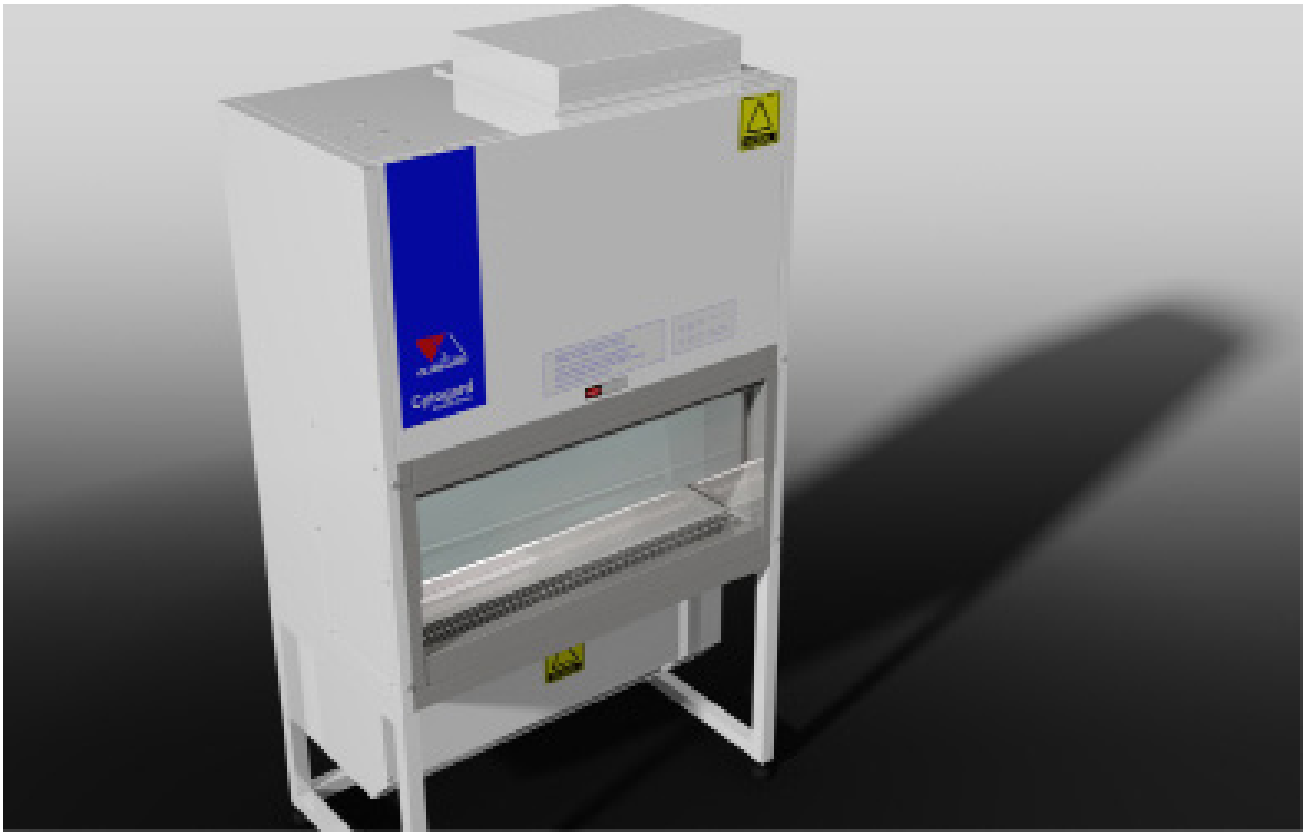
Cytotoxic Cabinet

Cytotoxic Drug Safety Cabinets



Applications

Cytotoxic drug safety cabinets are defined in Australian Standard AS2252.5 as the primary barrier against exposure to aerosols that are produced in the preparation, manipulation and dispensing of cytotoxic drugs. Many of these drugs are known to be mutagens and are suspected of being carcinogens and teratogens. Recent work involving prions has proven that exposure may result in effects that are insidious and may not manifest themselves for some years. The requirements for protection involve the following:

- Protection of cabinet users and other staff from exposure to aerosols or vapours which may be generated in the preparation, manipulation, and dispensing of cytotoxic drugs;
- Protection of drug products, so that they may be prepared in an environment which is essentially free from particulate and biological contamination;
- Protection of cabinet maintenance personnel from the residue of drug particles which can contaminate filters, fans and other mechanical components.

Description

CGA Cytogard™ drug safety cabinets are designed and manufactured in Australia in three nominal widths – a 900mm, 1200mm and 1800mm – and fully comply with all requirements of Australian Standard AS2252.5.

Cytotoxic cabinets are necessary for operator and product protection, in addition to the safe guards provided by an effective air barrier and Clyde-Apac Microseal™ HEPA filter technology, Cytogard™ series is also equipped with a carbon filter to remove harmful vapours that may be released during the compounding process. Cytogard™ series are essential for the protection of personnel, product and the environment.

bsi. ISO 9001:2015 Quality Management

AES Environmental maintains an ISO 9001:2015 quality management system to ensure process and product conformance.

Australian Standards

CG2010 Cytogard™ drug safety cabinets are designed and manufactured to comply with all requirements of Australian Standard AS2252.5.

Each cabinet is factory-certified by a NATA Accredited laboratory to meet the specified performance requirements. These cabinets may also be used where the handling of other drugs and chemical requires both containment and aseptic manipulation.

Cytotoxic safety cabinets are part-recirculating laminar air flow enclosures with high efficiency particulate air (HEPA) filtration of exhaust air and an air barrier at the work opening.

HEPA-filtered vertical laminar airflow which is recirculated in the work zone creates an ultra-clean work environment for product protection. An air barrier between the operator and the work zone is maintained by a flow of room air into a full width grille in the work opening.

The barrier air mixes with the recirculated laminar flow air in a sump underneath the work surface and is exhausted from the cabinet via a HEPA filter which is located directly under the work tray.

All positive pressure zones and filter seals are surrounded by negative pressure zones, so as to contain potentially hazardous aerosols. Cabinets are available with the work zone width of 90cm, 120cm or 180cm and are free standing units that incorporate a floor stand.

Standard cabinets have exhaust discharge on the right-hand side with optional left-hand side or top exhaust available. Top exhaust is typically specified where cabinet exhaust air is to be entrained into the room exhaust in accordance with AS2252.5.

These cabinets provide advanced system monitoring technology and a number of unique design features intended to enhance safety and ease of use.

Construction

Cabinet

Constructed in electro-galvanised steel with joints welded using a gas shielded arc process. This method produces a robust, leak free housing that is able to withstand the rigours of transport and handling. The exterior is finished in a high-quality powder coat which has been developed for laboratory equipment.

Work Zone

Constructed in grade 304 stainless steel with 2B finish. Corners are radiused and crevice-free for ease of cleaning and all surfaces are carefully dressed to remove sharp edges. The removable work tray is designed to allow cleaning access to its underside without removing it from the cabinet.

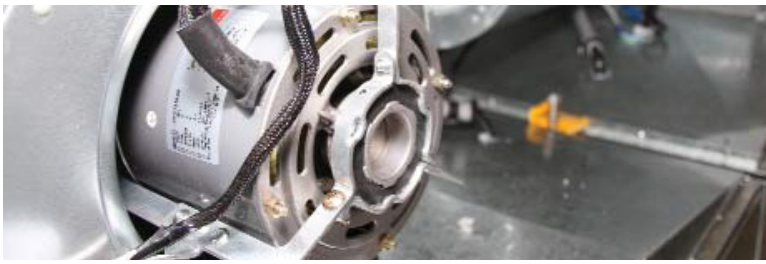
A pneumatic mechanism opens and closes the viewing window without the need for external fasteners or catches. The window is self-supporting in the fully open position to facilitate cleaning and access for large items. Opening the window with the cabinet running automatically engages a boost mode for enhanced containment by activating a maximum exhaust airflow and the alarm systems.

Hepa Filters

Clyde Apac MicrosealTM HEPA filters, are manufactured to meet requirements of AS4260. Each filter is individually certified to be leak free in accordance with AS 1807.6.

A manufacturer endorsed test label fitted with an extract of the test report is affixed to each filter.

A prefilter extends the life of the exhaust HEPA filter and protects it from mechanical damage during cleaning of the work zone.



Fans

Separate direct drive fans are provided for the exhaust and laminar flow HEPA filters. Fans are fitted with speed controllers to enable airflows to be maintained through filter life.

The fan control circuits are interlocked so that the laminar flow system will not operate until the exhaust system has achieved a containment condition.

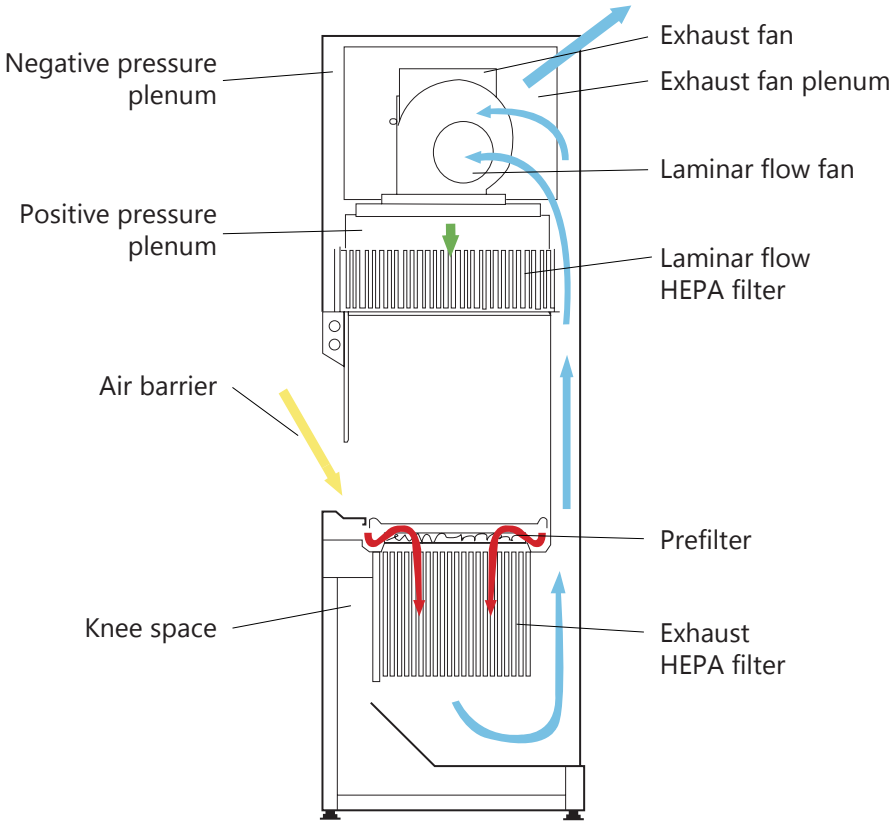
Audible and visible alarms with rechargeable battery back-up signify any reduction in barrier containment or laminar airflow.

Electrical

Cabinets operate on single-phase 240V, 50 Hz power via a 10A outlet. The electrical system complies with Australian Standard AS3100.

A low voltage touch control panel is located on the front of the cabinet. The Optima 2000TM microprocessor-controlled control and diagnostic system provides continuous monitoring of critical cabinet functions with a digital display indicating the nature of any malfunction.

Features



Standard Features	› Optima 2000™ prorammable control and diagnostic system with digital display › Low voltage touch controls › Alarms and boost mode automatically engaged when viewing window is open › Boost mode selectable at control panel › Selectable post-use over-run timer › Hour meter to record operating time › Provision for interface with building energy management systems › Pneumatically assisted viewing window › Magnahelic gauge to monitor fan systems › Fully-sealed work opening cover for testing procedures › Comprehensive operation and maintenance manual
Options	› Activated charcoal exhaust filter › Work area power outlet › Ultra-violet germicidal lamp › Gas tap (solenoid-interlocked) › Service taps (vac, air, CO2, etc.) › Hanging rail in work area

Model	Overall Dimensions (mm)			Work Zone Dimensions (mm)			Weight (kg)
	W	D	H	W	D	H	
CGA90 SIDE EXHAUST	1135	770	2310	880	560	610	326
CGA90 TOP EXHAUST	1035	770	2410	880	560	610	326
CGA120 SIDE EXHAUST	1440	770	2310	1180	560	610	372
CGA120 TOP EXHAUST	1340	770	2410	1180	560	610	372
CGA180 SIDE EXHAUST	2050	770	2310	1790	560	610	487
CGA180 TOP EXHAUST	1950	770	2410	1790	560	610	487

Model	RHS exhaust	LHS exhaust	Top exhaust
CGA90	2030021	2030022	2030023
CGA120	2030201	2030202	2030203
CGA180	2031201	2031202	2031203

Personnel Protection

Cytotoxic drugs and prions are hazardous to human health. It is necessary to protect both users and service personnel. For those applications where personnel and environmental protection is required, Clyde-Apac Class I or Class II biological safety cabinets, or cytotoxic drug safety cabinets (as applicable) should be considered.

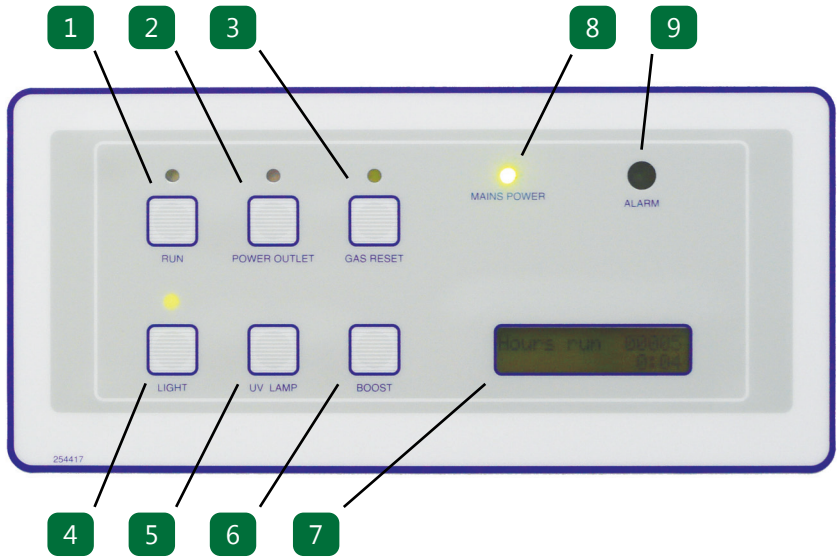
General Specification CGA Top Exhaust

Model		CGA 90 (Top)	CGA120 (Top)	CGA180 (Top)
Part No.		2030023	2030203	2031203
Nominal Size of Sump and Cabinet Assembled External Dimensions (WxDxH)		1135 x 770 x 2310 mm	1440 x 770 x 2310mm	2050 x 770 x 2310mm
Internal Work Zone Dimensions (WxDxH)		880 x 560 x 610mm	1180 x 560 x 610mm	1790 x 560 x 610mm
Test Opening		185mm	185mm	185mm
Working Opening		185mm	185mm	185mm
Fans: 240V single phase direct drive		240V	240V	240V
Average Airflow Velocity	**Inflow to grille**	0.6 m/s	0.9m/s	1.7 m/s
	Downflow	0.4 - 0.45m per second		
Sound Emission		62 dBa	62 dBa	62 dBa
HEPA Filter Typical Efficiency	**Downflow**	H14 99.995% at 0.1 to 0.3 microns to AS4260/EN1822		
	Exhaust	H14 99.995% at 0.1 to 0.3 microns to AS4260/EN1822		
HEPA Exhaust Outlet Flow into Capture Hood (l/s)		270 l/s	350 l/s	450 l/s
Germicidal UV Lamp AS1807.15		minimum 600mW/m2		
Fluorescent Lamp Intensity AS1807.15		1200 Lux	1200 Lux	1200 Lux
Certification to Australian Standards		AS2252.2/AS1807.1/AS1807.5/AS1807.6/AS1807.15/AS1807.20/AS1807.22/ AS1807.23		
Cabinet Contruction AS2252.2 - 2009	**Main Body**	1.2mm 18 gauge powder coated electro galvanised steel		
	Work Surface	1.2mm 18 gauge type 304 stainless teel with B2 finish		
	Side Walls and Sump	1.2mm 18 gauge type 304 stainless teel with B2 finish		
Front viewing window		6mm laminated glass		
Electrical 220-240V AC 50Hz	**Cabinet Power/ Amp**	750 Watts - 10 Amps		
	Outlet Amp Fuse	10 Amps		
	Full Load Amps	0.5v		
	Power Consumption	0.75Kw	0.75Kw	750W 0.75Kw
Cabinet Net Weight (kg)		220kg	300kg	400kg
Cabinet Sump (kg)		60 kg	80 kg	100 kg
Total Shipping Weight (kg)		300kg	400kg	500kg
Shipping Dimensions		1050 x 800 x 1700mm	1350 x 800 x 1700mm	2050 x 800 x 1700mm

General Specification CGA Side Exhaust

Model		CGA 90 (Side)	CGA120 (Side)	CGA180 (Side)
Part No.		RHS: 2030021/ LHS: 2030022	RHS: 2030201 / LHS: 2030202	RHS: 2031201/ LHS: 2031202
Nominal Size of Sump and Cabinet Assembled External Dimensions (WxDxH)		1135 x 770 x 2310mm	1440 x 770 x 2310mm	2050 x 770 x 2310mm
Internal Work Zone Dimensions (WxDxH)		880 x 560 x 610mm	1180 x 560 x 610mm	1790 x 560 x 610mm
Test Opening		185mm	185mm	185mm
Working Opening		185mm	185mm	185mm
Fans: 240V single phase direct drive		240V	240V	240V
Average Airflow Velocity	**Inflow to grille**	0.6 m/s	0.9m/s	1.7 m/s
	Downflow	0.4 - 0.45m per second		
Sound Emission		62 dBa	62 dBa	62 dBa
HEPA Filter Typical Efficiency	**Downflow**	H14 99.995% at 0.1 to 0.3 microns to AS4260/EN1822		
	Exhaust	H14 99.995% at 0.1 to 0.3 microns to AS4260/EN1822		
HEPA Exhaust Outlet Flow into Capture Hood (l/s)		270 l/s	350 l/s	450 l/s
Germicidal UV Lamp AS1807.15		minimum 600mW/m2		
Fluorescent Lamp Intensity AS1807.15		1200 Lux	1200 Lux	1200 Lux
Certification to Australian Standards		AS2252.2/AS1807.1/AS1807.5/AS1807.6/AS1807.15/AS1807.20/AS1807.22/ AS1807.23		
Cabinet Contruction AS2252.2 - 2009	**Main Body**	1.2mm 18 gauge powder coated electro galvanised steel		
	Work Surface	1.2mm 18 gauge type 304 stainless teel with B2 finish		
	Side Walls and Sump	1.2mm 18 gauge type 304 stainless teel with B2 finish		
Front viewing window		6mm laminated glass		
Electrical 220-240V AC 50Hz	**Cabinet Power/ Amp**	750 Watts - 10 Amps		
	Outlet Amp Fuse	10 Amps		
	Full Load Amps	0.5v		
	Power Consumption	0.75Kw	0.75Kw	750W 0.75Kw
Cabinet Net Weight (kg)		220kg	300kg	400kg
Cabinet Sump (kg)		60 kg	80 kg	100 kg
Total Shipping Weight (kg)		300kg	400kg	500kg
Shipping Dimensions		1300 x 800 x 1700mm	1600 x 800 x 1700mm	2300 x 800 x 1700mm

Operation



Control Panel

1. Fan/post-use over-run switch
2. Power outlet switch
3. Gas reset switch*
4. Fluorescent light switch
5. UV lamp switch*
6. Boost mode switch
7. Display panel
8. Mains power indicator
9. Alarm indicator

*optional function

High-efficiency filters and fans deliver quiet operation and safety. Negative pressure zones surround all positive pressure areas, eliminating the possibility of contaminated air bypassing the filter or escaping from the cabinet.

In operation, vertical laminar airflow gently passes from the Laminar HEPA filter to the sump HEPA filter to create a biologically clean work area.

In Cytotoxic cabinets:

An air barrier across the work access opening, into the sump, reduces potential risks to personnel from airborne contaminants in the work zone.

In Cytotoxic models, the airflows combine in the sump area beneath the work floor and pass through an extra HEPA filter before recirculation via a return air plenum, to the top housing.

Separate fan/filter arrangements allow independent adjustment to maintain an effective air barrier.

A microprocessor is used to control the speed of the blower motors. This microprocessor also allows fingertip control of functions and status including:

- Cabinet performance and status clearly displayed in plain English.
- Boost mode.
- Built-in stopwatch.

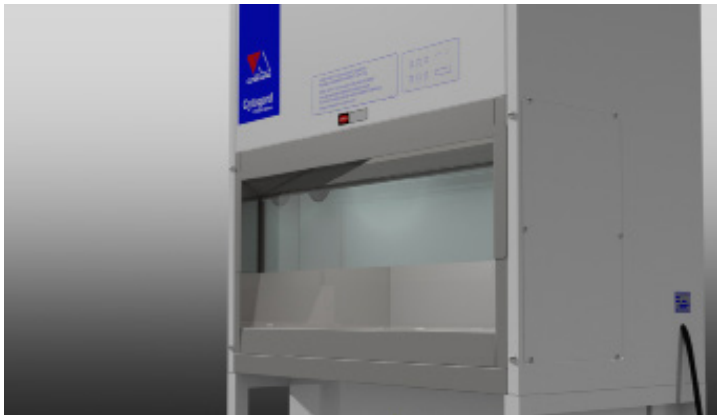
Other Products

- HWS Series™ horizontal laminar flow cabinets.
- VWS Series™ vertical laminar flow cabinets.
- BSC2000™ Class I biological safety cabinets.
- BH2000™ Class II biological safety cabinets.
- PCR laminar flow cabinets.
- Recirculating fume cabinets.
- TFP™ Series HEPA filter clean room modules.
- Exhaust Capture Hood for Cytotoxic Suite.
- Pass through hatches.

On-Site Testing

Cytotoxic drug safety cabinets are factory tested and certified by a NATA-Accredited laboratory. Additional testing and certification is recommended as follows:

- On site prior to use
- After maintenance
- After filter replacement
- After re-location
- At least annually
- In special circumstances, e.g. if faulty operation is suspected.



The Company

AES Environmental is an Australian owned manufacturing business producing products under Clyde-Apac, Email Air Handling and IFC brand names for industries that are as varied as industrial plants, commercial buildings, power stations, food processing, healthcare, science and electronics. AES Environmental considers the Australian Standards as a core component of its product mix and has developed an export market in 25 countries, promoting Australian Standards, engineering and manufacturing solutions. AES Environmental, a trusted manufacturer capable of delivering reliable product solutions to highly-critical applications, where the control of hazardous airborne contamination is often critical to process and personnel.

AES ENVIRONMENTAL
CLYDE-APAC
EMAIL AIRHANDLING

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

Unit 5, Arcot Court, Cramlington, Northumberland, NE23 1BB
Ph 01670 712 113 **E:**sales@IFC.com
www.internationalfilter.co.uk

Quotation Request

CG2010 Cytogard™ drug safety cabinets are designed and manufactured to comply with all requirements of Australian Standard AS2252.5. As this Standard details requirements for both the CG2010 Cytogard™ and the facility in which it will be housed and not all testing requirements are mandatory, a supplier cannot simply state that the unit complies with AS2252.5. It is now a requirement for the supplier and the user to enter a formal agreement to ensure that the product supplied meets the requirements of AS2252.5 or that the customer is aware of any areas of non-complianceand a thourough risk assessment can be conducted.

Purchaser Details

Organisation

Department

Address

Contact Name

Contact No.

Contact Email

Purchaser Requirements

Cabinet Use

☐ Aseptic Processing

☐ Prion Work

☐ Non-Sterile Cytotoxics

Each CG2010 Cytogard™ needs to meet all requirements of AS2252.5:2017, Clause 7.1 and pass the critical performance tests detailed in Clauses 7.2 and 7.3 of the same document.

Cabinet No.	Working surface width	Discharge location (L, C, R, RS, LS)↑	Carbon filter✔	Testing cover	Hanging rail	Continuous particle counting

↑ L = Left, C = Centre, R = Right, RS = Right Side, LS = Left Side when facing front of CDSC

✔ Carbon filters are mandatory under AS2252.6:2017, unless used for prion work.

Additional Requirements

Site Requirements

Minimum door width

Facility ceiling height

Special installation requirements

Optional tests required (AS2252.6:2017 references)

☐ Vibration test (Clause 7.3.2)

☐ Sound level test (Clause 7.3.3)

☐ Lighting test (Clause 7.3.4)

☐ UV radiation test (Clause 7.3.5) (Only if UV light fitted)

Supplier Details

Organisation			
Contact Name		Contact No.	
Contact Email			
Departures from purchasers request			
Location access requirements			
Country of Manufacture			

☐ The CDSC(s) to be supplied will meet the requirements of Clause 7.1 and each of the tests specified by the purchaser from Clauses 7.2 and 7.3 of AS2252.5:2017.

Signed	
Date	

9A Pembury Rd, Minto 2566
Ph 1300 550 116 **F** 1300 550 117
sales@aesenvironmental.com.au
www.aesenvironmental.com.au