WHEATON
Science Products

Proven Tools for Life Science Research

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WHEATON Industries Inc.

WHEATON Science Products
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Micro-Stir® Magnetic Stirrer Sold Separately

MantaRay® shown collapsed

MantaRay® Single Use Cell Culture Flask

How the MantaRay® Works

The MantaRay's integrated paddle spinner system is optimized for culturing volumes of 500mL through 1000mL. Using a vertically oriented stirrer, the MantaRay® ensures that cells are evenly distributed throughout the entire volume of culture.

Unlike conventional spinner-flasks, the MantaRay's paddle system comes ready-to-use, eliminating the need for assembly and disassembly of the device. The unique design of the spinner allows for even distribution of nutrients and oxygen; thus creating uniform media conditions for cell propagation. The constant agitation caused by the paddle system also prevents cells from settling to the bottom and adhering to the side walls.

The paddle is integrated with the top plate, which stabilizes the fixed stirrer height thus eliminating validation concerns due to height adjustments. The bag is heat sealed to the top plate reducing potential contamination related to adhesive compounds. The only required pieces of equipment for use of the MantaRay® system are the MantaRay® and a magnetic stirrer.

Use the MantaRay® for growing mammalian cell cultures, as well as plant and insect cells. The MantaRay®'s proprietary stirrer technology is designed to minimize damage to fragile cells, such as mammalian. The MantaRay® also allows media and gases to be added or changed during the experiment under sterile conditions. The MantaRay® can culture cells on micro-carrier beads, which the cells use as a growth surface. The MantaRay® comes pre-sterilized. Simply fill the flask with media, add cells and let them grow.

Special Features:

- **Single use spinner flask with integrated magnet**
  Benefit: No assembly or diassembly of components.
- **The MantaRay® is presterilized**
  Benefit: The product is ready to use out of the box.
- **The MantaRay® is break resistant**
  Benefit: Less potential for user contact, less potential for culture/sample loss, saving time and money.
- **One MantaRay® generates the same yield as 77 T175 T-flasks**
  Benefit: Conserves valuable incubator space and reduces costs associated with laboratory consumables.

Catalog No.	Working Volume (mL)	Qty/Case
W356805-1	1000	1
W356805-4	1000	4

Double-Sidearm Celstir® Spinner Flask

- Impeller rod does not protrude through flask
- Sidearms for 500mL - 8 L flask allow vented caps which enables the flask to "breath" while protecting from contamination.
- 1:1 headspace for good gas exchange
- No contamination from stirring rod
- Completely autoclavable

The Celstir features an adjustable paddle blade impeller for better mixing.
The addition of the bottom dimple to flasks 125mL and larger improves circulation and reduces the accumulation of cells in the center of the flask. Celstirs provide maximum surface interface between culture and flask atmosphere. Use the Celstirs for microcarrier and suspension cultures such as insect cells, hybridomas, and adapted cell lines.The entire unit may be autoclaved at 121°C for 20 minutes.

Catalog No.	Volume (mL)	Dia x Ht (mm)	Screw Cap Size, Top	Sidearm Size	Qty/Case
356873	25	38 x 122	38-430	15-415	1
356875	50	38 x 141	38-430	15-415	1
356876	125	65 x 155	51-400	33-430	1
356879	250	85 x 175	51-400	33-430	1
356882	500	110 x 190	100-400	45 mm	1
356884	1000	130 x 250	100-400	45 mm	1
356887	3000	178 x 341	100-400	45 mm	1
356889	6000	258 x 404	100-400	45 mm	1
356890	8000	293 x 445	100-400	45 mm	1

Jacketed Double-Sidearm Celstir® Spinner Flasks

- Double jacketed for temperature control

The Double-Sidearm Celstir, complete with water jacket, allows precise temperature control of Celstir contents when operated with a recirculating water bath. The hose connectors accept 1/4 in (6.35 mm) ID tubing. This unit is made from 33 low extractable borosilicate glass that conforms to USP Type 1 and ASTM type 1 Class A requirements. Includes PTFE faced rubber-lined caps. The 500 and 1000mL size can also be used with Wheaton Vented Cap W240751.

Catalog No.	Volume (mL)	Screw Dia x Ht (mm)	Cap Size, Top	Sidearm Size	Qty/Case
356943	25	54 x 134	38-430	15-415	1
356945	50	54 x 147	38-430	15-415	1
356946	125	78 x 162	51-400	33-430	1
356949	250	100 x 182	51-400	33-430	1
356952	500	130 x 195	100-400	45 mm	1
356954	1000	150 x 260	100-400	45 mm	1

Magna Flex® Microcarrier Spinner Flasks

- Great for microcarrier cultures
- Side arms for 500mL - 6 L flasks allow vented caps which enables the flask to "breath" while protecting from contamination.
- Gentle, even stirring action

All flasks have been proportioned to provide a head space ratio of 1:1 or greater. A removable stainless steel pin immobilizes the impeller during handling or decanting to prevent damage to cells or microcarriers. Sizes 500mL and larger can accommodate the Wheaton Vented Cap (W240751).

Catalog No.	Volume (mL)	Dia x Ht (mm)	Screw Cap Size Top	Sidearm Size	Qty/Case
356830	125	65 x 155	51-400	33-430	1
356831	250	85 x 175	51-400	33-430	1
356832	500	110 x 190	100-400	45 mm	1
356834	1000	130 x 250	100-400	45 mm	1
356837	3000	178 x 341	100-400	45 mm	1
356839	6000	258 x 404	100-400	45 mm	1

Vented Caps

- Sterile vented cap for spinner flasks
- Eliminates use of metal foil on side-arms
- 0.2 micron filter
- 45mm screw thread

The Vented Cap is a single-use 45 mm finish cap. The opening is covered with a hydrophobic filter that allows a flask or bottle to "breathe" while providing protection from contamination through the venting. Fits glass spinner flasks 500mL and larger.

Catalog No.	Screw Cap Size (mm)	Qty/Case
W240751	45	4
W240752	45	12

Single Place BioStir®

Four Place Micro-Stir®

Wheaton BioStir® and Micro-Stir® Magnetic Stirrer

- **Computerized stirrer control**
- **Rotation speed clearly visible for consistent results**
- **Variety of operating modes for suspension or microcarrier cultures**
- **Constant Speed Mode -** Soft start to a constant stirring speed this mode is used for suspension cultures
- **Interval Start Mode -** This mode turns the stirrer on and off using the soft start and stop for a set number of cycles, after which the stirrer runs at a constant speed that may differ from the speed used to attach the cells. This mode is useful for attaching cells to micro-carrier beads. There is no need to watch the culture and turn on the stirrer for a constant stir mode after the cells have attached
- **2-Speed Stirring Mode -** The stirrer slowly starts to a set speed, which is held for a user-defined period. The stirrer then softly changes to a final constant speed. This mode is also useful for microcarrier applications
- **2 year warranty**
- **Conforms to UL, CSA, and CE Standards**
- **Optional remote control**

Specifications:

ELECTRICAL:
Operating voltage: ..... 100-240 VAC, 50/60 Hz
Power consumption: ..... 15 Watts
Pollution Degree: ..... Class 2

ENVIRONMENTAL:
Operating temperature: ..... 15°C to 40°C
Humidity: ..... 80% up to 31°C, 50% at 40°C
Altitude limit: ..... 2000 meters

OPERATIONAL:
Operating speed:
MicroStir: ..... 5 - 200 rpm
Biostir: ..... 150 - 1200 rpm
Maximum flask size: ..... 3 L flask

DIMENSIONS: ..... H X W X D
Single Place: ..... 3.6 x 8.0 x 9.8 in (9.2 x 20.3 x 24.9 cm)
Four Place: ..... 4 x 15.5 x 17.5 in (10.2 x 39.4 x 44.5 cm)

WEIGHT:
Single Place: ..... 4.5 lb (1.9 kg)
Four Place: ..... 10 lb (4.5 kg)

Micro-Stir® Slow Speed Magnetic Stirrers

5-200 rpm

Designed specially for cell culture applications requiring exceptionally slow speeds, gentle mixing preventing shear and low heat transfer. May be used in an environment with CO_2 and non-condensing humidity, and with a temperature range to 50°C. Packaged 1 unit per case.

Catalog No.	Plug Style
Single Place Micro-Stir®	
W900700-A	120 VAC, North America
W900700-B	100 VAC, Japan
W900700-C	230 VAC, Continental Europe
W900700-D	230 VAC, United Kingdom
W900700-F	240 VAC, Australia / China
W900700-G	230 VAC, Italy / Chile
W900700-J	240 VAC, India

Catalog No.	Plug Style
Four Place Micro-Stir®	
W900701-A	120 VAC, North America
W900701-B	100 VAC, Japan
W900701-C	230 VAC, Continental Europe
W900701-D	230 VAC, United Kingdom
W900701-F	240 VAC, Australia / China
W900701-G	230 VAC, Italy / Chile
W900701-J	240 VAC, India

BioStir® Heavy-Duty Magnetic Stirrer

150-1200 rpm

Designed specifically for use with suspension culture flasks. The effortless motor provides uniform speeds for great results with cell culture or small fermentations. An easy-to-read display allows exact RPM to be set. The smooth-running motor reduces heat transfer to medium being stirred. Takes flask sizes to 3 Liters. May be used in an environment with CO_2 and non-condensing humidity, and with a temperature range to 50°C. Packaged 1 unit per case.

Catalog No.	Plug Style
Single Place BioStir®	
W900702-A	120 VAC, North America
W900702-B	100 VAC, Japan
W900702-C	230 VAC, Continental Europe
W900702-D	230 VAC, United Kingdom
W900702-F	240 VAC, Australia / China
W900702-G	230 VAC, Italy / Chile
W900702-J	240 VAC, India

Catalog No.	Plug Style
Four Place BioStir®	
W900703-A	120 VAC, North America
W900703-B	100 VAC, Japan
W900703-C	230 VAC, Continental Europe
W900703-D	230 VAC, United Kingdom
W900703-F	240 VAC, Australia / China
W900703-G	230 VAC, Italy / Chile
W900703-J	240 VAC, India

Remote Control

For BioStir and Micro-Stir

The Wheaton Remote Control allows all stirrer functions to be controlled and monitored without opening an incubator and disturbing the incubator contents. The remote control comes with a 12 ft. (3.66 meter) cord which allows the stirrer to be placed in an incubator (such as the Wheaton roll-in or CO_2 Incubators) while allowing freedom of placement for remote controller.

Catalog No.	Description	Qty/Case
W900704	Remote Control	1

Bench Top Roller Culture Apparatus

Pictured with Two Additional Decks Kits

Pictured with Two Additional Decks Kits Kits

Mini Bottle Bench-Top Roller Culture System

- **Allows precise rotation speed**
- **Small scale mixing and agitation**
- **Small footprint**
- **Conforms to UL, CSA, and CE Standards**
- **1 year warranty**

Perfect for Wheaton 30mL or larger serum bottles, 100-125mL media bottles or 38 x 200mm culture tubes for the growth and observation of various cell cultures such as, single chicken or rat embryos. The Wheaton Mini Bottle Roller Culture Apparatus accommodates bottles 38 to 60mm in diameter, up to 240mm long, with bottle speeds of 3 to 45 rpm (38mm bottle) and 2 to 30 rpm (60mm bottle). Additional decks available separately. See information on Deck Kit below.

Specifications:

Electrical Requirements: ..... 100-240 VAC, 50/60 Hz, 14 watts
Bottle Size Accepted: ..... 38-60mm x 240mm (maximum)
Bottle Speed: 38mm Diameter Bottle..... 3 to 45 rpm
60mm Diameter Bottle..... 2 to 30 rpm
Dimensions: ..... Width x Depth x Height
12-1/4" x 12-3/4" x 7-1/8"
(32 x 32.5 x 18 cm)
Weight: ..... 18 lb, 8 kg
Maximum temperature for use: ..... 40°C

Warning: Use in a CO_2 environment may reduce motor brush life.

Single-Deck Mini Bench-Top Roller Culture System

Catalog No.	Plug Style	Voltage	Qty/Case
W348923-A	North America	120 VAC	1
W348923-B	Japan	100 VAC	1
W348923-C	Continental Europe	230 VAC	1
W348923-D	United Kingdom	230 VAC	1
W348923-F	Australia / China	240 VAC	1
W348923-G	Italy / Chile	230 VAC	1
W348923-J	India	240 VAC	1

Deck Kit

Mini Bottle Deck Kit can be added to Mini Bottle Roller Culture Apparatus to accommodate an additional four bottles per deck. Can add up to a maximum of 2 kits per unit.
Weight: 9 lb, 4.1 kg

Catalog No.	Description	Qty/Case
W348920-CH	Deck Kit for Mini Bottle Bench Top Roller Rack	1

Small Bottle Bench-Top Roller Culture System

- **Use with glass or plastic roller bottles**
- **Accomodates larger roller bottles**
- **Small footprint**
- **Conforms to UL, CSA, and CE Standards**
- **1 year warranty**

This conventional-type roller culture rack is designed to roll vessels 108 to 121mm in diameter and up to 290mm long. The two outside rollers can be moved inward to accommodate bottles as small as 75mm in diameter. Each deck can accommodate two vessels. Additional decks available separately. See information on Deck Kit below.

Specifications:

Electrical Requirements: ..... 100-120 VAC, 50/60 Hz, 14 watts
Bottle Size Accepted: ..... 108 to 121mm (maximum)
Bottle Speed: 110mm Diameter Bottle..... 0.1 to 3.8 rpm
Dimensions:..... Width x Depth x Height
12-1/4" x 12-3/4" x 7-1/8"
(32 x 32.5 x 18 cm)
Weight: ..... 18 lb, 8 kg
Maximum temperature for use: ..... 40°C

Warning: Use in a CO_2 environment may reduce motor brush life.

Single-Deck Small Bench-Top Roller Culture System

Catalog No.	Plug Style	Voltage	Qty/Case
W348924-A	North America	120VAC	1
W348924-B	Japan	100 VAC	1
W348924-C	Continental Europe	230 VAC	1
W348924-D	United Kingdom	230 VAC	1
W348924-F	Australia / China	240 VAC	1
W348924-G	Italy / Chile	230 VAC	1
W348924-J	India	240 VAC	1

Deck Kit

Small Bottle Deck Kit can be added to Small Bottle Roller Culture Apparatus to accommodate an additional four bottles per deck. Can add up to a maximum of 2 kits per unit.
Weight: 9 lb (4.1 kg)

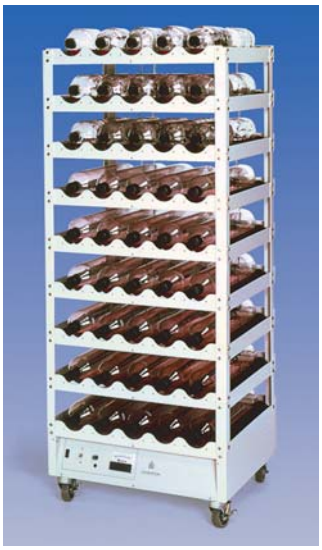
Catalog No.	Description	Qty /Case
W348930-CH	Deck Kit for Small Bottle Bench Top Roller Rack	1

High Capacity Roller Culture Apparatus

Cost Buster

The Original High Volume Production Apparatus

Modular Line



Superior Product Designed to Maximize Production Spacing

R_2P^{TM}

The State of the Art High Volume Production Roller Apparatus

	Cost Buster	Modular Line	R_2P Roller System
Number of Bottle Positions	5 or 8	5	5 or 8
Distance Between Decks	Production Spacing 6" (15.2 cm)	Modular Spacing 7 1/8" (18.1 cm)	6 in (15.24 cm) Production spaced (available in 5 or 8 positions per deck) 7 1/8 in (18.1 cm) Modular spaced (available in 5 positions per deck)
Number of Decks	11	1 to 9 (easily modified)	1 - 9 (7 1/8 in. (18.1 cm) Modular spaced-5 postions per deck) 1 - 11 (6 in (15.24 cm) Production spaced-5 positions per deck) 11 (6 in (15.24 cm) Production spaced-8 positions per deck)
Unit Height	Fixed	Adjustable based on number of decks	5 position models are adjustable based on number of decks 8 position model is fixed
Number of Bottles	52 (5 bottles/deck) } with 1700 cm^2 bottle 86 (8 bottles/deck } with 1700 cm^2 bottle 104 } with 850 cm^2 bottle 172 } with 850 cm^2 bottle	1 (min) } with 1700 cm^2 bottle 45 (max) } with 1700 cm^2 bottle 1 } with 850 cm^2 bottle 90 } with 850 cm^2 bottle	1 - 55 (for 5 postions/deck-production spaced) } with 1700 cm^2 bottle 1 - 45 (for 5 position/deck-modular spaced) } with 1700 cm^2 bottle 1 - 110 } with 850 cm^2 bottle 1 - 90 } with 850 cm^2 bottle
Rotation Alarm	Optional	Optional	Standard
Battery Backup	Optional	Optional	Optional
Control/Operating System	Optional	Optional	$CART_2$ software

Cost Buster Roller Apparatus

- Maximum production capacity in a minimum amount of space
- Distance between decks is 6" (15.2 cm)
- Available in 52 and 86 position models
- Drive units mounted on top to provide easy access for maintenance and better air flow
- Optional rotational alarm and battery backup systems available
- Greaseless bearings prevent leaching and eliminate bearing seizures
- Soft start feature minimizes cell disruption
- Conforms to UL, CSA, and CE Standards
- 1 year warranty

The Wheaton Cost Buster High Volume Production Roller Apparatus provides the maximum amount of potential cell culture growth area available in the smallest amount of space. This is accomplished by reducing the spacing between decks. Controls and drive units are located on top of the unit, providing easy access for maintenance. The open frame design allows better air flow, which minimizes top-to-bottom temperature gradients.

Wheaton Cost Busters can accommodate roller bottles from 110 to 121mm in diameter and up to 550mm in length. Each roller is driven by nonslip belts and pulleys for positive traction (especially important for use with lightweight plastic bottles).

The Cost Buster High Volume Production Roller Apparatus is supplied without roller bottles. Maximum temperature for use is 40°C.

Specifications:

Electrical: ..... 100 - 220VAC, 50/60Hz, 35 watts
220 - 240VAC, 50/60Hz, 35 watts

Bottle Speed: ..... 0.25 – 5.3rpm (110mm bottle)

Operating temperature: ..... 15 to 40°C

Humidity: ..... 80% up to 31°C

Altitude limit: ..... 2000 meters

Dimensions: ..... Width x Depth x Height
52-Position: ..... 30.9 x 24.3 x 74.5 (in)
52-Position: ..... 78.4 x 61.6 x 189.4 (cm)

86-Position: ..... 46.7 x 24.3 x 74.6 (in)
86-Position: ..... 118.7 x 61.6 x 189.4 (cm)

Weight:

52-Position: ..... 250 lb, 113.4 kg
86-Position: ..... 350 lb, 158.8 kg

Maximum Production Capacity in a Minimum Amount of Space

Looking for an incubator for your Cost Buster…
see page 15

52-Position Cost Buster

Catalog No.	Plug Style	Voltage	Qty/Case
349000-A	North America	120 VAC	1
349000-B	Japan	100 VAC	1
349005-C	Continental Europe	230 VAC	1
349005-D	United Kingdom	230 VAC	1
349005-F	Australia/China	240 VAC	1
349005-G	Italy/Chile	230 VAC	1
W349005-J	India	230 VAC	1

Catalog No.	Plug Style	Voltage	Qty/Case
348990-A	North America	120 VAC	1
348990-B	Japan	100 VAC	1
348995-C	Continental Europe	230 VAC	1
348995-D	United Kingdom	230 VAC	1
348995-F	Australia/China	240 VAC	1
348995-G	Italy/Chile	230 VAC	1
W348995-J	India	230 VAC	1

Offered with 7 standard electrical plug choices. Additional configurations are available through special order.

Optional Accessories for the Cost Buster & Modular Roller Apparatus

Battery Backup System

- **Protects cells during power outages**
- **Provides a minimum of 24 hours of auxillary power**
- **Can be used to rotate vessels during transport to harvest area**

Protects your cells and process! The Wheaton Battery Backup System is designed to be installed in either the Modular or Cost Buster Roller Culture Apparatus. The system monitors the AC power and automatically switches between battery power and AC power as needed. The system will provide a minimum of 24 hours of auxiliary power to the motor. This system can be used to rotate the roller vessels during transport to and from the warm room or incubator. The system consists of two long-life sealed batteries, an automatic charger system, and an independent speed control which can be preset to maintain a bottle speed of approximately 25% of full speed during the lose of the primary voltage.

Charger Specifications:

Recharge time is 8 hours for completely discharged batteries, shorter for partially discharged batteries. Charger automatically monitors temperature and adjusts charge voltage for correct charging levels at elevated incubator temperatures.

Factory Installed (Must be ordered with Roller Culture Apparatus)

Catalog No.	Description	Qty/Case
349017	Battery Backup System for Modular Cell and Cost Buster Roller Apparatus	1

Field Retrofittable Battery Backup System

Same as above except packaged for field installation on Wheaton Modular and Cost Buster Production Roller Culture Apparatus which conforms to UL, CSA & CE standards.

Catalog No.	Description	Qty/Case
349018	Battery Backup System for Modular Cell and Cost Buster Roller Apparatus	1

Rotation Alarm System

- **Monitors drive system**
- **Alarm sound if any failure is detected**
- **Alarm is visual & audible**

The Wheaton Rotation Alarm System is designed to monitor the drive system on the Modular and Cost Buster Production Roller Culture Apparatus. When the system detects a failure it alarms. The alarm is visual (flashing LEDs), audible (loud buzzer), and can be tied into an existing equipment monitoring system through the external jack. The alarm system is installed in the Roller Culture Apparatus.

Alarm Indicator Specifications:

Visual:..... 3 LED indicators flash on and off
Audible: ..... Loud buzzer
Remote signal: ..... 4 pin panel mount mic jack
Alarm outputs:..... Pulsating +12VDC (25ma), Dry contact closure .5A at 24VDC

Factory Installed (Must be ordered with Roller Culture Apparatus)

Catalog No.	Description	Qty/Case
349011	Rotation Alarm System Modular Cell Production Roller Apparatus	1
349013	Rotation Alarm System for Cost Buster Production Roller Apparatus	1

Field Retrofittable Rotation Alarm System

Same as above except packaged for field installation on Wheaton Modular and Cost Buster Production Roller Culture Apparatus which conforms to UL, CSA & CE standards.

Catalog No.	Description	Qty/Case
349014	Rotation Alarm System for Modular Roller Culture Apparatus	1
349016	Rotation Alarm system for Cost Buster Production Roller Culture Apparatus	1

Modular Cell Production Roller Apparatus

- 1 five-position base unit and up to 8 additional five position decks
- Distance between decks 7 1/8" (18.1 cm)
- Provides up to 75,000 cm² total surface area for cell growth
- Greaseless bearings prevent leaching and eliminate bearing seizures
- Optional rotation alarm and battery backup systems available
- All-position drive is standard allowing the use of glass or plastic roller bottles
- Conforms to UL, CSA and CE Standards
- 1 year warranty

The Wheaton Modular Cell Production Roller Culture Apparatus allows flexibility for scale-up and production of monolayer cell cultures in standard roller bottles. It accepts bottles from 108 to 121mm in diameter and up to 550mm in length. The system consists of a base drive unit and five-position roller deck to which additional roller decks can be added. A powerful DC motor, with soft-start speed control, drives the bottles through a series of durable nonslip belts.

The all-position drive model is a positive traction drive system for lightweight plastic bottles in which each roller is individually driven. Also included is a locking speed control knob that prevents accidental change in rotation rates.

This unit is available with one of seven standard electrical plugs shown. Additional configurations are available through special ordering. Contact Wheaton for more information. The Modular Cell Production Apparatus is supplied without roller vessels.

Shipping Unit: One per case

Specifications:

Electrical:.....100 - 120VAC, 50/60Hz, 35 watts
220 - 240VAC, 50/60Hz, 35 watts

Bottle Speed:.....0.25 – 5.3 rpm (110mm bottle)

Operating temperature:.....15 to 40°C

Humidity: .....80% up to 31°C

Altitude limit:.....2000 meters

Dimensions:.....Width x Depth x Height
Base with 1 Deck:.....29.75 x 24.375 x 13.5 (in)
75.7 x 63.0 x 34.3 (cm)
Base with 9 Decks:.....29.75 x 24.375 x 70.5 (in)
75.6 x 63 x 179 (cm)

Weight:
Base with 1 Deck:.....70 lb, 31.8 kg
Base with 9 Decks:..... 238 lb, 108 kg
Addtional Decks:.....21lbs, 19.5 kg

Accessories

Catalog No.	Description	Qty/Case
348969	5-Position Deck Weight..... 21 lb (9.5 kg) Dimensions (W x D x H) 29¾ x 24¾ x 7 1/8 in (75.6 x 62.9 x 18.1 cm)	1

Superior Product Designed to Maximize Production Spacing

See page 9 for additional accessories and page 15 for incubators

Modular Cell Production Roller Apparatus

With All-Position

Catalog No.	Plug Style	Voltage
Base with 1 Deck - 5 Bottle Positions		
348960-A	North America	120 VAC
348960-B	Japan	100 VAC
348970-C	Continental Europe	230 VAC
348970-D	United Kingdom	230 VAC
348970-F	Australia/China	240 VAC
348970-G	Italy/Chile	230 VAC
W348970-J	India	230 VAC
Base with 2 Decks - 10 Bottle Positions		
348961-A	North America	120 VAC
348961-B	Japan	100 VAC
348971-C	Continental Europe	230 VAC
348971-D	United Kingdom	230 VAC
348971-F	Australia/China	240 VAC
348971-G	Italy/Chile	230 VAC
W348971-J	India	230 VAC
Base with 3 Decks - 15 Bottle Positions		
348962-A	North America	120 VAC
348962-B	Japan	100 VAC
348972-C	Continental Europe	230 VAC
348972-D	United Kingdom	230 VAC
348972-F	Australia/China	240 VAC
348972-G	Italy/Chile	230 VAC
W348972-J	India	230 VAC

With All-Position

Catalog No.	Plug Style	Voltage
Base with 4 Decks - 20 Bottle Positions		
348963-A	North America	120 VAC
348963-B	Japan	100 VAC
348973-C	Continental Europe	230 VAC
348973-D	United Kingdom	230VAC
348973-F	Australia/China	240 VAC
348973-G	Italy/Chile	230VAC
W348973-J	India	230 VAC
Base with 5 Decks - 25 Bottle Positions		
348964-A	North America	120 VAC
348964-B	Japan	100 VAC
348974-C	Continental Europe	230 VAC
348974-D	United Kingdom	230 VAC
348974-F	Australia/China	240 VAC
348974-G	Italy/Chile	230 VAC
W348974-J	India	230 VA
Base with 6 Decks - 30 Bottle Positions		
348965-A	North America	120 VAC
348965-B	Japan	100 VAC
348975-C	Continental Europe	230 VAC
348975-D	United Kingdom	230 VAC
348975-F	Australia/China	240 VAC
348975-G	Italy/Chile	230 VAC
W348975-J	India	230 VAC

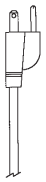
With All-Position Drive

Catalog No.	Plug Style	Voltage
Base with 7 Decks - 35 Bottle Positions		
348966-A	North America	120 VAC
348966-B	Japan	100 VAC
348976-C	Continental Europe	230 VAC
348976-D	United Kingdom	230 VAC
348976-F	Australia/China	240 VAC
348976-G	Italy/Chile	230 VAC
W348976-J	India	230 VAC
Base with 8 Decks - 40 Bottle Positions		
348967-A	North America	120 VAC
348967-B	Japan	100 VAC
348977-C	Continental Europe	230 VAC
348977-D	United Kingdom	230 VAC
348977-F	Australia/China	240 VAC
348977-G	Italy/Chile	230 VAC
W348977-J	India	230 VAC
Base with 9 Decks - 45 Bottle Positions		
348968-A	North America	120 VAC
348968-B	Japan	100 VAC
348978-C	Continental Europe	230 VAC
348978-D	United Kingdom	230 VAC
348978-F	Australia/China	240 VAC
348978-G	Italy/Chile	230 VAC
W348978-J	India	230 VAC

See Page 9 for Rotation Alarm & Battery Backup Systems

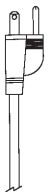
Standard Cord Sets

Plug Code "A": North American Plug



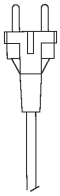
Bahamas, Bolivia, Brazil, Canada, Costa Rica, Dominican Rep., El Salvador, Ecuador, Guam, Peru, Guatemala, Haiti, Honduras, Jamaica, Korea, S, Libya, Nicaragua, Norway, Panama, Philippines, Puerto Rico, Saudi Arabia, Singapore, Sweden, Taiwan, United States, Venezuela, Virgin Islands

Plug Code"B": Japan Plug

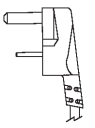


Bolivia, Japan

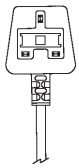
Plug Code "C": Continental Europe Plug



Austria, Belgium, Bolivia, Bulgaria, Czech. Rep, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Indonesia, Latvia, Lithuania, Luxembourg, Malta, Mozambique, Netherlands, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Singapore, Sweden, Spain, Tahiti, Turkey, USSR (former), Vietnam, Yugoslavia (former), Zaire Rep. of



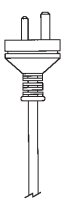
Plug Code "D": United Kingdom Plug



Bahrain, Belgium, Bermuda, Cyprus, England, Myanmar, Ghana, Hong Kong, Ireland, Iraq, Rep. of Jordan, Kuwait, Malaysia, Mauritius, Nigeria, No. Ireland, Oman, Qatar, Scotland, Scotland, Singapore, Tanzania, Trinidad & Tobago, United Arab Emirates, United Kingdom, Wales, Zambia, Zimbabwe

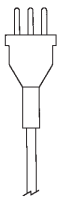
Special Cord Sets

Plug Code "F": Australian Plug



Argentina, Australia, China (People's Rep. of), Fiji, New Zealand, Papua New Guinea, Uruguay

Plug Code "G": Italy/Chile Plug

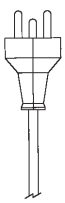


Chile, Italy

Plug Code "J": India Plug

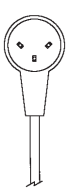
Bangladesh, India, Pakistan, South Africa, Sri Lanka, Uganda

Plug Code "I": Denmark Plug



Denmark, Greenland

Plug Code "K": Israel Plug



Israel, Jamaica

Plug Code "L": Switzerland Plug

Switzerland

R_2P Roller Culture Apparatus

State of the Art High Volume Production Roller Apparatus

- Utilize from research to production
- Modular; add capacity and options as your requirements change
- From 5 to 55 positions per unit (holds 10 to 110 of the 850 cm^2 vessels)
- Displays accurate rpm by entering vessel diameter
- Wide speed range brushless DC motor, 0.25 to 8.75 rpm
- Programmable rotation direction, fixed or reversing
- Programmable soft-start and stop
- 10 program storage registers
- Optional temperature monitoring, one to four sensors per unit
- Optional battery backup
- $CART_2$ ready! Optional software for monitoring controlling, & recording up to 2,047 units
- Multi-language display prompts. Choice of English, French, German, Italian, Portuguese, or Spanish
- Conforms to UL, CSA and CE Laboratory Standards
- 1 Year Warranty

The Wheaton R_2P Roller Culture Apparatus is designed to allow for the development and growth of cell culture from research to production quantities without having to change equipment and revalidate protocols. This is achieved by giving you more flexible controls and the ability to easily add options at any time. All R_2P Roller culture units share the same motor, software, controls and controllers, which makes moving culture conditions between units fast and easy.

All-Position Drive System

Each roller is driven to allow for either glass or lighter-weight plastic roller culture vessels to be used.

User-Friendly Control Panel

The large digital display and keypad allow for easy input and monitoring of the settings. The unit continually displays the bottle rpm setting and the actual bottle rpm. The display remains accurate with any size bottle (110 to 121mm diameter) by entering the bottle diameter. The unit can be programmed to rotate in either direction, and can reverse direction automatically at the time interval entered (better for roller bottles fluted along the longitudinal axis). The programmable soft start and stop feature avoids premature cell detachment. The settings can be saved in one of the ten memory locations for easy recall later.

Built-in Monitoring and Alarms

The unit continuously monitors both the rotational speed and the drive train (the motor and belts). If the speed falls out of the entered tolerance or if the unit detects a loss of rotation, the unit displays an alarm, and sounds a loud buzzer. These alarms can also be tied to an existing monitoring system through an external jack. Optional features can be added at any time, including $CART_2$ and battery backup.

Shipping Unit: One per case

Specifications:

R_2P Roller Culture Apparatus

Electrical:.....100 - 240 VAC, 50/60Hz, 20 watts

Bottle dimensions: ..... Diameter / Length 110 to 121mm / up to 550mm

Bottle speed:..... 0.25 – 8.0 rpm (110mm bottle)

Deck spacing: ..... inches (cm)
All Position Drive R_2P..... 6 (in), 15.24 (cm)
Modular R_2P ..... 7 1/8 (in), 18.1 (cm)

Operating temperature: ..... 15 to 40°C

Humidity: ..... 80% up to 31°C; 50% at 40°C

Altitude limit:..... 2000 meters

Dimensions:.....Width x Depth x Height (inches / cm)
Base with 1 Deck: .....31 x 24.5 x 13.5 (in), (78.8 x 62.25 x 34.3 cm)
Base with 3 Decks: .....31 x 24.5 x 25 (in), (78.8 x 62.25 x 63.5 cm)
Base with 11 Decks: .....31 x 24.5 x 74.5 (in), (78.8 x 62.25 x 189.23 cm)
Extra Deck:.....31 x 24.5 x 6 (in), (78.8 x 62.25 x 15.24 cm)

Weight:
Base with 1 Deck: .....52 lb, 23.6 kg
Base with 3 Decks: .....85 lb, 38.6 kg
Base with 11 Decks: .....250 lb, 113.4 kg
Extra Deck:.....16.5 lb, 7.5 kg

Built-in Drive Monitoring System Alarm
Visual: ..... Flashing display with fault displayed
Audible:..... Buzzer (with On/Off control)
External output: ..... NO or NC (programmable) dry contact (0.5A@ 24 VDC) through RJ-45 jack on the control housing front panel.

R_2P^{TM} All Position Drive 6"(15.24 cm) Deck Spacing

Catalog No.	Plug Style	Voltage
Base with 1 Deck - 5 Bottle Positions		
W348880-A	North America	120 VAC
W348880-B	Japan	100 VAC
W348880-C	Continental Europe	230 VAC
W348880-D	United Kingdom	230 VAC
W348880-F	Australia/China	240 VAC
W348880-G	Italy/Chile	230 VAC
W348880-J	India	230 VAC
Base with 3 Decks - 15 Bottle Positions		
W348881-A	North America	120 VAC
W348881-B	Japan	100 VAC
W348881-C	Continental Europe	230 VAC
W348881-D	United Kingdom	230 VAC
W348881-F	Australia/China	240 VAC
W348881-G	Italy/Chile	230 VAC
W348881-J	India	230 VAC
Base with 11 Decks - 55 Bottle Positions		
W348882-A	North America	120 VAC
W348882-B	Japan	100 VAC
W348882-C	Continental Europe	230 VAC
W348882-D	United Kingdom	230 VAC
W348882-F	Australia/China	240 VAC
W348882-G	Italy/Chile	230 VAC
W348882-J	India	230 VAC

Additional Deck for R_2P

W348888	R_2P 5-Postion Deck, Factory-Installed (must be ordered with unit)
W348889	R_2P 5-Postion Deck, for Customer Installation

Highest Capacity R_2P 88 Bottle Positions

Modular R_2P^{TM} System 7 1/8" (18.1 cm) Deck Spacing

Catalog No.	Plug Style	Voltage
Base with 3 Decks - 15 Bottle Positions		
W348884-A	North America	120 VAC
W348884-B	Japan	100 VAC
W348884-C	Continental Europe	230 VAC
W348884-D	United Kingdom	230 VAC
W348884-F	Australia/China	240 VAC
W348884-G	Italy/Chile	230 VAC
W348884-J	India	230 VAC
Base with 9 Decks - 45 Bottle Positions		
W348885-A	North America	120 VAC
W348885-B	Japan	100 VAC
W348885-C	Continental Europe	230 VAC
W348885-D	United Kingdom	230 VAC
W348885-F	Australia/China	240 VAC
W348885-G	Italy/Chile	230 VAC
W348885-J	India	230 VAC

Additional Deck for Modular R_2P

W348886	R_2P 5-Postion Deck, Factory-Installed (must be ordered with unit)
W348887	R_2P 5-Postion Deck, for Customer Installation

88-Position R_2P^{TM} System 6" (15.24 cm) Deck Spacing

- **Highest capacity roller rack**
- **88 all position drive**

This unit features 6 in (15.24 cm) production spacing between the decks and holds 8 bottles/per deck. It will not fit in standard incubators, but it will pass through standard doorways for warm rooms.

Specifications:

Dimensions:.....Width x Depth x Height
47 x 24.5 x 74.5 (in)
119.4 x 62.25 x 189.2 (cm)

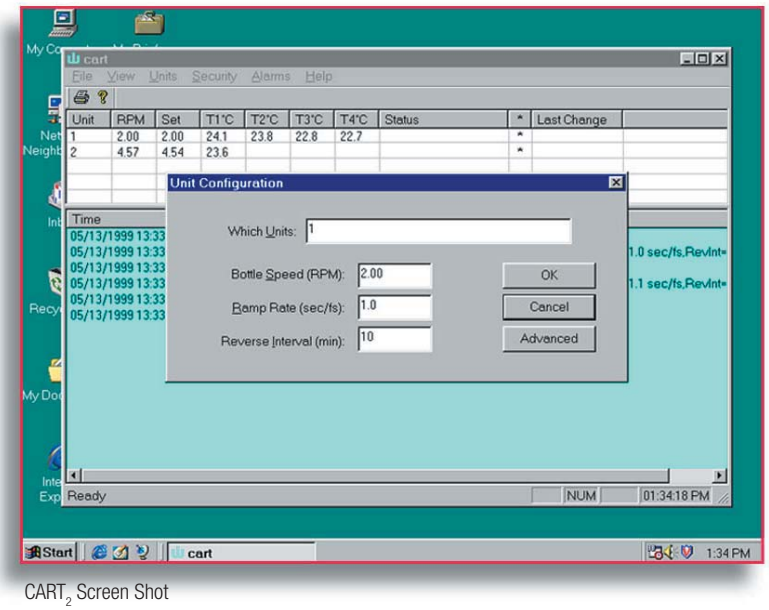
Weight: ..... 360 lb, 163.6 kg

Catalog No.	Plug Style	Voltage
Base with 11 Decks - 88 Bottle Positions		
W349020-A	North America	120 VAC
W349020-B	Japan	100 VAC
W349020-C	Continental Europe	230 VAC
W349020-D	United Kingdom	230 VAC
W349020-F	Australia/China	240 VAC
W349020-G	Italy/Chile	230 VAC
W349020-J	India	230 VAC

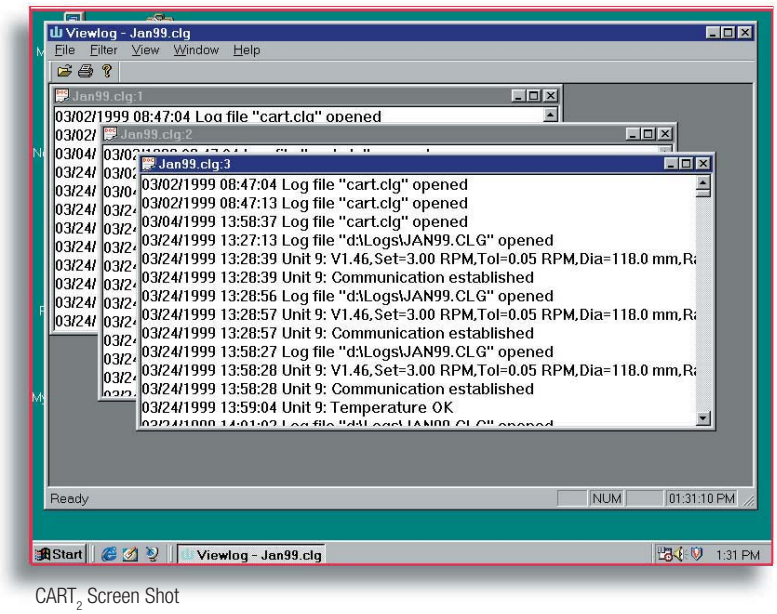
See page 14 for R_2P Accessories

Battery Backup, Temperature Monitor & $CART_2$ Software

Accessories for R_2P



$CART_2$ Screen Shot



$CART_2$ Screen Shot

Battery Backup Option

- **Protects cells during power outages**
- **Provides a minimum of 18 hours of auxillary power**
- **Can be used to rotate vessels during transport to harvest area**

The system monitors the AC power and automatically switches to battery if AC power fails. Provides auxiliary power to maintain complete functionality of the R_2P unit for a minimum of 18 hours at full capacity. The audible alarm and display backlight will not function during battery power mode.

Catalog No.	Description	Qty/Case
W348899	Customer Installed	1
W348898	Factory Installed (Must be ordered with R_2P Roller Culture Apparatus)	1

$CART_2$ Control Monitor and Recording Software

- **Remotely monitors and controls up to 2,047 R_2P units**
- **Records all settings, changes, alarms, and communication loss**
- **Password-protected user levels maintain security**
- **Can be easily added to R_2P at any time**
- **Works with Windows® based software Computer Requirements: IBM Pentium PC or compatible**
- **Conforms to UL, CSA and CE Laboratory Standards**

The Wheaton CART System precisely controls rotating speeds of up to 255 separate roller units. Each unit is monitored for rotation, speed deviation and communication. This system provides the perfect solution for GMP or FDA requirements. Wheaton specializes in providing customized roller systems. Special motors can be selected to rotate bottles from 58 revolutions per day to more than 100 revolutions per minute. Roller systems with special power requirements or operation in more demanding atmospheres can be configured. Contact Wheaton for more information.

Computer Requirements

- **32 MB of ram, minimum**
- **Microsoft Windows® 95, 98, NT 4.0 or above**
- **One free serial port**

$CART_2$ and View Log Software with the Network Interface

Network Interface is a single-line network adapter for up to 255 R_2P units.

Catalog No.	Plug Style	Voltage	Qty/Case
W348902-A	North America	120 VAC	1
W348902-B	Japan	100 VAC	1
W348902-C	Continental Europe	230 VAC	1
W348902-D	United Kingdom	230 VAC	1
W348902-F	Australia/China	240 VAC	1
W348902-G	Italy/Chile	230 VAC	1
W348902-J	India	230 VAC	1

$CART_2$ and View Log Software with the Multiplexer Network

Multiplexer Network Interface is an eight-line network adapter for up to 2,047 R_2P units. A separate line can be run to each warm room for easy unit location.

Catalog No.	Plug Style	Voltage	Qty/Case
W348904-A	North America	120 VAC	1
W348904-B	Japan	100 VAC	1
W348904-C	Continental Europe	230 VAC	1
W348904-D	United Kingdom	230 VAC	1
W348904-F	Australia/China	240 VAC	1
W348904-G	Italy/Chile	230 VAC	1
W348904-J	India	230 VAC	1

Catalog No.	Description	Qty/Case
349035	CART® Micro Controlled Board & Support System (factory installed)	1
349037	IBM CART Software Package Includes Network Adapter (one required per installation for up to 255 units)	1
349039	Multiplexer Interface (necessary when connecting more than 32 units to system)	1

Temperature Monitor

Catalog No.	Description	Qty/Case
W348891	Customer Installed	1
W348890	Factory Installed Must be ordered with R_2P Roller Culture Apparatus	1

Standard & CO_2 Incubators

- Designed specifically for use with Wheaton Roller Culture Apparatus
- No lifting ramps in standard incubator. CO_2 incubator has light weight ramps.
- Over 38 cubic (1.1 m^3) feet of space, fits:
  - Production-Spaced R_2P unit (6 in (15.24 cm) between decks) with up to 11 decks
  - Modular-Spaced R_2P unit (7 1/8 in (18.1 cm) between decks) with up to 9 decks
  - 52-Position Cost Buster
- Independent over-temperature safety protection
- Viewing window in the door
- Four internal electrical outlets for accessories
- Can also be used for suspension cultures
- Available as standard or CO_2 incubator
- Conforms to UL, CSA, and CE Standards
- 1 Year Warranty

A convenient, space-saving and economical alternative to a warm room for small production runs. Designed to hold full-size units, it can be used in combination with the optional shelves to accommodate spinner flasks, rocker tables, and other types of equipment. Double-walled construction provides for temperature stability and easy cleaning. Shelves are not supplied with incubator.

Specifications:

Specifications are for Standard & CO_2 Incubators unless specified otherwise

CONSTRUCTION:

External: ..... Painted Steel

Internal:

- **Standard** ..... Painted Steel
- **CO_2** ..... Stainless Steel

Door Weight: ..... 75 lb (34 kg)

Shelf Weight Maximum: ..... 80 lbs (36 kg)

Shelves Per Unit Maximum: ..... 12 Shelves (sold separately)

Recommend not blocking perforated shelf surface by more than 60% to allow adequate air flow.)

Thermal Factor: R13

Accept standard cleaning chemicals

GAS:

Gas shuts off when door is opened or switch is turned off

CO_2 Connection: ..... ¼ in (6.35 mm) hose barb

CO_2 Concentration Range: ..... 0-020% adjustments in 0.1% increments

CO_2 Pressure to Indicator inlet: ..... Rated @ 5-40 psi (0.345-2.76 bars) not to exceed 40 psi (2.76 bars)

CO_2 Recovery time When Door is Opened and Closed:

10 Second Opening ..... Instantaneous

30 Second Opening ..... 10 minutes

ELECTRICAL / ELECTRONICS:

Requirements: ..... 120-240 VAC, 1500 watts

Power Switch: ..... On/Off rocker switch

Temperature Keypad: ..... Digital indicator & actuator keypad

AC Receptacles: ..... Four internal (customized for voltage differences)

Heating Light

Heaters: ..... One

Setting maintained if power is interrupted:

Circuit Breaker: ..... None on CE Units (CE units include fuse)

Failsafe Feature: ..... Secondary mechanical high limit thermostat with indicator light

TEMPERATURE:

Heat: ..... Forced-air circulation with digital temperature control

Temperature Range: ..... Ambient +5 to 70°C (empty incubator)

Temperature Uniformity: ..... to ±0.5°C @ 37°C (empty incubator)

Sensitivity

Standard Incubator: ..... ±0.1°C

Co_2 Incubator: ..... ±0.1°C

WEIGHT & DIMENSIONS:

Capacity: ..... 40 cubic feet (2.2 m)

Dimensions: ..... Width x Depth x Height

Interior: ..... 35 x 26 x 76 in (89 x 66 x 193 cm)

Exterior: ..... 41 x 34 x 87 x 76 in (104.2 x 86.4 x 221 cm)

Net Weight: ..... 730 lb (331 kg)

Ordering Information

Shipping Weight: ..... 850 lb (386 kg)

Catalog No.	Plug Style	Voltage	Qty/Case
Standard Incubator			
753680	North America	120 VAC	1
W753684-C-E	Continental Europe	230 VAC	1
W753684-D-E	United Kingdom	230 VAC	1
W753684-F-E	Australia/China	240 VAC	1
W753684-G-E	Italy/Chile	230 VAC	1
W753684-J-E	India	230 VAC	1
CO_2 Incubator			
I057606	North America	120 VAC	1
WI057606-C-E	Continental Europe	230 VAC	1
WI057606-D-E	United Kingdom	240 VAC	1
WI057606-J-E	India	230 VAC	1

Incubator Shelves (Not supplied with incubators)

Catalog No.	Description	Qty/Case
753685	Shelf	1

Tissue Grinders

Dounce Tissue Grinder

- Ideal for soft tissue
- Provided with loose & tight pestle
- 33 low extractable borosilicate glass
- Autoclavable

This unit is designed to retain a high percentage of cell nuclei and mitochondria in soft tissues or from cell cultures. In operation, the pestle ball is encircled in liquid, which avoids heat buildup by reducing friction. This grinder is ideal for enzyme studies. The initial grinding is performed using the "loose" pestle. The grinding process is completed using the "tight" pestle. This grinder is used by moving the pestle up and down, and works best with cell suspensions or very soft tissue. The mortar has a large reservoir and pouring lip and is supplied with a "loose" pestle and a "tight" pestle. Two complete sets per case.

Tight Pestle "A" Specification: 0.0010-0.0030 in (0.025 - 0.076 mm)
Loose Pestle "B" Specification: 0.0035-0.0055 in (0.089 - 0.14 mm)

Catalog No.	Size (mL)	Mortar OD x Length (mm)	Overall Length (mm)	Qty/Case
357538	1	11 x 48	125	2
357542	7	13 x 82	175	2
357544	15	22 x 94	210	2
357546	40	32 x 140	285	2

Dounce Dura-Grind® Tissue Grinder

- Rugged alternative to glass Dounce Tissue Grinder
- Precision machined from No. 316 stainless steel
- Mortar and pestle provided as a matched set
- Not autoclavable

Wheaton Dura-Grind Stainless Steel Dounce Tissue Grinders provide a rugged alternative to glass Dounce tissue grinders. Smooth pestle action requires less effort than glass tissue grinders. This unit is precision-machined of No. 316 stainless steel to exacting tolerance of .0005 in. (0.013mm) The mortar has a flat bottom allowing it to stand upright. Single pestle and mortar are supplied as a matched set; they are not autoclavable. Weight: 2 lb (0.9 kg)

Catalog No.	Size (mL)	Grinding Chamber OD x Length (mm)	Overall Length (mm)	Qty/Case
357572	7	35 x 114	171	1
357574	15	35 x 114	171	1
357576	40	44 x 114	171	1

Potter-Elvehjem Tissue Grinder with PTFE Pestle

- Ideal for tissue homogenates
- Use with power homogenization
- Parts interchangeable
- Autoclavable

Precisely constructed with completely interchangeable parts. They are designed for use in preparation of tissue homogenates and soft tissue such as brain or liver. This unit is autoclavable and can be used for power homogenization.

Catalog No.	Size (mL)	Mortar OD x Length (mm)	Overall Length (mm)	Qty/Case
358029	2	11 x 45	203	2
358034	5	13 x 66	219	2
358039	10	16 x 74	219	2
358044	15	19 x 84	219	2
358049	30	24 x 118	266	2
358054	55	30 x 130	266	2

Potter-Elvehjem Safe-Grind® Tissue Grinder

- Exterior plastic coated glass mortar
- PTFE pestle with stainless steel shaft
- Autoclavable

Wheaton Safe-Grind plastic coated tissue grinders afford an added measure of safety over uncoated glass tissue grinders. The heavy plastic coating protects the mortar from becoming scratched or chipped, and assures you of a sure grip. The plastic coating creates a greater safety factor in case the mortar cracks or breaks during power homogenization. The transparent coating allows an unobstructed view of the homogenate during grinding. Wheaton Safe-Grind tissue grinders are fully autoclavable.

Catalog No.	Size (mL)	Mortar OD x Length (mm)	Overall Length (mm)	Qty/Case
358003	2	11 x 45	203	2
358005	5	13 x 66	219	2
358007	10	16 x 74	219	2
358009	15	19 x 84	219	2
358011	30	24 x 118	266	2
358013	55	30 x 130	266	2

Potter-Elvehjem Micro Tissue Grinder

- **Autoclavable**

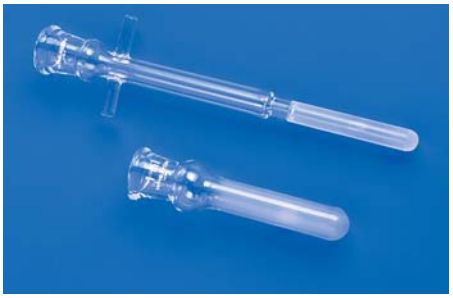
Micro size for extremely precise work, this unit is designed for delicate hand operation. A reservoir and pouring lip are incorporated into the design.

Catalog No.	Size (mL)	Mortar OD x Length (mm)	Overall Length (mm)	Qty/Case
357844	0.1	4 x 65	110	2

Potter-Elvehjem Tissue Grinder with Radial Serrations

This grinder has a serrated PTFE pestle that disperses homogenate into the mortar cylinder more efficiently. These units are precisely constructed with interchangeable parts.

Catalog No.	Size (mL)	Motar OD x Length (mm)	Overall Length (mm)	Qty/Case
357969	2	11 x 45	203	2
357974	5	13 x 66	219	2
357979	10	16 x 74	219	2
357984	15	19 x 84	219	2
357989	30	24 x 118	266	2
357994	55	30 x 130	266	2



Tenbroeck Tissue Grinder

- **Ideal for grinding liver, intestine and heart tissue**
- **Hollow pestle can be packed with ice**
- **Pour lip in mortar**
- **Autoclavable**

All-glass Tenbroeck tissue grinders come with precision-made, interchangeable pestles and tubes. The hollow handle permits packing with ice. This unit also features an expanded reservoir and pouring lip. Designed for tissues such as liver, intestines and heart.

Catalog No.	Size (mL)	Mortar OD x Length (mm)	Overall Length (mm)	Qty/Case
357421	1	11 x 48	140	2
357422	2	11 x 50	140	2
357424	7	16 x 82	190	2
357426	15	22 x 94	250	2
357428	40	32 x 140	320	2

Tapered Tissue Grinder

- **All glass units for connective, skin & plant tissue**
- **Interchangeable components**
- **Use the PTFE pestle w/soft tissue**
- **Autoclavable**

Tapered tissue grinders incorporate a longer tapered surface on both the mortar and pestle. The conical surface allows initial size reduction followed by passage through the cylindrical section for the final homogenization step. The All Glass Tapered Tissue Grinder is made with a ground glass surface on both the mortar and pestle, capable of homogenizing connective tissue including heart, muscle and lung. This unit can also be used for homogenizing skin and plant tissue. The Tapered Tissue Grinder with PTFE pestle is designed for soft tissues such as brain. The stainless steel rod is 0.25" (6.3 mm) in diameter and is long enough to fit into the chuck of an overhead stirrer.

Catalog No.	Size (mL)	Mortar OD x Length (mm)	Overall Length (mm)	Qty/Case
All Glass Tapered Tissue Grinder				
358103	1	11 x 49	130	1
358107	3	11 x 86	220	1
358111	5	13 x 93	220	
358115	15	18 x 114	240	1
Tapered Tissue Grinder with PTFE Pestle				
358133	1	11 x 49	130	1
358137	3	11 x 86	220	1
358141	5	13 x 93	220	1
358145	15	18 x 114	240	1

Micro Tissue Grinder Kit

A complete selection of Wheaton Micro Tissue Grinders is conveniently packed in a lightweight protective carrying case. The 0.5mL micro tissue grinder with screw cap can be used for tissue grinding as well as for additional procedures. The Micro Tissue Grinder Kit is packed in a high-density polyethylene case with foam inserts.

Kit includes:

357421	1mL Tenbroeck Tissue Grinder
357535	0.5mL Tissue Grinder, G.P.I. 13-425 cap
357538	1 mL Dounce Tissue Grinder
357844	0.1mL Tissue Grinder
357848	0.2mL Tissue Grinder
358029	2mL Potter-Elvehjem Tissue Grinder
358133	1mL Tapered Tissue Grinder

Catalog No.	Description	Qty/Case
358204	Micro Tissue Grinder Kit	1

Cryogenic Vials

Cryule® Vials, Freestanding

- Sterile
- External threads
- Freestanding
- Colored coded caps
- Conical bottom

The polypropylene vials are freestanding on the bench and lock into rack (985810) for one-handed cap removal. The vertical inner wall and conical bottom facilitate filling and maximum product retrieval. White marking area and color-coded caps allow complete lot and sample identification.

Catalog No.	Cap Color	Size (mL)	Dia x Ht (mm)	Qty/Pack	Qty/Case
985734	White	2	12 x 46	50	500
985735	Red	2	12 x 46	50	500
985736	Pink	2	12 x 46	50	500
985737	Yellow	2	12 x 46	50	500
985738	Green	2	12 x 46	50	500
985739	Blue	2	12 x 46	50	500

Cryule® Vial Rack

- For use with Cryule® Freestanding Vials

This unique rack securely locks Freestanding Cryule® Vials in place for one-handed cap removal. Nonskid feet offer additional stability for benchwork. This 50-position rack will also work with other freestanding cryogenic vials. Made of durable, autoclavable* polypropylene. This rack allows easy sample identification with an alphanumeric index on top of each rack. Molded corner posts provide stability when stacking.

Catalog No.	Well Configuation	Qty/Case
985810	5 x 10	5

*121°C for 20 minutes.

Cryule® Vials, Freestanding

- Sterile
- Internal threads
- Silicone ring sealing system
- Freestanding

These Cryule® vials are internally threaded. The Freestanding polypropylene vials and caps feature a streamlined design with a silicone ring sealing system. Use colored cap inserts for sample and lot identification. 50 per bag, 10 bags per case.

Catalog No.	Size (mL)	Dia x Ht (mm)	Qty/Pack	Qty/Case
985745	1.2	12 x 42	50	500
985746	2	12 x 49	50	500
985747	4	12 x 71	50	500

External thread

Internal thread

Cryule® Vials, Round-Bottom

- Sterile
- External or internal threads
- Non-sterile available
- Round bottom

These uniquely designed vials are more compact than most vials, and safely store the total labeled volume. Internally threaded vials have silicone ring seals, which ensure secure cap sealing. The vials come sterilized with caps attached, 50 per bag, 10 bags per case.

Catalog No.	Size (mL)	Dia x Ht (mm)	Qty/Pack	Qty/Case
External Thread, Sterile				
985730	1	12 x 24	50	500
985731	2	12 x 44	50	500
External Thread, Non-Sterile				
985726	2	12 x 44	—	1000
985721*	2	12 x 44	—	1000
Internal Thread				
985742	2	12 x 48	50	500
985743	4	12 x 70	50	500
985744	5	12 x 90	50	500

*Without writing patch

Sterile Colored Cryule® Caps, Polypropylene

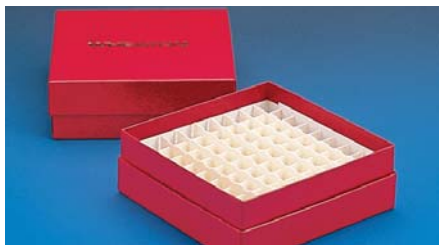
These 10mm caps are designed for easy identification of Cryule® Vials. They fit vials 985730, 985731, 985721, and 985726. The caps are sterilized and packed in polybags.

Catalog No.	Color	Qty/Case
242564	Blue	100
242566	Green	100
242572	Pink	100

Cap Inserts

For use with internally threaded Cryule® Vial caps. Use these colored inserts for sample and lot identification. They are compatible with 985742 and 985745 series internally threaded Wheaton Cryule® Vials.

Catalog No.	Color	Qty/Case
242582	Red	500
242584	Blue	500
242586	Green	500
242588	Yellow	500
242590	White	500
242592	Assorted (100 of each color)	500



Cryule® Vial Freezer Box

- **For 1 & 2mL Cryule® Vials**
- **Holds 81 vials**

Engineered to withstand liquid nitrogen "Gas Phase" temperatures. These convenient storage units can also be used in a freezer or at room temperature. Made of chipboard and spray-coated with polyethylene.
Accommodates 81 - 1 & 2mL Cryule® vials.

Catalog No.	Width x Depth x Height	Fits Vial Size (mL)	Qty/Case
651490	5-1/4 x 5-1/4 x 1-1/4 in (13.3 x 13.3 x 3.175 cm)	1	15
651492	5-1/4 x 5-1/4 x 1-3/4 in (13.3 x 13.3 x 4.45 cm)	2	15

Cryule® Vials, Glass

- **Low extractable borosilicate glass**

We designed these glass cryogenic vials for preserving biological materials with liquid nitrogen. The special design allows for storage at low temperatures as well as rapid thawing. Made of 33 low extractable borosilicate glass that conforms to USP Type 1 and ASTM Type 1, Class A requirements.

Catalog No.	Size (mL)	Dia x Ht (mm)	Qty/Case
651462	1	10.5 x 61	144
651463	1.2	11.8 x 58	144
651464	1.5	11.5 x 61	144
651466	2	11.5 x 70	144
651469	5	16.5 x 98	144
651470	10	19.5 x 114	144
651472	20	21.5 x 160	144

Ampule Snapper

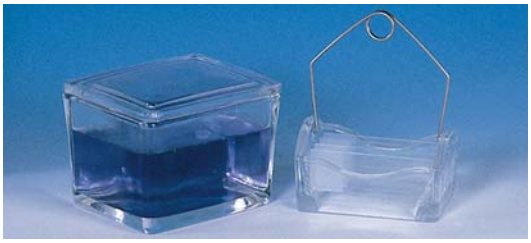
Glass Cryule® Vials, Pre-Scored

- **Low extractable borosilicate glass**
- **Pre-scored eliminates need for filing**

Glass cryogenic vials are ideal for preserving biological materials with liquid nitrogen. A gold band identifies pre-scored feature, which eliminates the need for filing. The disposable ampule snapper helps to break open pre-scored ampules, while protecting against glass splinters.

Catalog No.	Size (mL)	Dia x Ht (mm)	Approx. OD at Top (mm)	Qty/Case
Glass Cryule Vials				
651482	1	10.5 x 61	5	144
651483	1.2	11.8 x 58	5	144
651486	2	11.5 x 70	5	144
Ampule Snapper				
177105	1 & 2	-	-	144

Staining Dishes



Staining Dish 10-20 Slide Unit

This 20-slide unit is the standard for manual staining procedures. The removable glass slide rack has an open bottom to facilitate rapid immersion and drainage reducing carryover. The rack holds 10 single slides, 19 slides arranged alternately straight across and diagonally, or 20 slides back-to-back of standard size: 3" x 1" (75 x 25mm), 3" x 1-1/2 " (75 x 38mm) and 3" x 2" (75 x 51mm) sizes. Manufactured from soda-lime glass. Approximate inside dimensions: 95mm L x 76mm W x 64mm D.

Catalog No.	Description	Qty/Case
900200	Complete (Dish, Cover, Rack, Handle)	6
900201	Dish	3
900202	Cover	3
900203	Dish and Cover	3
900204	Glass Slide Rack	3
900205	Handle	6

Staining Dish, 10-20 Slide Unit

Designed for staining 3" x 1" (75mm x 25mm) microscope slides. Holds 10 single slides, or 19 slides arranged alternately straight across and diagonally, or 20 slides back to back.
Approximate inside dimensions: 80mm L x 55mm W x 35mm D.

Catalog No.	Description	Qty/Case
900170	Staining dish, cover and rack	6

Staining Dish, 16 - 40 Slide Unit

These mix-and-match components offer greater flexibility in meeting your requirements. This staining dish accommodates 16, 20 and 30 slide racks. It holds slides sizes 3" x 1" (75mm x 25mm), 3" x 1-1/2 " (75mm x 38mm), and 3" x 2" (75mm x 51mm). Manufactured from soda-lime glass. Approximate inside dimensions: 118mm L x 88mm W x 70mm D.

Catalog No.	Description	Qty/Case
900303	Dish and Cover	6
900301	Dish	3
900302	Cover	3
900234	30-Slide Rack Stainless Steel	3
900254	(16-32) Slide Rack, Glass	3
900304	(20-40) Slide Rack, Glass	3

Staining Dish, 50-Slide Unit

This slotted rack holds 50 microscope slides, sizes 3" x 1" (75mm x 25mm), 3" x 1-1/2" (75mm x 38mm), and 3" x 2" (75mm x 51mm). The rack is made of non-tarnishable stainless steel that is resistant to staining solutions. The handle is permanently attached, but hinged to permit closure of the dish and easy insertion and removal of the microscope slides. The dish is manufactured from soda-lime glass. Approximate inside dimensions: 185mm L x 88mm W x 68mm D

Catalog No.	Description	Qty/Case
900400	Complete (Dish, Cover, and Rack)	6
900401	Dish	3
900402	Cover	3
900403	Dish and cover	3
900404	50-Slide Stainless Steel Rack, with Handle Attached	3

Columbia Jar for Cover Slips

- **Unit holds 4 cover slips**
- **Polyproplene screw cap with PTFE coated PE liner**

These staining jars hold up to 4 cover slips 17-23mm wide, and up to 30mm long. Longer cover slips can be accommodated if the cap is removed. The jar includes a white polypropylene screw cap with a PTFE coated polyethylene liner. Made from Type III glass, the jar is chemical resistant. In addition to staining applications, Columbia Jars can be used for cleaning cover slips, as well as coating them with materials such as poly-lysine or silane.

Catalog No.	Description	Qty/Case
W900180	Columbia Jar & Cap	1
W900180-6	Columbia Jar & Cap	6

Coplin Staining Jar, 5-10 Slide Unit

- **Holds 10 slides**
- **Polypropylene screw cap**
- **55mL capacity**

This unit holds ten 3" x 1" (75mm x 25mm) slides, which extend above the opening so you can manipulate them without using forceps. The screw cap is made of linerless white polypropylene to reduce solvent evaporation and spills during storage. The unit has a rectangular base and holds approximately 55mL. Manufactured from soda-lime glass. Approximate inside dimensions: 26mm L x 26mm W x 70mm D.

Catalog No.	Description	Qty/Case
900520	Coplin Jar with PP Screw Cap	6

Coplin Staining Jar 5-10 Slide Unit, with Screw Cap

- **Unit holds 5 slides vertically or 10 slides back-to-back**
- **Polypropylene screw cap**
- **60mL capacity**

This unit is used for staining slides, or as a developing chamber for thin-layer chromatography. It holds five single 3" x 1" (75 mm x 25 mm) slides vertically, or 10 slides back-to-back. The screw cap is made of linerless white polypropylene to reduce solvent evaporation. The unit has a rectangular base and holds approximately 60mL. Manufactured from soda-lime glass. Approximate inside dimensions: 26mm L x 26mm W x 90mm D.

Catalog No.	Description	Qty/Case
900570	Complete	6
900522	Replacement Cap, 58-400	6

Coplin Staining Jar, 5-10 Slide Unit

- **Unit holds 10**
- **Glass Cover**
- **65mL capacity**

This popular staining jar has heavy glass walls and a broad base for increased stability. It holds five single 3" x 1" (75mm x 25 mm) slides vertically, or 10 slides back to back, and requires low reagent volume (approximately 65mL). Manufactured from soda-lime glass. Approximate inside dimensions: 26mm L x 26mm W x 90mm D

Catalog No.	Description	Qty/Case
900470	Coplin Jar with glass cover	6

Slide Grip

Polypropylene grip allows for easy and safe transfer of five slides to other containers for staining. It fits into Wheaton Coplin staining jars.

Catalog No.	Description	Qty/Case
900575	Slide Grip	2

Mounting Media / Balsam Bottle

This bottle, manufactured from soda-lime glass, is ideal for applying mounting media. It comes with a glass applicator rod and a glass cap, which is ground to the shoulder of the bottle to form a seal.

Catalog No.	Size (mL)	Dia x Hgt (mm)	Qty/Case
208890	100	75 x 100	6

Alcohol Burner with Ground Glass Cap

- **Glass cap is used to reduce evaporation of alcohol when not in use**

This burner, manufactured from soda-lime glass, is designed for use with isopropyl or denatured ethyl alcohol. Its low-heat flame is well suited for microscopy purposes. The unit is supplied with a ground glass stopper. The reservoir holds 100mL of alcohol. Approximate Dimensions: 75mm D x 100mm H

Catalog No.	Description	Qty/Case
237070	Alcohol Burner	6
Replacement Parts		
237071	Wick	25
237072	Cork Stopper	10

See application notes on page 23 for cleaning slides & for coating slides with silane & poly-lysine.

Media Bottles

Media Bottles

- Low extractable borosilicate glass
- Graduated & non-graduated available
- Rubber or PTFE lined caps
- Replacement caps

Clear bottles are manufactured from 400 borosilicate glass that conforms to USP Type I requirements. Low alkali content helps to prevent changes in pH to maintain purity of the contents.

Cat. No.	Capacity (mL)	(Cap On) Dia x Ht (mm)	(Cap Off) Dia x Ht (mm)	Screw Cap Size	Qty/Case
Graduated Bottles with Rubber-Lined Phenolic Cap					
219755	125	55 x 123	55 x 119	33-430	48
219757	250	67 x 152	67 x 148	33-430	48
219759	500	88 x 192	88 x 188	33-430	24
219760	1000	103 x 235	103 x 231	38-430	24
Graduated Bottles with PTFE Faced Rubber-Lined Phenolic Cap					
219815	125	55 x 123	55 x 119	33-430	48
219817	250	67 x 152	67 x 148	33-430	48
219819	500	88 x 192	88 x 188	33-430	24
219820	1000	103 x 235	103 x 231	38-430	24
Ungraduated Bottles with Polyethylene (LDPE) Lined Phenolic Cap					
219495	125	55 x 123	55 x 119	33-430	48
219497	250	67 x 152	67 x 148	33-430	48
219499	500	88 x 192	88 x 188	33-430	24
219500	1000	103 x 235	103 x 231	38-430	24
Ungraduated Bottles with Autoclavable Rubber-Lined Phenolic Cap					
219575	125	55 x 123	55 x 119	33-430	48
219577	250	67 x 152	67 x 148	33-430	48
219579	500	88 x 192	88 x 188	33-430	24
219580	1000	103 x 235	103 x 231	38-430	24

Replacement Caps, Black Phenolic

Catalog No.	Cap Size	Qty/Case
Cap with 14B White Rubber Liner		
240280	33-430	200
240281	38-430	200
Cap with Polyethylene (LDPE) Liner		
240080	33-430	200
240081	38-430	200
Cap with PTFE Faced (14B) Styrene-Butadiene Rubber Liner		
240480	33-430	100
240481	38-430	100

New Improved PET 1 Liter Media Bottle

NEW!

- Thicker wall weight
- Wider mouth, 38mm
- Leak-resistant closure system
- Catalog No. W219980

Lab 45™ Graduated Media Bottles

- Low extractable borosilicate glass
- 45 mm screw-thread finish
- Volume graduations

The wide 45mm screw thread finish facilitates filling and retrieving contents. Sloping shoulders allow for easy cleaning and complete drainage; the polypropylene pour ring eliminates drips. Available with white polypropylene cap and pour ring pre-attached. Bottles, caps, and pour rings are autoclavable.

Catalog No.	Capacity (mL)	Dia x Ht (mm)	Size Screw Cap (mm)	Qty/Case
219925	100	56 x 109	45	12
219927	250	70 x 144	45	12
219929	500	86 x 186	45	12
219930	1000	101 x 233	45	12
219931	2000	137 x 267	45	6

Lab 45™ Replacement & Colored Screw Caps

Catalog No.	Description	Size (mm)	Qty/Case
240726	White *PP, w/ Wedge-Shaped Inner Sealing Ring	45	12
240726-03	Red *PP, w/ Wedge-Shaped Inner Sealing Ring	45	12
240726-04	Blue *PP, w/ Wedge-Shaped Inner Sealing Ring	45	12

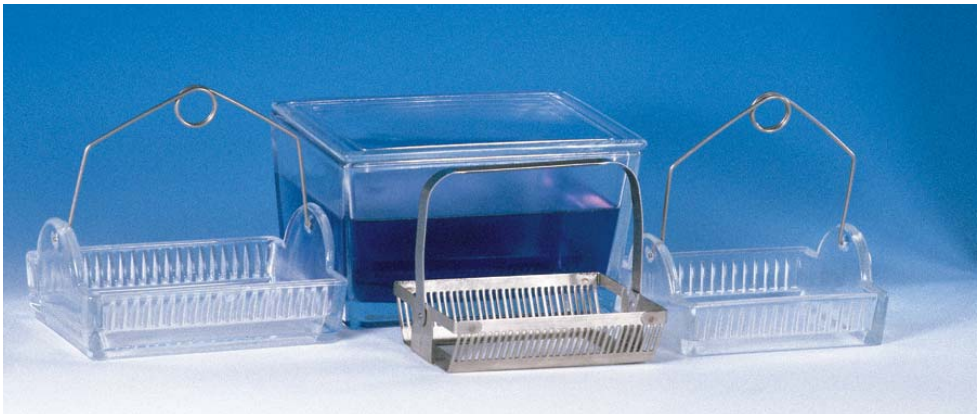
*Polypropylene

PET Square Media Bottles

- Alternative to glass media bottles
- Lightweight
- Sterile with attached cap

PET plastic media bottles are tested for pH stability, temperature durability, cloning efficiency and cytotoxicity. The no-drip pour lip allows for cleaner, easier pouring and eliminates contaminant exposure. Permanent in-mold graduations provide easy, accurate volume determination at a glance. The bottles come with caps pre-attached, and are E-beam sterilized and shrink-wrapped in convenient trays.

Catalog No.	Size (mL)	L x W x H (mm)	Qty/Case
219975	125	53 x 53 x 99	48
219979	500	75 x 75 x 175	24
W219980	1000	91 x 91 x 217	24



SLIDE CLEANING WITH WHEATON STAINING DISHES

Abstract

Clean microscope slides are important for all areas of microscopy. Even pre-cleaned slides can carry a significant amount of oil or lint, even from a freshly opened box.
Wheaton staining dishes offer a convenient method to efficiently clean a number of slides as an initial preparation for coating slides or for microscopy.

Materials and Methods

Material	Quantity	Notes
Glass Microscope Slides	60	
30-Slide Rack, Stainless Steel	1	Wheaton Catalog No. 900234
Staining Dish & Cover	2	Wheaton Catalog No. 900303
Double Distilled Water	5 liters	
Solid NaOH	70 g	
95% Ethanol	420mL	
Drying Oven	1	45°C-vacuum oven preferred
Orbital Shaker	1	

Procedure

1. Prepare the cleaning solution by dissolving 70 g NaOH in 28mL double distilled water. Add 420mL 95% ethanol. If the solution is cloudy, add double distilled water until the solution clears.
2. Place the slides in a stainless steel rack and the rack in the staining dish. Pour the cleaning solution from Step 1 over the slides so the slides are covered. Cover the staining dish with a glass lid, and put the staining dish with slides on the orbital shaker to mix for 2 hours.
3. Transfer the slides to a fresh staining dish filled with double distilled water. Rinse the slides by plunging them in the water several times. Repeat the rinse at least 4 times, using fresh double distilled water for each rinse. It is critical to remove all traces of Ethanol-NaOH.
   If you are not coating the slides, place the slides in a slide rack in an oven at 45°C. Use of a vacuum oven is optional. Protect the slides from dust in the air by rinsing all glassware prior to use, and by keeping all solvents, slides and staining dishes covered.

SLIDE COATING WITH SILANE

Abstract

Silane coatings are used for paraffin sections, frozen sections and in situ hybridization. A quick & easy procedure is provided to coat microscope slides with a silane coating.

Materials and Methods

Material	Quantity	Notes
Staining Dish & Cover	3	Wheaton Catalog No. 900303
20 Slide Rack, Glass	3	Wheaton Catalog No. 900304
30-Slide Rack, Stainless Steel	2	Wheaton Catalog No. 900234
2% 3-aminopropyltriethoxysilane (AES) in acetone	500mL	Keep this in a fume hood
Double-Distilled water	500mL	
Acetone	500mL	

Procedure

1. Prepare 2% 3-aminopropyltriethoxysilane (AES) in acetone (do this under a fume hood).
2. Clean slides as described in the Slide Cleaning Product Application Note.
3. Place slides in a slide rack, and rinse slides in a staining dish with acetone. Move the rack of slides to a staining dish containing 2% AES in acetone. (Note - dedicate this staining dish for the AES solution. Do not use it for anything else). The slides will need 5 to 15 minutes in this solution.
4. Rinse slides by dunking 4 times in fresh acetone. Repeat this wash step 2 times with fresh acetone.
5. Rinse slides by dunking them into a staining dish containing fresh double distilled water.
6. Dry slides overnight in a dust free environment. They can be dried in a vacuum oven. These slides can be kept for up to 6 months in a dust-free plastic box.

SLIDE COATING WITH POLY-LYSINE

Abstract

Coating slides with Poly-Lysine allows binding of DNA and certain proteins. A Poly-Lysine coating also promotes cell adhesion to slides for culturing or experiments, such as calcium ratio imaging. Wheaton staining dishes offer a convenient method for efficiently coating a number of slides.

Materials and Methods

Material	Quantity	Notes
30-Slide Rack, Stainless Steel	2	Wheaton Catalog No. 900234
Staining Dish & Cover	4	Wheaton Catalog No. 900303
Poly-Lysine solution (0.1% w/v)	70mL	Available commercially
Tissue Culture PBS	70mL	
Double-Distilled water	2 L	
Amber HDPE bottles	1000mL	Wheaton Catalog No. 209130
Drying Oven	1	45°C - vacuum oven preferred
Orbital shaker	1	
Dust-free plastic containers to hold slides		

Procedure

1. Prepare the poly-lysine by adding 70mL of poly-lysine to 70mL of PBS solution and 560mL water. Store in an amber HDPE bottle (209130).
2. Clean slides as described in the Slide Cleaning Product Application Note. Place an equal number of slides in each of two stainless steel slide racks.
3. Transfer slides to the polylysine solution and shake for 15 minutes to 1 hour.
4. Transfer the racks of slides to fresh staining dishes filled with fresh double-distilled water. Plunge up and down at least 5 times to rinse the slides.
5. Centrifuge slides on a microtiter plate carrier at 500 rpm for 5 minutes. Place paper towels under racks to absorb moisture. Use two racks of slides to balance the centrifuge.
6. Place the racks of slides in clean staining dishes with covers for transport to vacuum oven. Place the dishes in the oven at 45°C for 10 minutes. Vacuum is optional.
7. Store the slides in a plastic slide box without a rubber mat bottom. Numerous users commented that slides should be stored for 14 days before spotting DNA. Slides are best when used within 4 months.

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