



Equipment and Specifications for the Laboratory for Aquatic Animal Quarantine Facility:

Item:	Thermal Cycler
Required Quantity:	1
Brand name:	Esco or equivalent
Product Code:	SWT-MX-BLC-1
Specifications:	
Capacity	0.2 ml x 96 standard
Temperature control mode:	Block, Tube
Temperature range:	4°C - 99°C
Block temperature accuracy:	±0.2°C
Heating rate:	4.0°C/sec
Cooling rate:	3.0°C/sec
Hot lid temperature:	Adjustable, 30°C - 110°C
Maximum cycles:	99
Maximum segment cycle:	5
Maximum steps:	16
Display:	Digital, LCD
Electrical:	220V

Item:	Microcentrifuge (Sovrall™ Legend™)
Required Quantity:	2
Brand name:	Thermofisher Scientific or equivalent
Product Code:	75002431
Specifications:	
Capacity	24 x 1.5/2ml
Max speed	13,300 rpm
Max. RCF	17,000 xg
Temperature range:	Ambient
Lid type	Click seal, biocontainment lid
Type:	Benchtop centrifuge, ventilated
Run time:	1 – 99 min (1 min increments); HOLD
Electrical:	230V
Comes with:	24 x 1.5/2 ml rotor with click seal biocontainment lid

Item:	High speed centrifuge
Required Quantity:	1
Brand name:	Beckman Coulter or equivalent
Product Code:	367585
Specifications:	
Max capacity	6 x 85 ml

Max speed	30,000
Max. RCF	64,400 x g
Temperature range:	-20°C - 40°C
Type:	Benchtop centrifuge, ventilated
Run time:	9 hrs 59 min; HOLD
Drive:	Brushless induction
Accel/Decel rates	10 independent profiles
Electrical:	200 V, 60 Hz
Safety features	Automatic door interlock; imbalance detector; over-speed and over-temperature detection
Accessories:	
25 ° Fixed-angle rotors	6 x 50 ml conical tubes (@10,000 max rpm)(Product Code: 364670)
	10 x 15 ml conical tubes (@ 10,000 max rpm)(Product Code: 364680)
30 ° Fixed-angle rotors	6 x 30 ml tubes (@ 26,200 max rpm)(Product Code: 361231)
Fixed angle rotor	4 x 85 ml tubes (@ 20,000 max rpm)(Product Code: 364620)
	12 x 1.5/2 ml microcentrifuge tubes (@ 30,000 rpm)(Product Code: 364630)
Adapter for 500/750 µL microfuge/PCR tubes	Nominal diameter: 9 mm (Product Code: 364690)

Item:	Benchtop mini centrifuge
Required Quantity:	1
Brand name:	Gilson or equivalent
Product Code:	F110731
Specifications:	
Max capacity	8 x 1.5/2 ml (Microtube rotor); 16 x 0.2 ml (PCR)
Max speed	6,000 (micro-tube rotor); 6,200 (PCR strip rotor)
Max. RCF	1,290 – 2,910 x g; 1,820 – 2,690 x g
Temperature range:	5°C - 35°C
Type:	Benchtop
Speed control:	Automatic / constant speed
Drive:	Direct drive / Vibration insulated
Acceleration time	5 s
Deceleration time:	15 s (lid closed); 3 s (lid open)
Electrical:	230 V, 1A, 50/60 Hz
Fuse	250 V, 0.5A
Accessories:	
Rotors	8 x 1.5 ml microtubes (Product Code: F1077303) 2 x 8-PCR tube strips (Product Code: F1077304)

Item:	Benchtop vortex mixer
Required Quantity:	3
Brand name:	Thermofisher Scientific or equivalent
Product Code	88880018
Specifications:	
Load bearing capacity	0.5 kg
speed	0 – 3,000 rpm
Operating modes:	Continuous / touch
Temperature range:	5°C - 35°C
Type:	Benchtop
Electrical:	100 – 240 V; 50/60 Hz
Accessories:	
Microplate tray	2 (Product Code: 88880117)
Rubber platform	2 (Product Code: 88880118)

Item:	Horizontal Electrophoresis system
Required Quantity:	2
Brand name:	Thermofisher Scientific or equivalent
Product Code:	B1A
Specifications:	
Type:	Horizontal, Mini system
Sample range:	5 – 24
Gel size:	7 x 8 cm
Buffer volume:	400 ml
Product should include:	main buffer chamber
	lid with attached power supply leads
	Gasketed UV gel tray
	Two double-sided combs (6 x 1mm & 10 x 1.5 mm)
Accessories:	
Spare power supply leads	3 ft; one black and one red (x 1) (Product Code: PSL-5)
UVT gel tray	Rapid load; 12 slots and 12 rapid load combs (x 1) (Product Code: B1A-UVT)
Replacement gaskets	X 1 pair (Product Code: B1A-GK)
External caster	X 1 (Product Code: B1A-CST)
Double sided comb	8 teeth; 1.0/1.5 mm thickness; 4.8/4.8 mm teeth width (x 2) (Product Code: B1A-8)

Item:	Gel imager system
Required Quantity:	1
Brand name:	Thermofisher Scientific or equivalent
Product Code:	4466611
Specifications:	
Gel compatibility	Agarose gels
Label or dye:	Ethidium Bromide
Comes with:	Gel imager camera hood
	UV light base

Imager software package
Imager quantitation USB dongle (Product Code: 4466610)
Light diffuser
Universal filter

Item: Pipetman® Single channel micropipettes					
Brand name:	Gilson or equivalent				
Specifications:					
Volume range (µL):	0.2-2	2-20	20-200	100-1000	1000-10000
Required Quantity:	1	3	3	3	2
Volume locking system:	✓	✓	✓	✓	✓
Adjustable tip ejector:	✓	✓	✓	✓	✗
Colour coded push-button:	✓	✓	✓	✓	✓
Product Codes:	P2L (FA10001P)	P20L (FA10003P)	P200L (FA10005P)	P1000L (FA10006P)	P10ml L (FA10008)
Accessories					
Pipette tips (autoclavable)	Volume range: 0.1 – 10 µL, Filtered (10 packs of 96 racked tips) x 1 Volume range: 0.1 – 10 µL, Unfiltered (Loose, pack of 10,000 tips) x 1 Volume range: 0.1 – 10 µL, Sterilised (10packs of 96 racked tips) x 1 Volume range: 2.0 – 200 µL, Unfiltered (Loose, pack of 10,000 tips) x 1 Volume range: 2.0 – 30 µL, Filtered (10 packs of 96 racked tips)x 1 Volume range: 2.0 – 200 µL, Filtered (10 packs of 96 racked tips)x 1 Volume range: 2.0 – 200 µL, Sterilised (10packs of 96 racked tips) x 1 Volume range: 100 - 1000 µL, Unfiltered (Loose, pack of 10,000 tips) x 1 Volume range: 100 – 1200 µL, Filtered (10 packs of 96 racked tips) x 1 Volume range: 100 – 1000 µL, Sterilised (10packs of 96 racked tips) x 1 Volume range: 1 - 10 mL, Unfiltered (Loose, pack of 10,000 tips) x 1				

Item:	Analytical balance
Brand name:	Fisher Scientific or equivalent
Product Code:	S94790B
Required Quantity:	1
Specifications:	
Capacity	100 g
Repeatability	< ± 0.2 mg
Stabilization time	4 sec
Display type	LCD
Automation Interface	3 buttons
Weighing units:	Grams and newtons

Item:	Compact balance
Brand name:	Fisher Scientific or equivalent
Product Code:	S94793B
Required Quantity:	3
Specifications:	
Capacity	2000 g
Repeatability	1 g
Display type	LCD
Automation Interface	3 buttons
Weighing units:	Grams, pound, ounce

Item:	UV-Visible Spectrophotometer
Brand name:	Thermofisher Scientific or equivalent
Product Code:	UNI840-209800
Required Quantity:	2
Beam geometry:	Dual beam
Connections	USB type A port for USB memory device and printer USB type B port for computer connectivity
Data interval for scanning	0.1, 0.2, 0.5, 1.0, 2.0, 5.0 nm
Display type	Graphical with LCD backlight
Lamp:	Xenon flash lamp
Photometric linearity	Upto 3.5 A at 260 nm
Scan speed:	Up to 3600 nm/min
Spectral bandwidth:	± 1.0 nm
Wavelength range	190 – 1100 nm
Electrical:	100/240V; 50/60Hz

Item:	Nano-drop UV-Vis spectrometer
Brand name:	Thermofisher Scientific or equivalent
Product Code:	ND-ONE-W
Required Quantity:	1
Detection range:	dsDNA: Pedestal: 2.0 ng/ μ L; Cuvette, 0.2 ng/ μ L
Connections	USB-A ports; Ethernet; Bluetooth and Wi-fi
Data interval for scanning	0.1, 0.2, 0.5, 1.0, 2.0, 5.0 nm

Display type	High-definition colour display
Keypad:	Built-in touch screen, multipoint capacitive touch
Lamp:	Xenon flash lamp
Measurement time	8 secs (including data processing time)
Photometric range:	10 mm equivalent: pedestal: 0 – 550 A; Cuvet 0 – 1.5A
Sample volume:	Minimum 1µL
Spectral bandwidth	1.8 nm
Wavelength range	190 – 850 nm

Item:	MilliQ® Integral for water purification
Brand name:	Sigma Aldrich/ Merck - millipore or equivalent
Required Quantity:	1
Capacity:	30 L/ d for pure and ultrapure water
Electrical:	100 – 250 V; 50/60 Hz
Data connection:	Ethernet

Item:	PCR tubes
Brand name:	Thermofisher Scientific or equivalent
Product Code:	3412
Required Quantity:	1 (case of 1000 tubes)
Colour	Natural
Cap type	Flat
Volume	0.2 ml
Data connection:	Ethernet
Item:	Eppendorf tubes
Brand:	Thermofisher Scientific
Product Code:	69715
Required Quantity:	100 (pack of 72 tubes)
Capacity:	1.5 ml
Material:	Polypropylene
Cap type	Attached snap cap

Item:	Sterile Eppendorf tubes
Brand name:	Thermofisher Scientific or equivalent
Product Code:	AM12450
Required Quantity:	5 (pack of 200 tubes)
Capacity:	1.5 ml
Material:	Polypropylene
Cap type	Attached snap cap
Features	Non-stick, RNase free, sterile

Item:	Trinocular compound microscope
Brand name:	Olympus or equivalent
Product Code:	CX 41
Required Quantity:	3
Optical system:	Universal infinity-corrected optical system
Illumination:	Built-in transmitted Koehler illuminator; 6V 30W halogen bulb AC 220 – 240 V; 50/60 Hz
Focusing	Stage height movement by roller guide Stroke per rotation: 36.8mm; Full stroke range: 25 mm Upper limit stopper Tension adjustment on coarse focus knob
Observation tube inclination	30°
Objectives:	4x, 10x, 20x, 40x, 100xO
Accessories:	
Trinocular tube	X 3 (Product Code: U-CTR30-2)

Item:	Trinocular stereo microscope
Brand name:	Olympus or equivalent
Product Code:	SZ61TR
Required Quantity:	2
Observation method:	Brightfield, Darkfield, simple polarized light
Optical system:	Greenough Optical system
Focusing	Coarse handle focus; stroke of 120 mm
Observation tube	Widefield trinocular
Eyepiece:	With diopter adjustment and reticle

Item:	Colour camera for microscope
Brand name:	Olympus or equivalent
Product Code:	DP27
Required Quantity:	2
Image sensor	Colour CCD; 5 megapixel
Resolution (max):	2448 x 1920 pixels
Movie frame rate	15 fps
Binning:	2x2
A/D converter	12 bits
Exposure time:	50 µs – 8 s
Data transfer	USB 3.0
Display output:	Digital/Analogue RGB
Screen display:	Available microscope total magnification: 0.01 x to 9999.99 x
Software	Included

Item:	Laboratory pH/MV/Temp meter
Brand name:	Thermofisher Scientific or equivalent
Product Code:	13-636-AE153
Required Quantity:	1
Temperature probe calibration	Offset in 0.1 °C increments; Offset range: ±5°C
Accuracy (mV)	±0.2 mV (±199.9 mV), ±2 mV beyond ±200 mV
Accuracy (temp)	±0.3°C
Memory	100 data sets
Range (pH)	0.00 to 14.00
Range (mV)	±1999 mV

Item:	Autoclave
Brand name:	Panasonic or equivalent
Product Code:	MLS-3751-PK
Required Quantity:	2
Volume	50L
Sterilization temperature	115 - 135°C
Exhaust tank	2-L polyethylene tank
Exhaust control	Exhaust valve open temperature setting
Power supply	220 V, single phase, 50-60Hz, 9.1A or above
Power consumption	2 KW
Maximum pressure	0.234 MPa
Safety devices	Pressure safety valve, over temperature limiter, anti-scorch limitier, door interlock, current fuse
Comes with	Drain hose, Exhaust tank, Tank mounting bucket, tip-resistant metals, Stackable stainless steel buckets

Item:	Universal Oven
Brand name:	Memmert or equivalent
Product Code:	UN110
Required Quantity:	1
Temp range:	5°C above ambient up to +300°C
Voltage electrical load	230 V; 50/60 Hz
Ventilation	Natural convection
Vent	Vent connection with restrictor flap
Safety features	Adjustable electronic over temperature monitor and mechanical temperature limiter
Door	Fully insulated, stainless steel door with 2 point locking
Internals	2 stainless steel grids
Volume	108 L
Max loading of chamber	175 kg

Item:	Ductless fume hood
Brand name:	Thermofisher Scientific or equivalent
Product Code:	B1220483
Required Quantity:	1
Dimensions	67.6 x 88.9 x 121.9 cm
Electrical	230 V
Control Panel	Switches for blower and low airflow alarm
Features	Electronic air flow monitoring with Low airflow alarm Filter I.D. Window; Hinged front sash Internal manual speed controller

Item:	Biological Safety Cabinet
Brand name:	Thermofisher Scientific or equivalent
Product Code:	1331TS
Required Quantity:	1
Dimensions	67.6 x 88.9 x 121.9 cm
Chamber material	SmartCoat
Dimensions	80 x 100 x 156.8 cm
Sash opening	25.4 cm
Filter type	H14 HEPA En 1822, 99.995% MPPS
Load bearing capacity	50 kg
Electrical	230 V; 50/60 Hz
Features:	Includes manual adjustable height stand, and factory installed UV light; and a set of armrests.

Item:	Flammables storage cabinet
Brand name:	Uline or equivalent
Product Code:	H-2219M
Required Quantity:	4
Material:	Double wall 18-gauge steel
Shelf capacity	350 lb (158.76 kg)
Volume	90 gal (340.7 L)
No. of shelves	2, adjustable
Dimensions	43 x 34 x 65 "
Door	Recessed paddle handle; with padlocks

Item:	Flammables storage cabinet
Brand name:	Uline or equivalent
Product Code:	H-4176
Required Quantity:	2
Material:	Double wall 18-gauge steel
Shelf capacity	350 lb (158.76 kg)

Volume	20 gal (75.7 L)
No. of shelves	2, adjustable
Dimensions	43 x 12 x 44 "
Door	Recessed paddle handle; with padlocks
Type:	Wall mount

Item:	Corrosive safety cabinet
Brand name:	Uline or equivalent
Product Code:	H-3776M
Required Quantity:	3
Material:	Double wall 18-gauge steel
Trays	Removable Poly trays
Shelf capacity	350 lb (158.76 kg)
Volume	45 gal (170 L)
No. of shelves	2, adjustable
Dimensions	43 x 18 x 65 "
Door	Recessed paddle handle; with padlocks

Item:	Hotplate stirrer
Brand name:	Thermo Scientific or equivalent
Product Code:	SP88854105
Required Quantity:	2
Speed	50 – 1500 rpm
Temperature range	540°C max
Surface area	10.8 x 10.8 cm
Top plate material	Ceramic
Electrical requirements	230 V, 50/60 Hz
Stirring range	50 – 1,500 rpm

Item:	Magnetic stirrer
Brand name:	Thermo Scientific or equivalent
Product Code:	8888008
Required Quantity:	2
Speed	150 – 2500 rpm
Top plate diameter	120 mm
Body material	Polypropylene
Capacity (max load)	15 kg
Electrical requirements	100 - 240 V, 50/60 Hz
Stirring range	150 – 2,500 rpm

Item:	Water bath
Brand name:	Thermo Scientific or equivalent
Product Code:	TSCIR19
Required Quantity:	1
Temperature range:	5°C - 100°C
Heating capacity:	1200 W
Bath volume	19 L

Display	Monochrome LCD
Temperature uniformity	±0.05 °C
Cabinet material	Epoxy powder coated cold rolled steel
Chamber material	304 stainless steel

Item:	Glass stills
Brand name:	Thermo Scientific or equivalent
Product Code:	A440367
Required Quantity:	1
Output flow rate:	0.9 gal/hr (3.4 L/hr)
Electrical requirements	240 V; 50/60 HZ; 11A
Inlet pressure:	20 – 100 psi
Vent temperature	80 - 96°C

Item:	Ultra-Low temp freezer
Brand name:	ThermoFisher Scientific or equivalent
Product Code:	UXF30086D
Required Quantity:	1
Capacity:	105 L
Box capacity:	72 x 2" boxes; 54 x 3" boxes
Door:	Single, solid
Temperature range	-86 - -20°C; 32°C ambient; adjustable to 1°C increments
Power source	Universal power system 240V single phase; 50/60 Hz
Alarm:	Standard
Shelves:	1 stainless steel, fixed position (removable)

Item:	Domestic refrigerator
Required Quantity:	2
Capacity:	Approx.. 200 L refrigeration compartment Approx. 40 L Freezer compartment
Type	Single door
Electrical requirements	220V, 50 Hz, AC
Method of defrosting	Frost free
Compressor	DC Inverter
Freezer compartment positioning	Preferably bottom
Refrigerant	Non-CFC
Shelves	Glass or coated steel wires
Lighting	LED

Item:	Domestic freezer

Required Quantity:	3
Capacity:	92 L
Type	Single door, vertical
Electrical requirements	220V, 50 Hz, AC
Method of defrosting	Frost free
Features:	Thermostat control

Item:	Tissue processor
Brand name:	Thermofisher Scientific or equivalent
Product Code:	(model: STP120) 813160
Required Quantity:	1
Processing capacity	120 or 240 cassettes
Reagent capacity	1.8 L
Electrical	100-240 V; 50/60Hz
Comes with:	9 reagent vessels; 3 paraffin baths for double basket operation
Features:	Immediate and delayed start processing modes Programmable spinning speed Programmable immersion time Battery back-up system in case of power failure

Item:	HistoStar™ Embedding workstation
Brand name:	Thermofisher Scientific or equivalent
Product Code:	A81000004
Required Quantity:	1
Electrical	220-240V
Illumination	LED lighting
Paraffin capacity	5 L paraffin capacity;
Cold plate area	For 72 base molds
Features:	Large heated work space and specimen holding area
Paraffin dispenser	Adjustable paraffin dispense paddle

Item:	Microtome
Brand name:	Thermofisher Scientific or equivalent
Product Code:	(Model: HM325) 902100A
Required Quantity:	1
Description	Rotary microtome; manual or semi-automated
Includes	E blade holder Quick release cassette clamp
Features:	One-handed zero orientation head Quick-trim button Section counter

	Guide rail guidance for the knife holder
Accessories	
Microtome knives	12.5 cm length x 10 nos (Product Code: 7702)
Microtome lubricating oil	X 5 nos (Product Code: 288)

Item:	Digital paraffin section mounting bath
Brand name:	Thermofisher Scientific or equivalent
Product Code:	E650D/230
Required Quantity:	1
Features:	Four rubber feet Bowl and upper casing coated in matte black PTFE
Voltage	220/240V

Item:	Slide drying hot plate
Brand name:	Thermofisher Scientific or equivalent
Product Code:	A8400032
Required Quantity:	1
Heat setting:	Fixed at 75°C, ultrafast heating system
Surface	Matte black coated
Features:	Backlit on/off button Non-slip feet Anti-microbial coating
Voltage	230V

Item:	Manual staining station
Brand name:	Thermofisher Scientific or equivalent
Product Code:	A78500001
Required Quantity:	1
Slide capacity:	20
Reagent capacity:	320 ml/trough
Dimensions	12 cm x 18 cm x 100 cm
Comes with:	Steel support rack; Complete set of 14 staining troughs 5 slide baskets with carriers
Accessories	
Staining troughs	6 x pack of 3 (Product Code: A78010487)
Reagent trough covers	3 x pack of 6 (Product Code: A78010489)

Item:	Complete staining assembly
Brand name:	Thermofisher Scientific or equivalent
Product Code:	100
Required Quantity:	1
Depth	65 mm x 90 mm x 70 mm

Max slide size:	3 2 in
Slide capacity:	19
Solution capacity	250 ml
Material	Non-autoclavable glass
Dimensions	12 cm x 18 cm x 100 cm
Comes with:	Staining racks, Staining dish and cover

Item:	Cover slips	
Brand name:	Thermofisher Scientific or equivalent	
Product code	(below)	
Material	Borosilicate glass	
Sizes	24 mm x 24 mm	50 mm x 25 mm
Thickness	0.13 to 0.16 mm	0.13 to 0.16 mm
Required quantity	20	5
Product Code:	E10143263NR1	S10143263NR1
	(100 pieces in plastic boxes)	

Item:	Glass slides	
Brand name:	Thermofisher Scientific or equivalent	
Product Code:	3011-002	
Required Quantity:	1 (72 slides/box; 50 boxes/case)	
Material	Borosilicate glass	
Edge	Frosted	
Size	75 mm x 25 mm	
Thickness	1 mm	

Item:	Biopsy cassettes	
Brand name:	Thermofisher Scientific or equivalent	
Product Code:	B1000735WH	
Required Quantity:	5 (Cases of 1000, with lids attached)	
Material	Acetal Polymer	
Colour	White	
Pore style	0.36 mm, square	
Writing face angle	45°	
Dimensions:	24 mm x 27 mm	

Item:	Paraffin Wax	
Brand name:	Thermofisher Scientific or equivalent	
Product Code:	SDW1	
Required Quantity:	10 (8x1kg packets)	
Type	Pelletised	
Special use	For thin sectioning; microtomy	

Item:	Stainless steel molds
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Brand name:	Thermofisher Scientific or equivalent	
Sizes	36 x 36 x 10 mm	60 x 45 x 15 mm
Product Code:	E10M7	E10M8
Required Quantity:	10 x pack of 5	10 x pack of 5
Material	Stainless steel	

Item:	Stainless steel molds	
Brand name:	Leica microsystems or equivalent	
Sizes	24 x 30 x 5 mm	24 x 24 x 12 mm
Product Code:	14038832451	14038832453
Required Quantity:	3 x pack of 12	3 x pack of 12
Material	Stainless steel	

Glassware		
Material	Borosilicate or Pyrex (or equivalent)	
Beakers	Volume	Required Quantity
	50 ml	20
	100 ml	20
	250 ml	20
	600 ml	20
	1000 ml	20
	2000 ml	6
Erlenmeyer flask		
	125 ml	20
	250 ml	20
	500 ml	20
	1000 ml	20
	2000 ml	6
Volumetric Flasks		
	100 ml	3
	250 ml	3
	500 ml	3
	1000 ml	3
Solvent bottles		
	25 ml	20
	50 ml	20
	100 ml	20
	500 ml	20
	1000 ml	20
Funnels (short stem)		
	55 mm dia	5
	80 mm dia	5
	100 mm dia	5
Petri dish	80 x 15	50
Screw-capped culture tube		
	12 x 100	50
	16 x 100	50

Consumables		
Items	Detail	Required Quantity
Wash bottles	500 ml	48
Lens cleaning tissue	Pack of 180; case of 10 pk	1
Glovex (latex, powder-free)	Size: M; Pk of 100; case of 10 pk	5
	Size: S; Pk of 100; case of 10 pk	10
Parafilm M® All-purpose laboratory film	Roll size: 2" x 250'	10
Plastic petri dish	100 x 15 mm; case of 500	2
Pasteur pipettes	Soda-lime glass; Case of 1000	1
Pipette bulbs for Pasteur pipette	Rubber bulbs, (1ml); pk of 24	1