Antec Scientific
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General pre-installation requirements

for ALEXYS® systems

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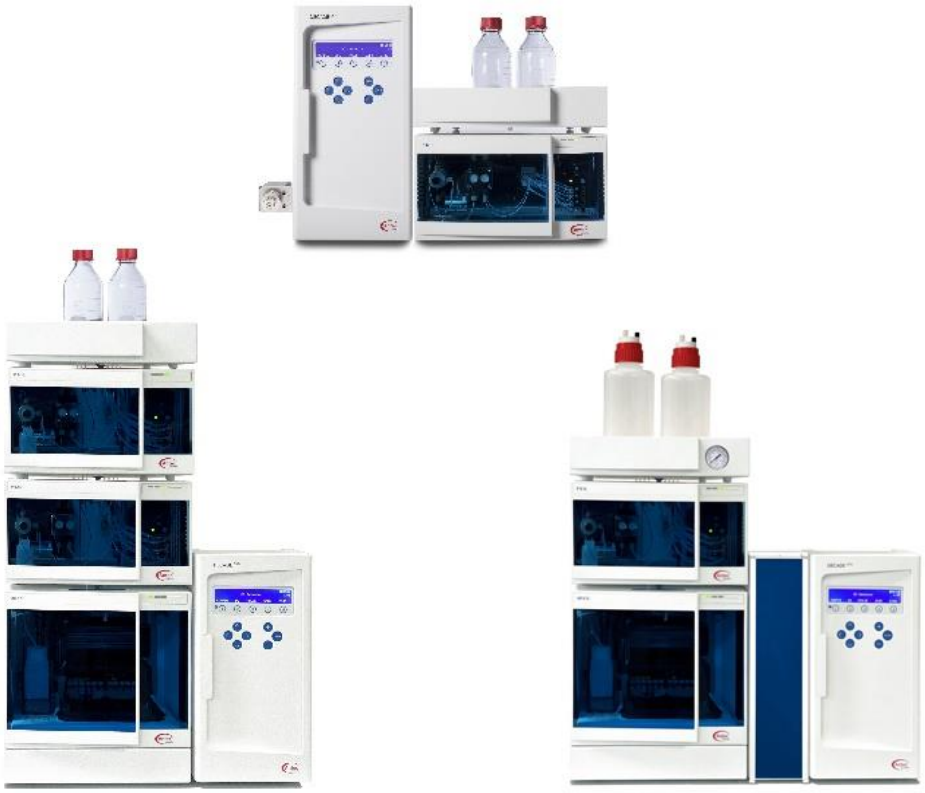

SITE PREPARATION REPLY FORM – ALEXYS ANALYZER INSTALLATION

Dear Customer,

To assure a successful and hassle-free installation of your ALEXYS Analyzer we created this pre-installation checklist to help you to prepare your facility. Please read the complete set of related documents carefully and verify if all site requirements are met at your laboratory. For confirmation, fill in this reply form and return it to your contact person at Antec Scientific or distributor. In case of questions about the information in this document or reply form don't hesitate to ask your contact person for help.

Please tick the check boxes and fill out the details completely.

Hereby I/we confirm that all of the below-mentioned site requirements have been fulfilled and are in agreement with this document:

- ☐ Computer and router (referring to document 195.7000)
- ☐ Laboratory environmental conditions
- ☐ Water purification apparatus
- ☐ Size requirements (bench space)
- ☐ Electrical installation and power requirements
- ☐ Availability of all chemicals/operating supplies necessary for the installation & PQ test

Organization _____ Name _____

Address _____ Job position _____

Zip code _____ Telephone _____

City _____ E-mail _____

Country _____

Place & date _____

Signature

_____

Please return a signed copy of the reply form to your contact person at Antec or distributor at least 4 weeks prior to installation by e-mail. The installation cannot be scheduled prior to receiving this signed confirmation!

In case the installation cannot be started or completed successfully because the installation site requirements are not met, Antec Scientific/the distributor reserves the right to charge the customer for additional installation costs (travel, labor etc.)

Warning Symbol

The warning sign denotes a warning. It calls attention to a procedure or practice which, if not adhered to, could result in costs, damage or destruction of parts or all of the equipment. Do not proceed beyond a warning sign until the indicated conditions are fully understood and met.

For research purposes only. **The ALEXYS system is not tested by the manufacturer to comply with the In Vitro Diagnostics Directive.**

Observe safety

Operation of an electrochemical detector can involve the use of hazardous materials including corrosive fluids and flammable liquids. The instrument should only be operated by users with the following expertise:

- Completed degree as chemical laboratory technician or comparable vocational training
- Fundamental knowledge of liquid chromatography
- Knowledge and experience in the safe handling of toxic and corrosive chemicals and knowledge of the application safety measures prescribed for laboratories.
- Participation in an end-user training (daily use of system and chromatography software) performed by the manufacturer or a company authorized by the manufacturer.

Unskilled, improper, or careless use of the instrument and the related chemicals can create fire hazards, or other hazards which can cause death, serious injury to personnel, or severe damage to equipment and property.

Observe all relevant safety practices at all times.

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C H A P T E R 1

Introduction

Thank you for ordering an ALEXYS LC-ECD system. For a successful on-site installation of the system, please arrange the following requirements at your location in advance:

- a computer and router (see document 195.7000)
- laboratory conditions and facilities
- consumables
- chemicals

Arrange these requirements well in advance before the installation to prevent (costly) delays.

This document lists the general laboratory requirements, chemicals and consumables that are necessary during and after the installation of ALEXYS systems:

The application specific requirements, chemicals and consumables are listed in a separate application-specific document or have to be arranged based on other information.

The installation site must comply with all applicable local laws and regulations with regard to electrical and mechanical installations, building safety, and use of potentially hazardous materials/chemical and disposal thereof, etc.

C H A P T E R 2

Laboratory requirements

Laboratory environment

- ☐ Environmental requirements for the ALEXYS Analyzer:

Parameter	Requirement
Temperature	+22 °C (± 3 °C)
Humidity	20 – 80%, non-condensing

Do not place the system next to heating or cooling pipes, do not expose the instrument to direct sun light, and do not expose it to air drafts (AC system / open windows).

Laboratory equipment

- ☐ Water purification apparatus
  For a fresh supply of high-quality ~~deionised~~deionized water with resistivity of >18 MOhm.cm and low TOC level (<10 ppb). Bottled water is not recommended.
- ☐ Ultra-sonic bath for degassing purpose*
  Should be fit for a 2 L bottle
- ☐ Analytical balance
- ☐ pH meter and relevant pH standards if the mobile phase requires setting the pH
- ☐ measuring cylinders and beakers of glass for applications running on reversed phase separation columns
- ☐ measuring cylinders and beakers of polymer/plastic for applications running with high pH solutions
- ☐ analytical pipettes, pipette tips, tubes
- ☐ etc.

**The ALEXYS® system is equipped with inline filters and a degasser, but it is strongly advised to sonicate the mobile phase before use for additional degassing. Do not use the reusable vacuum filtering units as an alternative for degassing purposes, as these units can be a source of contamination.*

Bench

- □ Stabile, clean, flat and smooth surface
- □ Enough mechanical strength to hold > 90 kg (198 lbs).
- □ Free space for an ALEXYS system, see table below
- □ Additional space is necessary for the PC, and around the system to prevent obstruction of the fans.

Bench size requirements for different configurations of ALEXYS Analyzers, advise for smallest footprint. The 'height' also covers for the space needed for the bottles on top of the system. Note, in case the height is not available, a lower (but broader) alternative stack is possible, see table on the next page

ALEXYS Analyzer instrument stacks (smallest footprint)	Nr of pumps	Column oven	Autosampler	Metric			Imperial		
				Width (cm)	Height (cm)	Depth (cm)	Width (inch)	Height (inch)	Depth (inch)
	1	no	no	63	70	60	25	28	24
	1	no	yes	63	110	65	25	43	26
	1	yes	yes	81	110	65	32	43	26
	2	no	yes	63	130	65	25	51	26
	2	yes	yes	81	130	65	32	51	26

Alternative ALEXYS Analyzer instrument stacks (reduced height)	Nr of pumps	Column oven	Autosampler	Metric			Imperial		
				Width (cm)	Height (cm)	Depth (cm)	Width (inch)	Height (inch)	Depth (inch)
	1	no	yes	104	70	65	41	28	26
	1	yes	yes	120	70	65	47	28	26
	2	no	yes	104	90	65	41	35	26
	2	yes	yes	120	90	65	47	35	26

Power

- The number of free power sockets needed for a system depends on the number of instruments in the system. Each instrument needs its own power socket. Usually, the system consists of at least 1 detector, 1 injector, 1 pump, 1 dedicated LAN network switch, 1 computer, 1 monitor and 1 printer (7 sockets needed). Every additional instrument (2nd pump, additional column thermostat, USB-LAN converter or additional detector) needs their own additional power socket.
- The total maximum power consumption of an ALEXYS system is in the range of 500-800W, excluding the computer. See table below for details of instruments.

Instrument options	Type	Max. power consumption (W)
EC detector	DECADE Elite/Lite	260
Pump	P 6.1L	100
Autosampler	AS110/AS 6.1L	200
Column thermostat	CT 2.1L	100
UV detector	UVD 2.1L	100
MW detector	MWD 2.1L	65
LAN switch box	*undefined*	± 3
Computer	*undefined*	± 100
Monitor	*undefined*	± 80

C H A P T E R 3

Consumables

Flow cell cleaning:

- □ Soft paper tissue (for instance Kleenex facial tissues)
- □ A drip-lock squeeze bottle for acetone
- □ A squeeze bottle for (deionized) water

Sample vials (not needed for ALEXYS systems without autosampler)

The AS 6.1L autosampler is standard provided with sample trays that fit

- □ Standard 11.6 mm OD HPLC autosampler vials, 32 mm high, for 1.5 mL sample (max)
  - For carbohydrate analysis we recommend plastic vials; do not use glass vials.

Special sample vials for small samples (<20 µL) - ALEXYS Neurotransmitter Analyzer

The ALEXYS® Neurotransmitter Analyzers are delivered with an additional set of special 96-positions sample trays that fit narrow fraction collector vials. A start-up kit containing a sample set of about 200 vials and caps is part of these ALEXYS systems.

For additional vials and caps the reordering information is (supplier and pn):

- □ Sample Vials polypropylene 300 uL (Microbiotech, pn. 4001048 – see also Figure 1~~Figure 1~~.)
- □ Snap caps 8 mm with slit (J.G. Finneran, pn. 5870-08)
- □ Alternative for the snap caps: 8 mm ~~aluminium~~aluminum crimp cap with PTFE seal (Chromacol, pn. 8-ACT) and a cap crimper tool

Any real equivalent from other suppliers may be used.

NOTE: There are subtly different shapes of fraction collector vials on the market. The types that fit best are the ones from Microbiotech, depicted on the left side in Figure 1~~Figure 1~~. The types depicted on the right are slightly too wide at the bottom to fit in the 96-position tray and cannot be used without a suitable adaptor.

Figure 1. Two slightly differently shaped fraction collector vials.

C H A P T E R 4

Chemicals and solutions

Have these chemicals and solutions ready at the start of the installation.

For LC-ECD applications, only chemicals of sufficient specific quality should be used to be able to have an optimal system with good performance. The appendix shows detailed descriptions of some of the chemicals that have been used in the Antec Scientific R&D laboratory, as an example of what works.

The general list below **has to be further supplemented with the application specific chemicals**. Depending on the application, we have documents with additional specifications available.

General solution for use during installation

- Water
  A fresh supply of high-quality deionised water with resistivity of >18 MOhm.cm and low TOC level (<10 ppb) from a water purification apparatus

Rinsing / passivation solutions for use during installation

For optimal performance of the ALEXYS Analyzer, some parts of the LC system should be rinsed with an appropriate solution before the system is used.

The systems that contain metal parts in the flow path are the ALEXYS Neurotransmitter Analyzer and the ALEXYS Clinical Analyzer.

- For a system containing stainless steel parts in the flow path:
  50 mL 15% HNO_3 in water, in a small, glass bottle

A new ALEXYS Carbohydrate Analyzer (metal-free) should be flushed with a high concentration of NaOH before installing a column.

- For a metal-free system containing polymer tubing, dedicated to analysis of carbohydrates:
  2 M NaOH in water, in a plastic bottle (PPCO or PP)

Specific solutions (degassed by sonication) for different ALEXYS Analyzers

ALEXYS system	*Piston back wash (1L)*	*Needle wash (250 mL)*
ALEXYS Carbohydrate Analyzer	water	water
ALEXYS Neurotransmitter Analyzer	20% isopropanol	water
ALEXYS Clinical Analyzer	20% isopropanol	5% MeOH in water

A P P E N D I X I

A list of general use chemicals with purity and purchase details is shown below as a guideline. The listed brands/purities are not necessarily the best chemicals, but these have been giving good results at the Antec Scientific R&D laboratory.

If for any reason alternative chemicals need to be purchased, be aware that chemicals that have a specification of high purity may have been tested for UV-active impurities, which can mean that they may still contain electrochemically active impurities. This is one of the reasons why 'HPLC grade' water is not recommended for use with EC detection:

- choose chemicals with the same purity or better
- do not choose ultra dry grade or anhydrous chemicals

Table 1. Brands and purities of chemicals used for application development at Antec Scientific.

Component	Purity	Brand	Order no:	Mw	kg/L
HNO_3	65% solution	Fluka	84380	63.01	D:1.40
NaOH	50% w/w solution, certified grade	Fisher	SS254500	40.00	D:1.56
	50% in water, Pro analyse, carbonate free	Boom	80011912	40.00	D:1.57
	50-52%, eluent for IC	Sigma Aldrich	72064	40.00	D:1.53
Acetone	General purpose grade	Fisher	A/0520/17	58.08	D:0.79
Water	TOC <10ppb and deionised, resistivity >18 MOhm-cm (Barnstead Easypure II)				

Manufacturers/vendors

Sigma-Aldrich	http://www.sigmaaldrich.com
Fluka	http://www.sigmaaldrich.com
Fisher Scientific	http://www.fishersci.com
Barnstead	http://www.thermoscientific.com