Antec Scientific
Hoorn 131
2404 HH Alphen a/d Rijn
The Netherlands

Installation requirements

for ALEXYS® systems

180.7070C, Edition 9, 2022

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.

Antec Scientific
Hoorn 131
2404 HH Alphen a/d Rijn
The Netherlands

Table of contents

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 (see document 195.7000 for the PC requirements)
- 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.

C H A P T E R 2

Laboratory requirements

Laboratory environment

□ Environmental requirements for the ALEXYS Analyzer:

Parameter	Requirement
Operating temperature	+22 °C (± 3 °C)
Operating humidity	20 – 80%, non-condensing

Laboratory equipment

- □ Water filtering apparatus
  For fresh supply of high-quality deionised water with resistivity of >18 MOhm.cm and low TOC level (<10 ppb)
- □ Ultra-sonic bath*
  Should fit at least 1 L bottles
- □ Microbalance
- □ pH meter and relevant pH standards
- □ analytical pipettes, pipette tips, tubes
- □ glassware such as measuring cylinders
- □ etc.

**The ALEXYS® system is equipped with in-line filters and degassers for the mobile phase, but it is good practice to additionally sonify the mobile phase before use.*

Bench

- □ Stabile, clean, flat and smooth surface
- □ Enough mechanical strength to hold > 90 kg (198 lbs).
- □ Free space for an ALEXYS system (about 110 cm wide, 71 cm deep and 80 cm high or 43.5” wide, 30” deep and 31.5” high).
- □ Additional space is necessary for the PC, and around the system to prevent obstruction of the fans.

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 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 convertor 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	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

Standard sample vials (in case the ALEXYS is equipped with an autosampler)

The AS110 and AS 6.1L autosamplers of an ALEXYS system are standard delivered with a set of 48-positions sample trays for use with

- □ 11.6 mm OD sample vials

Sample vials for small samples (<20 µL) - ALEXYS system with AS110

The ALEXYS® Neurotransmitters system (180.0091U & -92U) is 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 order (supplier and pn):

- □ Sample Vials polypropylene 300 uL (Microbiotech, pn. 4001048 - Fig. 1.)
- □ Snap caps 8 mm with slit (J.G. Finneran, pn. 5870-08)
- □ Alternative for the snap caps: 8 mm aluminium 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 Fig. 1. The types depicted on the right are slightly too wide to fit in the 96-position tray; such vials can be sampled by placing them in adaptors that fit in the 48 positions tray. Reusable adaptors can be purchased at Antec Scientific (pn. 181.0726; Microdialysis coll. vial adapters, 100pcs)

Fig. 1. Two slightly differently shaped fraction collector vials.

CHAPTER 4

Chemicals

Have the 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 applications, we have documents with specifications available.

General chemicals

- □ Acetone, in drip-lock squeeze bottle
- □ Water, in squeeze bottle
- □ 50 mL 15% HNO_3 in water, in a small bottle
  Only one time necessary during installation
- □ 500 mL water (Resistivity >18 MOhm.cm, TOC level <10 ppb), degassed

A P P E N D I X

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
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