyser™

Adjusting the angular position of the rotary tool

The angular position of the rotary tool relative to the monoLyser™ may be adusted by removing the 3 screws at the base of the monoLyser™, rotating the adapter to the desired position, and then replacing the 3 screws. See the picture below.

Image 3: Adjusting the angular position of the rotary tool



Sample Processing

- ✓ *Sample Sources* – The *monoLyser™* device can be used to effectively lyse microbes in soil, sediment, sludge, and fecal samples and can effectively process tough-to-lyse fungal, algal, plant, and animal tissue. The *monoLyser™* is compatible with skirted, 2 mL tubes. Two mL tubes having conical bases are compatible with the *monoLyser™*, however these require the use of a support plug to help prevent failure of those tubes.
- ✓ *Operating Temperatures – (Optimum -20oC to 45oC)* Severe cold conditions can drain the battery and affect the number of samples that can be processed with the *monoLyser™*. Keeping the battery warm (e.g., in the pocket of a jacket or parka) prior to use can extend battery life in colder climates and operating conditions.
- ✓ *Processing Time and Speed* – (*Generally* <5 seconds at 4,000 cycles per minute) The extent of sample lysis will vary according to the processing speed and time. Due to the extreme pulverizing forces generated by the *monoLyser™,* the temperature of samples can increase as a function of lysis speed and time. This may affect the integrity of DNA/RNA/protein released from biological materials. If longer processing times (>5 seconds) are required, it may be necessary to let the sample cool down for a few minutes before continuing with sample processing and/or to reduce the lysis speed.

Step-by-step Instructions

1. Take the monoLyser™ and rotary tool out of the box or carrying case.
2. Screw rotary tool into monoLyser™ to a tight fit.
3. Open lid and insert a screw-cap 2mL tube into the holder making sure that it snaps in securely. If you are using one or more ¼" diameter metal or ceramic balls with a conical-bottomed plastic tube, use the support plug to help prevent failure of the tube. Hold the tube and support plug between thumb and index finger. Press them together into the holder of the *monoLyser™*.

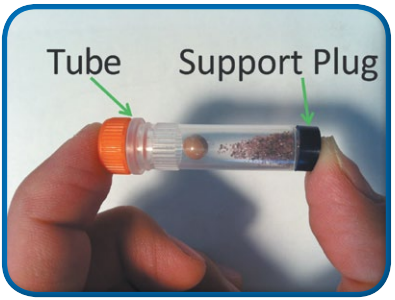


Image 4: Tube and Support Plug

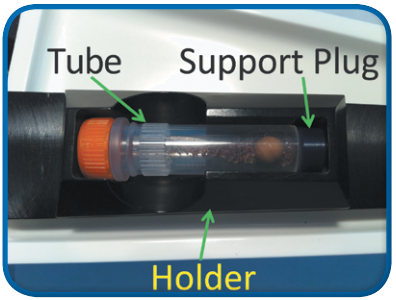


Image 5: Tube and Support Plug in the holder

⚠ If you use a 2mm (or greater) diameter metal or ceramic ball in a plastic tube, do not run the rotary tool above the speed setting of 25 (about 4,000 cycles per minute). Doing so may cause tube failure.

⚠ If you use a tube with a tethered cap, be sure to insert the tube into the holder with the plastic loop facing down to prevent it from damaging the clear window on the lid to the monoLyser™ during operation.

4. Close the lid and set the speed control on the rotary tool to the desired speed. Below is a table of the approximate *monoLyser™* speed (+/- 1,000 cycles per minute) for each corresponding position of the speed control slide on the Dremel® 8220 rotary tool, running with an empty tube.

Table 1: Approximate speed

Slide	Cycles Per Minute
5	600
10	1,400
15	1,900
20	2,300
25	4,000
30	4,800

5. While holding the lid closed with one hand, flip the on/off switch on the rotary tool with the other hand to run the monoLyser™ for the desired period of time.

⚠ Caution: Do not operate the monoLyser™ while the lid is open.

6. After turning off the rotary tool, open the lid and remove the 2mL tube.

For kits from specific manufacturers, refer to corresponding product instructions for details concerning subsequent isolation of DNA/RNA/Protein from lysate material.

Cleaning the monoLyser™

⚠ Make sure to disconnect the rotary tool from the monoLyser™ before cleaning. Wear protective gloves (latex/nitrile) during all cleaning procedures.

Clean the *monoLyser™* as necessary. The exterior of the *monoLyser™* can be cleaned with a damp (water, dilute ethanol) paper towel or similar. Clean the lysis chamber (exposed when lid is open) by wiping down the inner walls and tube holder. Allow all components to air dry prior to use.

⚠ Should a lysis tube fracture or break in the sample chamber during processing, stop processing and immediately clean it as recommended above.

WARRANTY AND DISCLAIMER INFORMATION

For Research Use Only

All of our products are intended for research use only. Not for use in diagnostic procedures.

Warranty

This product is guaranteed for one (1) year from the time of receipt. See below for repair/return policy.

Returns

For repairs made under warranty, the Goods must be returned to RotaPrep intact (non-tampered with, non-disassembled) with all components together and in their original packaging. Goods may not be returned for credit except with Seller's (i.e., RotaPrep, Inc.) permission, and then only in strict compliance with Seller's return shipment instructions. Returned Goods (other than defective products) must be returned freight prepaid by the Customer and will not be accepted without prior authorization of RotaPrep. The Goods must be returned in their original packaging and in resalable condition. Any returned items may be subject to a 20% processing (restocking) fee.

Terms of Purchase

We warrant to you, our direct customer, that our goods shall conform substantially to the description of such goods as provided in our catalogs and literature accompanying the goods until their respective expiration dates. THIS WARRANTY IS EXCLUSIVE, AND WE MAKE NO OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. Our warranty shall not be effective if we determine, in our sole discretion, that you have altered or misused the goods or have failed to use or store them in accordance with instructions furnished by us. Our sole and exclusive liability and your exclusive remedy with respect to goods proved to our satisfaction (applying analytical methods reasonably selected by us) to be defective or nonconforming shall be the replacement of such goods free of charge, upon the return of such goods in accordance with our instructions, although at our discretion we may provide a credit or refund. IN NO EVENT SHALL WE BE LIABLE UNDER ANY LEGAL THEORY (INCLUDING BUT NOT LIMITED TO CONTRACT, NEGLIGENCE, STRICT LIABILITY IN TORT OR WARRANTY OF ANY KIND) FOR ANY INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR EXEMPLARY DAMAGES (INCLUDING BUT NOT LIMITED TO LOST PROFITS), EVEN IF WE HAD NOTICE OF THE POSSIBILITY OF SUCH DAMAGES. If we manufacture custom goods for you based on instructions, specifications, or other directions you provide to us, we shall not be liable for the lack of sufficiency, fitness for purpose or quality of the goods to the extent attributable to such instructions, specifications, or other directions. We shall not be liable for any loss, damage or penalty as a result of any delay in or failure to manufacture, deliver or otherwise perform hereunder due to any cause beyond our reasonable control.

Patent/Trademark Disclaimer

Some technologies of the monoLyser™ sample processor are patent pending. Unless stated otherwise, no license or immunity under any patents shall be either granted or implied by the sale of RotaPrep products. Dremel® is a trademark of Robert Bosch Tool Corporation.