



Enrichment Sample Homogenizer (ESH)

User Guide



Notice

The information in this document is subject to change without notice and should not be construed as a commitment by Merck KGaA, Darmstadt, Germany. Merck KGaA assumes no responsibility for any errors that may appear in this document. This manual is believed to be complete and accurate at the time of publication. In no event shall Merck KGaA be liable for incidental or consequential damages in connection with or arising from the use of this manual.

Contents

Introduction.....	5
System Overview.....	5
ESH Instrument Components	5
Catalog Number	5
Operator and Equipment Safety	5
Specifications.....	6
Using the ESH Instrument	7
Setting up the ESH Instrument	7
Operating the ESH Instrument.....	7
Adjusting the Gap between the Door and the Paddles	9
Cleaning the ESH Instrument	10
Removing and Cleaning the Housing.....	10
Cleaning the Blending Chamber	10
Troubleshooting.....	12
Standard Product Warranty	13
Technical Assistance.....	16

Introduction

System Overview

The Enrichment Sample Homogenizer (ESH) instrument is used for the preparation of solid samples before analysis.

The ESH instrument does not damage cells and bacteria contained in the sample, and does not require sterilization.

ESH Instrument Components



- Multi-function digital display/control panel
- Variable speed (4, 6, 8, and 10 strokes)
- Variable time (1 second to 1 hour or open-running/countdown)
- Close-tight window door
- Adjustable blending power
- Side-by-side paddle stop
- Silent, brushless motor
- Security drip tray
- Removable autoclavable paddles

The ESH instrument is delivered with sample bags, power cord, and Quick-Start Guide.

Catalog Number

The Enrichment Sample Homogenizer (ESH) catalog number is 5427650001.

Operator and Equipment Safety

All employees who will operate and/or be near the Enrichment Sample Homogenizer (ESH) must comply with the following:

Read and understand this user guide before using the ESH instrument. Failure to follow operating instructions could result in user injury or damage to the instrument.

- Read and understand all maintenance instructions in this user guide before performing maintenance on the ESH instrument. Failure to follow instructions could result in user injury or damage to the instrument.
- Any alteration of the ESH instrument from factory specification may cause unsafe conditions, and will void the product warranty.

- Any attempt to use the ESH instrument in a manner not specified in this user guide may result in damage to the instrument, operator injury, and will void the product warranty.
- Do not attempt to repair the ESH instrument. Service should be performed by trained and authorized personnel only.
- Place the ESH instrument upright on a clean, flat, stable, horizontal surface, away from any source of excessive heat and close to an easily accessible, properly grounded power supply outlet. Do not run the instrument in any other position.
- Do not open the housing without first unplugging the instrument from the power source.
- Do not expose the ESH instrument to liquid. If this happens, immediately switch off and disconnect the pump from the power outlet, and then decontaminate the ESH instrument. For cleaning instructions, see [Cleaning the ESH instrument](#).
- Before cleaning, shut down the ESH and disconnect it from the power source.
- Do not run the ESH instrument for more than 15 minutes continuously (depending on sample size and nature, paddle position, and speed selection).
- The power supply must be protected by a fuse below the main connection.
- The electrical installation must comply with local standards.

Specifications

Category	Specification
Useful volume	50—400 mL
Power source	100V~ to 240V~ 50 to 60 Hz
Size (width x depth x height)	26.5 x 42 x 26 cm 10.433 x 16.45 x 10.24 in.
Weight	16 kg
Blending time	1 second—1 hour, and open running / countdown
Blending speed	4, 6, 8, and 10 strokes

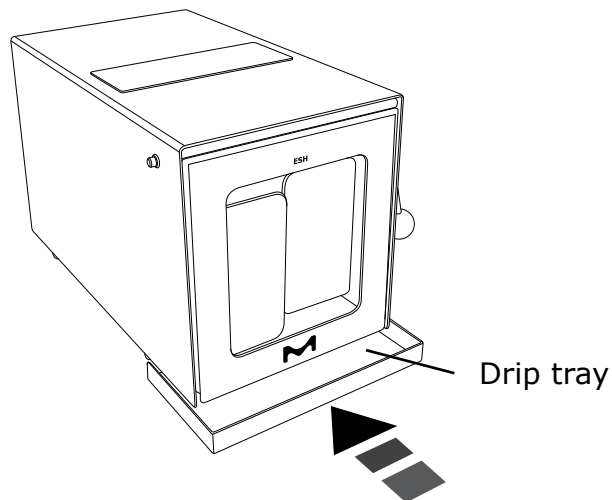
The ESH is compliant with the following:



Using the ESH Instrument

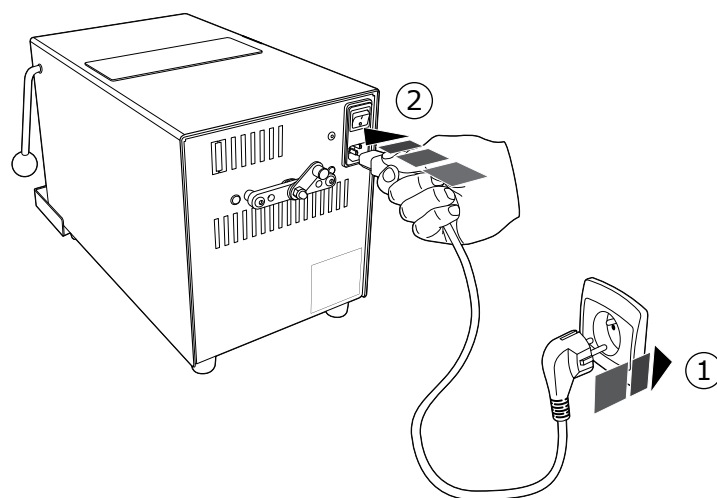
Setting up the ESH Instrument

1. Remove the ESH instrument from all packaging
2. Place the instrument on a flat, stable, horizontal surface, away from any source of excessive heat and close to an easily accessible, properly grounded power supply outlet.
3. Slide the drip tray under the blending chamber. The drip tray collects drops and leaks during blending.



Operating the ESH Instrument

1. Plug the power cord into the electrical power source (from 100V~ to 240V~). (1)
2. Turn the main switch to the "I" position. (2)

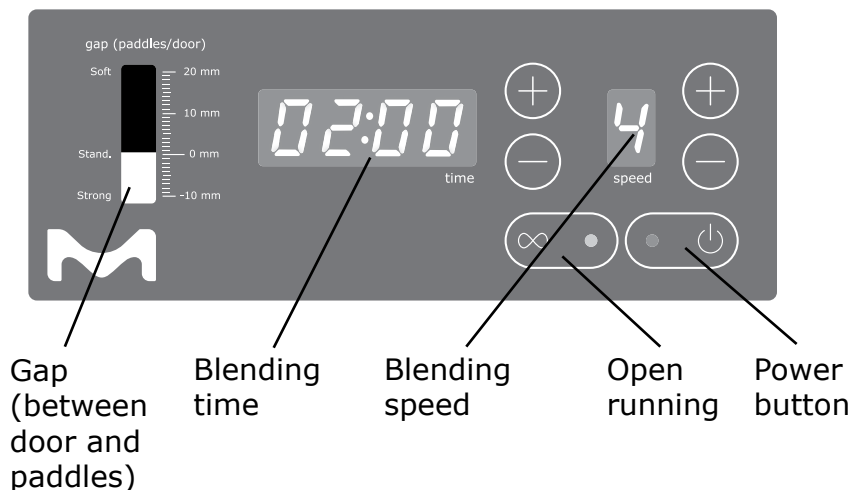


3. Press the power button on the digital display/control panel.
4. Set the time using the + and - time buttons. Use the ∞ button to set open running.

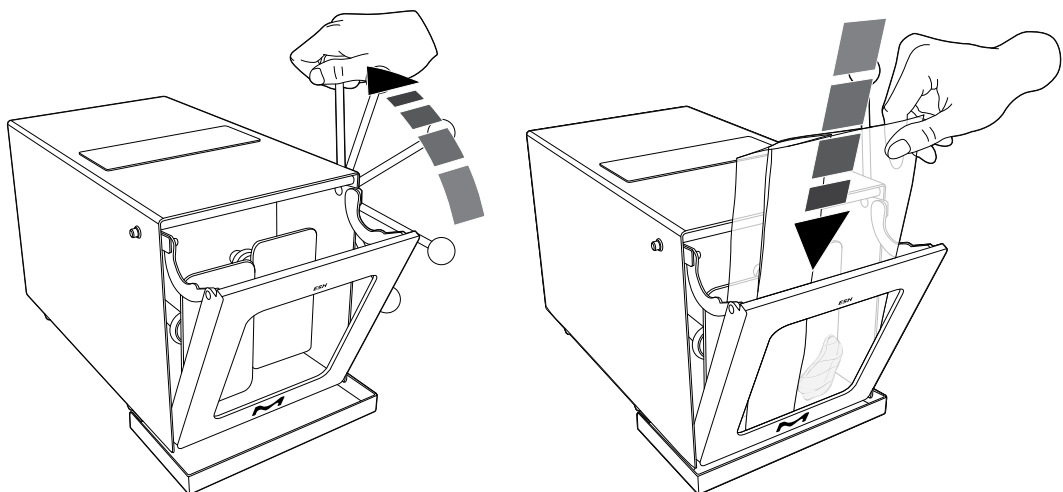
Note

Do not run the ESH instrument for more than 15 minutes continuously (depending on sample size and nature, paddle position, and speed selection).

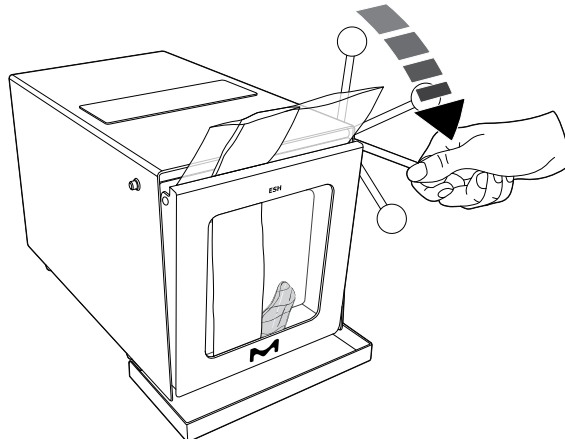
5. Set the blending speed (1, 2, 3, or 4) using the + and - speed buttons.



6. Set the blending pressure by using the crank at the back of the instrument to adjust the position of the paddles. This changes the size of the blending chamber to suit the nature and size of the sample (see the next section: Adjusting the Gap between the Door and the Paddles).
7. Pull the lever up and back to open the door. Insert the sterile bag that contains the sample with the diluting fluid.
8. While holding the bag, close the door and lower the lever until it clicks.



The ESH instrument starts, blends the sample, and stops automatically. Monitor the blending process through the window in the door.

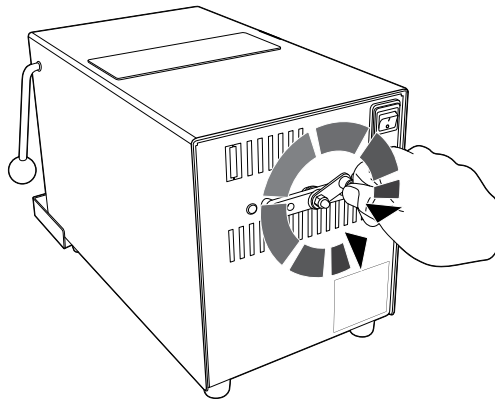


9. Open the door and lift out the bag.

Adjusting the Gap between the Door and the Paddles

Adjust the space between the doors and the paddles to accommodate samples from -5 mm to +10 mm. With negative values, it is normal for the paddles to knock on the door and produce an audible blending sound.

1. Release the crank at the back of the instrument by pulling the handle outward.



2. Turn the crank 360° clockwise to push the paddles forward. Turn the crank 360° anticlockwise to push the paddles backward.

Note

The position of the paddles is indicated on the digital display.

Cleaning the ESH Instrument

Clean the instrument with standard products intended for cleaning stainless steel. Do not use bleach. Do not splash water or cleaning products on the digital display/control panel.

Removing and Cleaning the Housing

Note

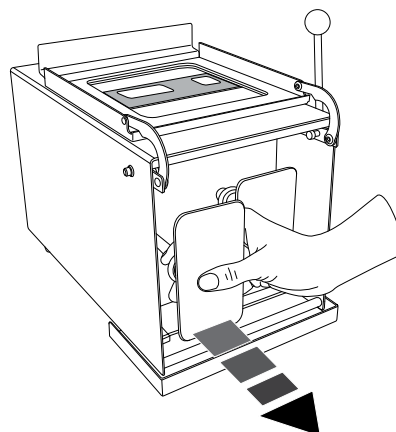
This operation must be done only by authorized and qualified staff.

1. Turn the main switch to the "O" position. Unplug the power cord from the electrical outlet.
2. Lift the lever to open the door and unhook the lower edge of the door from the axis bar.
3. Unscrew the fastening screws with a Torx® screwdriver (TX20).
4. Gently remove the housing.
5. Disconnect the flat cable.
6. Clean the housing.

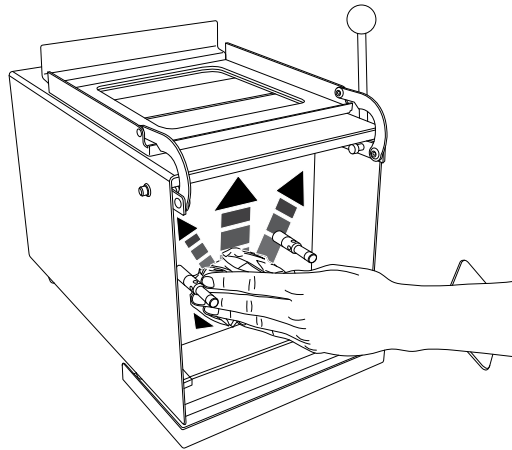
To close the housing, follow these instructions in reverse order.

Cleaning the Blending Chamber

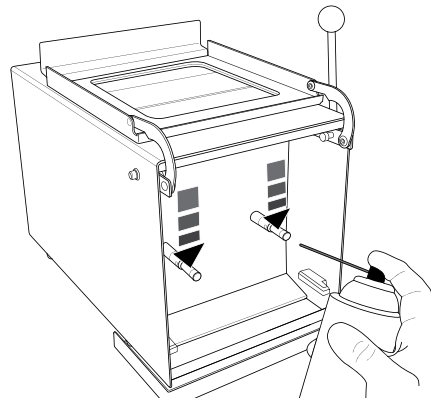
1. Turn the main switch to the "O" position. Unplug the power cord from the electrical outlet.
2. Lift the lever to open the door and unhook the lower edge of the door from the axis bar.
3. Swing the lower edge of the door upward and lay the door flat on top of the instrument.
4. Remove the paddles by pressing the back of the paddles until they click.



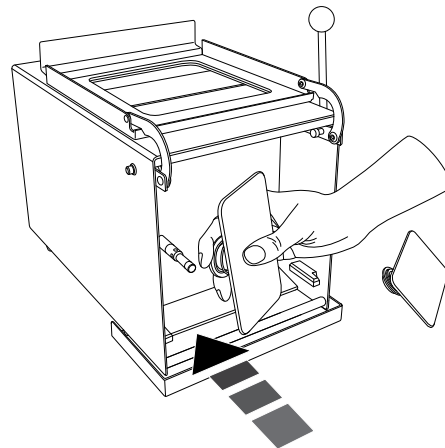
5. Clean the blending chamber and paddles. Autoclave the paddles if necessary.



6. Lubricate the paddle rods with silicone lubricant applied with sprayer or brush.



7. Replace the paddles by clicking them into place.



8. Swing the door back into place, making sure it is correctly positioned on the lower axis bar.
9. Ensure that the instrument is not damp before plugging the power cord into the electrical outlet and turning the main switch to the “|” position.

Troubleshooting

Technical issue	Solution
The ESH instrument does not start.	Ensure the power cord is connected.
	Ensure that the power switch is in the on position: " ".
	Ensure that the mixer door is correctly positioned and closed. Do not force the door.
	Ensure that the fuses are functional.
	Ensure that power supply voltage is correct.
The door does not close correctly.	Ensure that the door is correctly positioned on the axis bar at the bottom of the door. (Do not force the door.)
Blending time is wrong.	Adjust the blending time setting.
Blending speed is wrong.	Adjust the blending speed setting.
Bags leak during the cycle or when blending is complete	Use only sterile enrichment bags that are robust and designed for blending.
Blending is not satisfactory, especially when blending hard or heavy materials.	Adjust the paddle position using the crank at the back of the instrument.
	Reduce blending speed.

Standard Product Warranty

The applicable warranty for the products listed in this publication may be found at: www.millipore.com/ec/cp3/terms (within the “Terms and Conditions of Sale” applicable to your purchase transaction).

Technical Assistance

For more information, contact the office nearest you or visit the Technical Service page at www.millipore.com/techservice. Worldwide contact information is available at www.millipore.com/offices.