

222DS Benchtop Shaking Incubator

Instruction Manual

Catalog Numbers:

I-5222-DS

I-5222-DS-230V



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1.0 Introduction

The 222DS Benchtop Shaking Incubator is a combination product of a shaker and a temperature chamber, designed for shaking and heat treatment of sensitive samples. It replaces two devices, reduces time and space needed. It is very suitable for biochemistry, microbiology and medicine laboratories in which thermal and shaking treatment of samples is a daily used routine.

2.0 Packing

The 222DS Benchtop Shaking Incubator includes the following components:

- ▶ 222DS Benchtop Shaking Incubator
- ▶ Instruction Manual

3.0 Technical Description

The casing of Benchtop Shaking Incubator is made of steel plate, varnished with high resistant polyurethane lacquer. Temperature chamber lid is made of PMMA, which is resistant to the temperatures up to 90°C.

Basic equipment consists of independent shaking device and temperature chamber. Both sections are driven and regulated via microcontroller driven electronics, which also controls all necessary sensors for motor speed, temperature, lid, temperature safety fuse, time and self-diagnostics error levels in variety of margin situations.

3.1. Specifications

Heater Power	700W
Fan Power	17W
Shaking Motor Power	35W
Fuse	2 x 5A 250V 2 x 10A 115V
Environmental Temperature	5°C to 40°C
Relative Humidity	Up to 85% non-condensing
Speed RPM Regulation	Digital load independent, from 20 to 300 rpm in 1 rpm steps
Shaking Orbit	19 mm
Temperature Operating Range	5°C above room temperature to 70°C
Temperature Sensor	PT100
Temperature Accuracy	±0.5°C
Temperature Stability	±0.5°C
Timer	1 min to 99 hours, timer HOLD function
Capacity	16 x 125 mL , 9 x 250 mL, 5 x 500 mL, 4 x 1,000 mL
Dimensions (W x D x H)	15 x 21 x 16 in. (37 x 53 x 40 cm)
Weight	45 lbs. (20.2 kg)
Overvoltage Category	Installation category 1

4.0 Safety Information

- ▶ Before cleaning disconnect the device from mains power supply. Device could be cleaned with a soft, lightly wet cloth. Don't use cleaners or liquids on aerosol basis.
- ▶ Do not use the device nearby water sources. Take care, that water will not drop in the device, especially by cleaning procedures.
- ▶ Do not use device in aggressive atmosphere.

NOTE: In case that device is not functioning properly, even if you have exactly followed instructions described in User's Manual, you are allowed to use only those commands and procedures, which are allowed by User's Manual. Use of any other commands and procedure's adjustments could result in device destruction or longer service repair time. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.



Do not shake flammable or explosive samples.



When closing the lid, do not put your hands between the lid and housing, because they can get crushed.



When the lid is open, do not put your fingers in the area between the housing and rotating platform. Danger of mechanical injury.



The lid may be hot when the device is working at higher temperatures. Take care not to burn your hands.



The back side of the housing may be hot when the device is working at higher temperatures. Take care not to burn your hands.



Power supply cord shall be with nominal cross section area of at least 18 AWG.

5.0 Installation

5.1. Device Placement

When selecting the right place for device, please consider following:

- ▶ Put the device on smooth, horizontal and stable place.
- ▶ Leave enough space beyond the device for normal air circulation, min. 15 cm.
- ▶ Leave enough space around the device, min. 15 cm, for easy access and maintenance.
- ▶ Avoid locations subject to shocks and vibrations.
- ▶ Don't use the device in surroundings, where there are fast temperature and humidity changes. Please avoid also such places, which are under direct access of sunlight or places nearby heat producing devices.



Do not use the device in a flammable or explosive atmosphere.

NOTE: There has to be easy access to the shaker control panel and main plug in case of emergency.

5.2. Attaching the Power Cord

First connect the main power cord to the shaker then connect the plug end of the cord to a grounded wall socket. Avoid lines on which powerful electric motors, refrigerators and similar devices are connected.

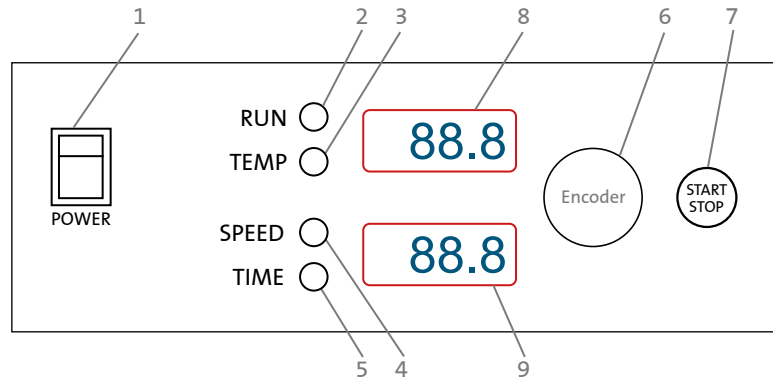
- ▶ Be careful when you plug the cord to a grounded wall socket.
- ▶ Do not touch the plug with wet hands.
- ▶ Do not pull the plug by the cord.

5.3. Attaching Shaking Platforms

The Shaking Incubator has a variety of platforms available, to meet most of the shaking needs. These platforms mount to the shakers via four mounting platforms which easily plug into four rubber mounting points on the top of the shaking incubator.

6.0 Operating Instructions

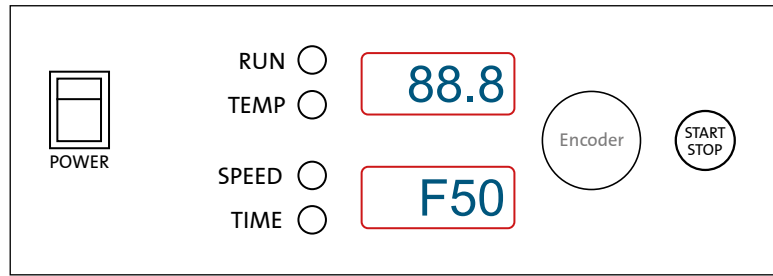
6.1. Control Panel



1. **POWER key** – switch ON (illuminates when on) or OFF.
2. **RUN** – green signal light illuminated when shaking incubator is running.
3. **TEMPERATURE** – yellow signal light illuminated when the shaking incubator is set on temperature.
4. **SPEED** – yellow signal light illuminated when the shaking incubator is set on speed.
5. **TIME** – yellow signal light illuminated when the shaking incubator is set on time.
6. **ENCODER** – by rotating the encoder clockwise (+) or counter clockwise (-) you can change the Time, Speed and Temperature on the shaking incubator. Push encoder to change between Time, Speed and Temperature. If you rotate encoder knob fast, the value on display goes up and down quickly.
7. **START/STOP key** – START or STOP operating.
8. **TEMPERATURE display.**
9. **SPEED/TIME display.**

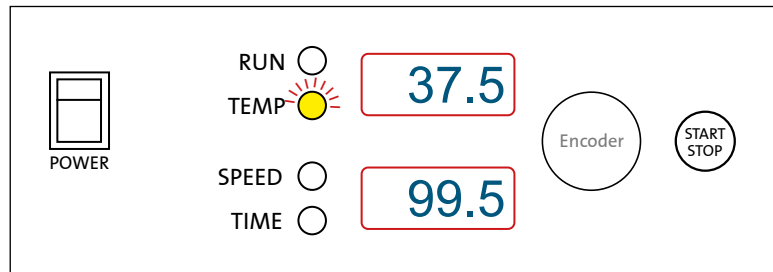
6.2. Basic Operation

- ▶ Press POWER switch on control panel. Shaking incubator automatically detects power supply frequency F50 or F60 and shows it on display. Likewise the shaking incubator is then set to last saved parameters.

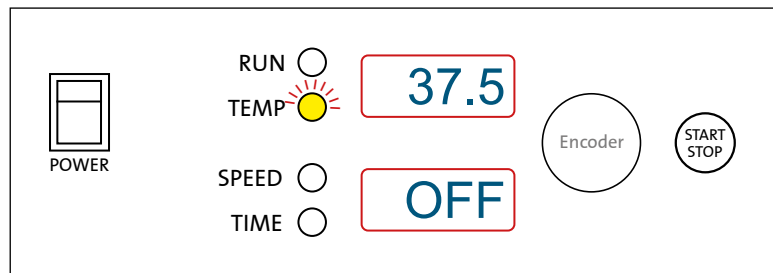


- ▶ Press and hold encoder knob for more than 2 seconds. Temperature signal light blinks. With rotating encoder clockwise (+) or counter-clockwise (-), **set temperature** to desired value:

37.5 = 37.5°C



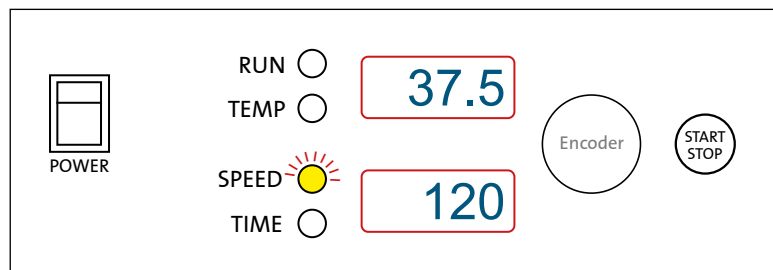
- ▶ If you want to use the shaking incubator without temperature regulation set OFF on display. You get OFF function on display, when you rotate encoder under 0.0°C or above 70.0°C.



- ▶ Press encoder knob.
- ▶ Speed signal light blinks. With rotating encoder clockwise (+) or counter-clockwise (-), **set rotating speed** to desired value:

34 = 34 rpm

120 = 120 rpm

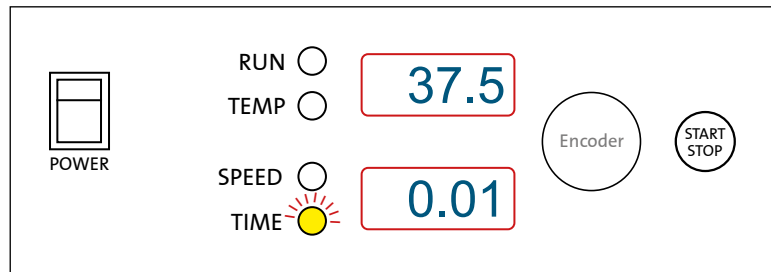


- ▶ If you want to use the shaking incubator without shaking - set OFF on display. You get OFF function on display, when you rotate encoder under 20 RPM or above 300 RPM.
- ▶ Press encoder knob.
- ▶ Time signal light blinks. With rotating encoder clockwise (+) or counter-clockwise (-), **set time** to desired value from 1 min to 99 h:

70.3 = 70h 30 min

1.55 = 1h 55 min

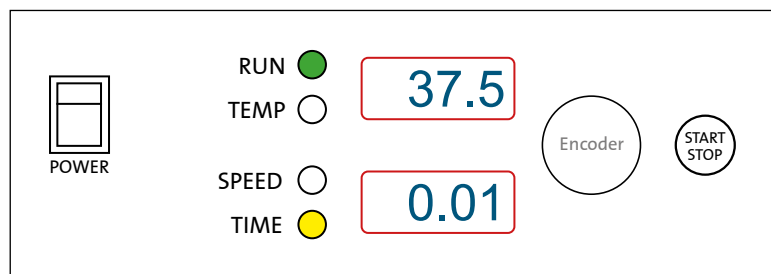
0.01 = 1 min



- ▶ If you want to set **Time to hold** (continued operation) rotate encoder under 0.01 min or above 99.0 h to get “Hld” on display.
- ▶ **Press START/STOP** key once to exit the changing of parameters. You are now in starting mode. Only signal light of the last changed parameter shines.

NOTE: You always change the parameter, whose signal light blinks - temperature, speed or time. You can always change one, two or three parameters. To exit the changing of parameters, always press START/STOP key once.

- ▶ **Press START/STOP** key to start the operation.
- ▶ **Run** signal light shines. Shaking incubator counts down the time from set value.
- ▶ You can move between the values of time and speed during the operation, by pressing the encoder. These two values are shown alternately on bottom display.



6.3 Changing Parameters During Operation

NOTE: You cannot modify time during operation.

► Temperature

Press and hold encoder knob for more than 2 sec. Temperature signal light blinks. Rotate encoder clockwise (+) or counter-clockwise (-), to set the desired value. In the meantime, temperature signal light pulses. **When you set the new value, press START/STOP key only once.** Shaking incubator goes back to working parameters.

► Speed

Press and hold encoder knob for more than 2 sec. If shaking incubator is not set on speed (speed signal light is not blinking), press encoder – speed signal light must blink. Rotate encoder clockwise (+) or counter-clockwise (-), to set the desired value. In the meantime speed signal light pulses. **When you set new value, press START/STOP key only once.** Shaking incubator goes back to working parameters.

- When time elapses or you press START/STOP key again, message **End** appears on display and **Run** signal light pulses. When shaking incubator completely stops, it places itself to **last used values** for **Time, Speed** and **Temperature**.



If you lift the lid during operation, shaking incubator stops immediately and message **Open Lid** appears on displays. When you close the lid again, shaking incubator starts operating automatically.



If there is a power cut during operation, shaking incubator will restart automatically, as soon as the electricity returns. Display will be flashing (warning you that the power was cut). You can turn the flashing off, by pressing the encoder knob.

6.4 Shaking Without Heating

If you want to shake the samples without heating them, set Temperature to OFF.

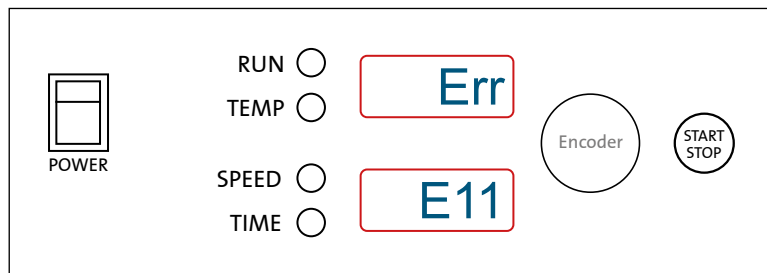
6.5 Heating Without Shaking

If you want to heat the samples without shaking them, set Speed to OFF.

7.0 Troubleshooting

The 222DS Shaking Incubator features built in self-diagnostic procedures which are constantly checking the operating parameters and performance, as well as functions that are necessary for safe and reliable operation. An error code is shown on the LCD display if an error occurs.

Sample of Error display:



E11	This error message appears when something is wrong with motor regulation (PWM regulator, pulse generator, motor). The shaking incubator is automatically stopped. Call for service.
E12	This error appears when the motor does not reach set RPM in 30 sec. The shaking incubator is automatically stopped. Call for service.
E13	This error appears when set speed oscillates more than 100 rpm in 2 seconds. Shaking incubator is automatically stopped. Call for service.
E21	The temperature sensor is not working properly with regards to the heater. Shaking incubator is automatically stopped. Call for service.
E22	Temperature sensor notices a 5°C higher temperature than set temperature. Shaking incubator is automatically stopped. Call for service.
E23	Set temperature is not reached in 2 hours. Shaking incubator is automatically stopped. Call for service.

Should you have a question about the Labnet 222DS Shaking Incubator or required service for the unit, contact Corning Customer service at 800.492.1110 or 978.442.2200. Do not send a unit for service without first calling to obtain a repair authorization (RA) number. The unit should be properly packed to avoid damage. Any damage resulting from improper packaging shall be the responsibility of the user.

8.0 Temperature Calibration

Shaking incubator has a software for temperature re-adjustment. First you have to measure the temperature in the middle of the chamber, or even better in the sample, for minimum 2 hours. You have to measure the temperature with a calibrated digital temperature thermometer, with precision 0.1°C or more. After 2 hours or more, read the temperature on thermometer and compare it with the temperature on display of the shaking incubator. The difference between the temperatures on thermometer and display is the value, which you enter in the software.

- ▶ **Example 1:** Temperature on thermometer is 37.9°C, temperature on display is 37°C.
Difference is $37.9 - 37 = 0.9$ This value 0.9, is the value (which you will enter into the software).
- ▶ **Example 2:** Temperature on the thermometer is 36.2°C, temperature on display is 37°C.
Difference is $36.2 - 37 = -0.8$. This value -0.8, is the value (which you will enter into the software).

Procedure for temperature calibration

1. Press and hold encoder knob for more than 5 seconds. Message “Cor” (Correction) appears on display.
2. Press encoder knob once to enter the value setting procedure and set the value with rotating encoder counter-clockwise or clockwise (see Example 1 or Example 2). Pay attention to the sign of the value (plus or minus). When you set the value, press encoder knob again.
3. Press the START/STOP key to finish the temperature re-adjustment.

NOTE: Temperature calibration should only be performed by qualified personnel.

9.0 Maintenance and Cleaning

9.1 Cleaning of the Working Chamber (Painted Steel)

The chamber should be cleaned regularly. Any samples which spill inside or outside the chamber must be immediately wiped. You can only use mild cleaning solutions. Use only warm water. Usage of aggressive or abrasive cleaners is not allowed.

For decontamination use cleaners with neutral Ph. Stainless steel platform can be decontaminated with autoclave (120°C).

9.2 Maintenance and Cleaning of the PMMA (Acrylic) Lid

Maintenance:

Acrylic glass is sensitive to scratching. For cleaning, use only non-aggressive liquid detergents and non-solids. Do not use the hard sponge, but only a soft cloth.

Grease and oil can be cleaned with hexane, petroleum or other chemicals with the aromatic base.

Cleaning:

- ▶ For cleaning the lid, do not use the cleaners, which could damage the surface! Do not use: acetone, benzene, paint thinner, carbon tetrachloride or other aggressive liquids, because they can damage the surface of acrylic lid.
- ▶ Do not use detergents containing ketones, esters and aromatics.
- ▶ Do not use cleaners with solid and abrasive particles.
- ▶ Do not use polishes.
- ▶ Never clean the surface with detergent for cleaning nail polish (containing acetone or other solvents) or with cleaning products for chemical cleaning, paint thinner, gasoline and similar. Avoid any contact with these chemicals.
- ▶ Do not use detergents with high levels of alcohol.
- ▶ It is the best to use 2% aqueous solution of non-aggressive cleaning products (dishwashing detergent).
- ▶ Wipe the surface with a lightly damp soft cloth.
- ▶ Remove dust and dirt with dry soft cloth.



Take care when cleaning the device after operating, especially when you have used the device at temperatures higher than 60°C. In such condition never touch the platform, because it can be very hot.

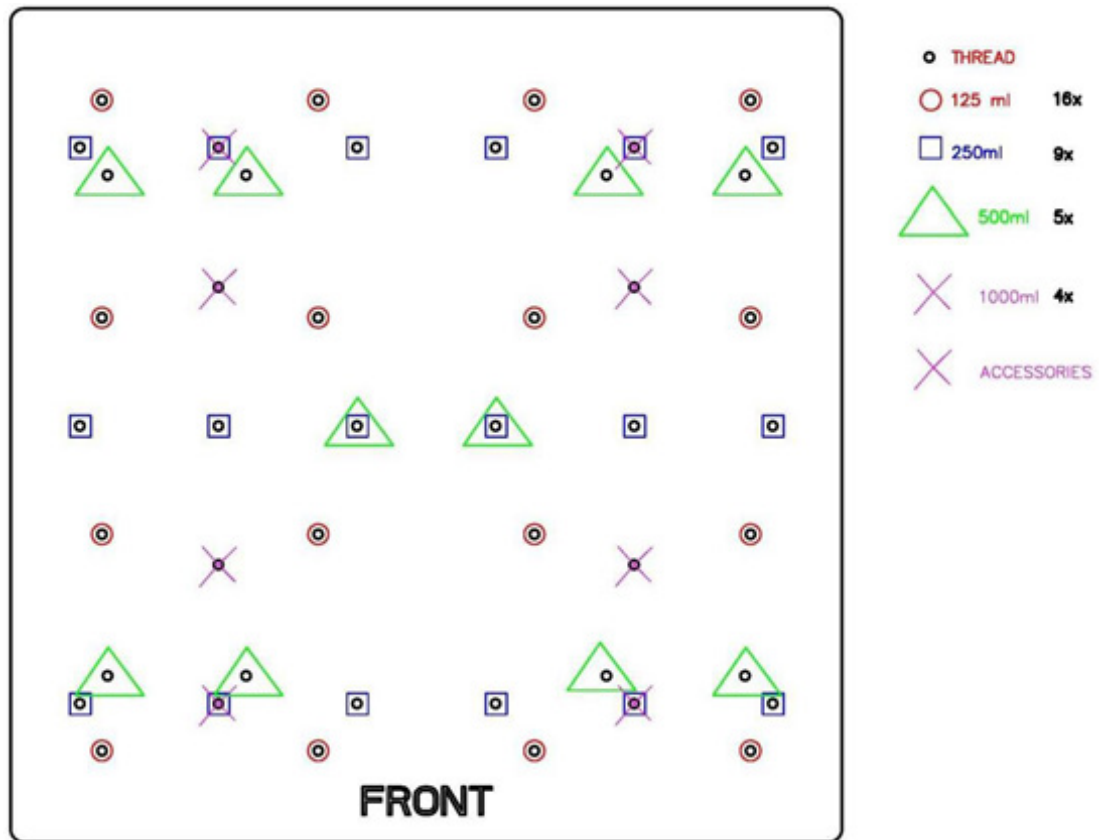


Before you begin cleaning the device, unplug mains cord from power supply socket.

Before using any other cleaning or decontamination methods, except those recommended by the manufacturer, you should check with the manufacturer, that the proposed method would not damage the equipment.

10.0 Positioning of Attachments on Shaking Platform

You can mount different attachments on shaking platform. Follow below diagram as a guideline for positioning different flasks and accessories.



11.0 Accessories

Product	Cat. No.	Qty/Pk
Universal platform 11.8 x 11.8 in. (30 x 30 cm)	I-5230-DS	1
Petri dish shelf	I-5220	1
Sticky mat 5.9 x 5.9 in. (15 x 15 cm)	I-5240	2
Microtiter hotel – 3 x microplates stacked individually	I-5250	1
Combi tube holder 6 x 15/50 mL tubes	I-5260	1
Plastic flask clamp 1,000 mL	I-2041-1000	1
Plastic flask clamp 500 mL	I-2041-500	1
Plastic flask clamp 250 mL	I-2041-250	1
Plastic flask clamp 125 mL	I-2041-125	1

12.0 Limited Warranty

Corning Incorporated (Corning) warrants that this product will be free from defects in material and workmanship for a period of two (2) years from date of purchase. CORNING DISCLAIMS ALL OTHER WARRANTIES WHETHER EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. Corning's sole obligation shall be to repair or replace, at its option, any product or part thereof that proves defective in material or workmanship within the warranty period, provided the purchaser notifies Corning of any such defect. Corning is not liable for any incidental or consequential damages, commercial loss or any other damages from the use of this product.

This warranty is valid only if the product is used for its intended purpose and within the guidelines specified in the supplied instruction manual. This warranty does not cover damage caused by accident, neglect, misuse, improper service, natural forces or other causes not arising from defects in original material or workmanship. This warranty does not cover motor brushes, fuses, light bulbs, batteries or damage to paint or finish. Claims for transit damage should be filed with the transportation carrier.

In the event this product fails within the specified period of time because of a defect in material or workmanship, contact Corning Customer Service at: USA/Canada 1.800.492.1110, outside the U.S. +1.978.442.2200, visit www.corning.com/lifesciences, or contact your local support office.

Corning's Customer Service team will help arrange local service where available or coordinate a return authorization number and shipping instructions. Products received without proper authorization will be returned. All items returned for service should be sent postage prepaid in the original packaging or other suitable carton, padded to avoid damage. Corning will not be responsible for damage incurred by improper packaging. Corning may elect for onsite service for larger equipment.

Some states do not allow limitation on the length of implied warranties or the exclusion or limitation of incidental or consequential damages. This warranty gives you specific legal rights. You may have other rights which vary from state to state.

No individual may accept for, or on behalf of Corning, any other obligation of liability, or extend the period of this warranty.

For your reference, make a note of the serial and model number, date of purchase, and supplier here.

Serial No. _____ Date Purchased _____
Model No. _____ Supplier _____

13.0 Equipment Disposal



According to Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE), this product is marked with the crossed-out wheeled bin and must not be disposed of with domestic waste.

Consequently, the buyer shall follow the instructions for reuse and recycling of waste electronic and electrical equipment (WEEE) provided with the products and available at www.corning.com/weee.

To request certificates, please contact us at www.labnetlink.com.

Warranty/Disclaimer: Unless otherwise specified, all products are for research use or general laboratory use only.* Not intended for use in diagnostic or therapeutic procedures. Not for use in humans. These products are not intended to mitigate the presence of microorganisms on surfaces or in the environment, where such organisms can be deleterious to humans or the environment. Corning Life Sciences makes no claims regarding the performance of these products for clinical or diagnostic applications. *For a listing of US medical devices, regulatory classifications or specific information on claims, visit www.corning.com/resources.

For additional product or technical information, visit www.corning.com/lifesciences or call 800.492.1110. Outside the United States, call +1.978.442.2200 or contact your local Corning sales office.

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