

Applied Biosystems SOLiD™ EZ Bead™ Enricher

Site Preparation Guide

Emulsion
Preparation

Emulsion
PCR

Emulsion Break and
Bead Enrichment



For General Laboratory Use.

For Research Use Only. Not intended for any animal or human therapeutic or diagnostic use.

This user guide is the proprietary material of Life Technologies or its subsidiaries and is protected by laws of copyright. The customer of the SOLiD™ EZ Bead™ Enricher is hereby granted limited, non-exclusive rights to use this user guide solely for the purpose of operating the SOLiD™ EZ Bead™ Enricher. Unauthorized copying, renting, modifying, or creating derivatives of this user guide is prohibited.

Information in this document is subject to change without notice.

APPLIED BIOSYSTEMS DISCLAIMS ALL WARRANTIES WITH RESPECT TO THIS DOCUMENT, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THOSE OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. TO THE FULLEST EXTENT ALLOWED BY LAW, IN NO EVENT SHALL APPLIED BIOSYSTEMS BE LIABLE, WHETHER IN CONTRACT, TORT, WARRANTY, OR UNDER ANY STATUTE OR ON ANY OTHER BASIS FOR SPECIAL, INCIDENTAL, INDIRECT, PUNITIVE, MULTIPLE OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH OR ARISING FROM THIS DOCUMENT, INCLUDING BUT NOT LIMITED TO THE USE THEREOF, WHETHER OR NOT FORESEEABLE AND WHETHER OR NOT APPLIED BIOSYSTEMS IS ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

TRADEMARKS

The trademarks mentioned herein are the property of Life Technologies Corporation or their respective owners. NanoDrop is a registered trademark of NanoDrop Technologies. Covaris is a trademark of Covaris, Inc. Microsoft and Windows are registered trademarks of Microsoft Corporation in the US and other countries.

© 2010 Life Technologies Corporation. All rights reserved.

Part Number 4454036 Rev. B
05/2010

Contents

	About This Guide	5
	Purpose	5
	Safety information	5
CHAPTER 1	Site Preparation Tasks	7
	Overview	8
	Assign personnel	9
	Select the site	10
	Space requirements	10
	Environmental requirements	13
	Ventilation and waste collection requirements	14
	Electrical requirements	15
	Computer requirements	15
	Safety and materials requirements	16
	Receive and inspect the system	18
	Move the crated instrument to the laboratory	19
CHAPTER 2	Checklists	21
	Overview	22
	Personnel checklist	22
	Space and layout checklist	22
	Environmental checklist	23
	Ventilation and waste collection checklist	23
	Electrical checklist	23
	Safety checklist	24
	Materials checklist	24
	System receipt and inspection checklist	25
	Move the crated instrument checklist	25
APPENDIX A	Safety	27
	Instrumentation safety	28
	Chemical safety	33
	Safety alerts	35

Documentation and Support	37
Related documentation	37
Obtaining support	37
Index	39

About This Guide

Purpose

The *Applied Biosystems SOLiD™ EZ Bead™ Enricher Site Preparation Guide* provides information you need to fully prepare your site for the arrival and primary installation of the SOLiD™ EZ Bead™ Enricher.

Safety information



Note: For general safety information, see this section and [Appendix A on page 27](#). When a hazard symbol and hazard type appear by a chemical name or instrument hazard, see the “Safety” Appendix for the complete alert on the chemical or instrument.

Safety alert words

Four safety alert words appear in Applied Biosystems user documentation at points in the document where you need to be aware of relevant hazards. Each alert word—**IMPORTANT**, **CAUTION**, **WARNING**, **DANGER**—implies a particular level of observation or action, as defined below:



IMPORTANT! – Indicates information that is necessary for proper instrument operation, accurate chemistry kit use, or safe use of a chemical.



CAUTION! – Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.



WARNING! – Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.



DANGER! – Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

Except for IMPORTANTs, each safety alert word in an Applied Biosystems document appears with an open triangle figure that contains a hazard symbol. *These hazard symbols are identical to the hazard symbols that are affixed to Applied Biosystems instruments (see “Safety symbols” on page 28).*


SDSs

The Safety Data Sheets (SDSs) for any chemicals supplied by Life Technologies and Applied Biosystems are available to you free 24 hours a day. For instructions on obtaining SDSs, see “SDSs” on page 6.

- ⓘ **IMPORTANT!** For the SDSs of chemicals not distributed by Life Technologies and Applied Biosystems contact the chemical manufacturer.

Safety labels on instruments

The following CAUTION, WARNING, and DANGER statements may be displayed on Applied Biosystems instruments in combination with the safety symbols described in the preceding section.

Hazard symbol	English	Français
	CAUTION! Hazardous chemicals. Read the Safety Data Sheets (SDSs) before handling.	ATTENTION! Produits chimiques dangereux. Lire fiche technique associée au produit avant toute manipulation.
	CAUTION! Hazardous waste. Refer to SDS(s) and local regulations for handling and disposal.	ATTENTION! Déchets dangereux. Lire fiche technique associée et prendre connaissance de la réglementation locale associées à la manipulation et l'élimination des déchets.

1

Site Preparation Tasks

This chapter includes the following topics:

■ Overview	8
■ Assign personnel	9
■ Select the site	10
■ Space requirements	10
■ Environmental requirements	13
■ Ventilation and waste collection requirements	14
■ Electrical requirements	15
■ Computer requirements	15
■ Safety and materials requirements	16
■ Receive and inspect the system	18
■ Move the crated instrument to the laboratory	19

Overview

Before the SOLiD™ EZ Bead™ Enricher arrives, prepare your site according to the instructions in this chapter. Checklists are provided in [Chapter 2, Checklists](#).

Site preparation schedule

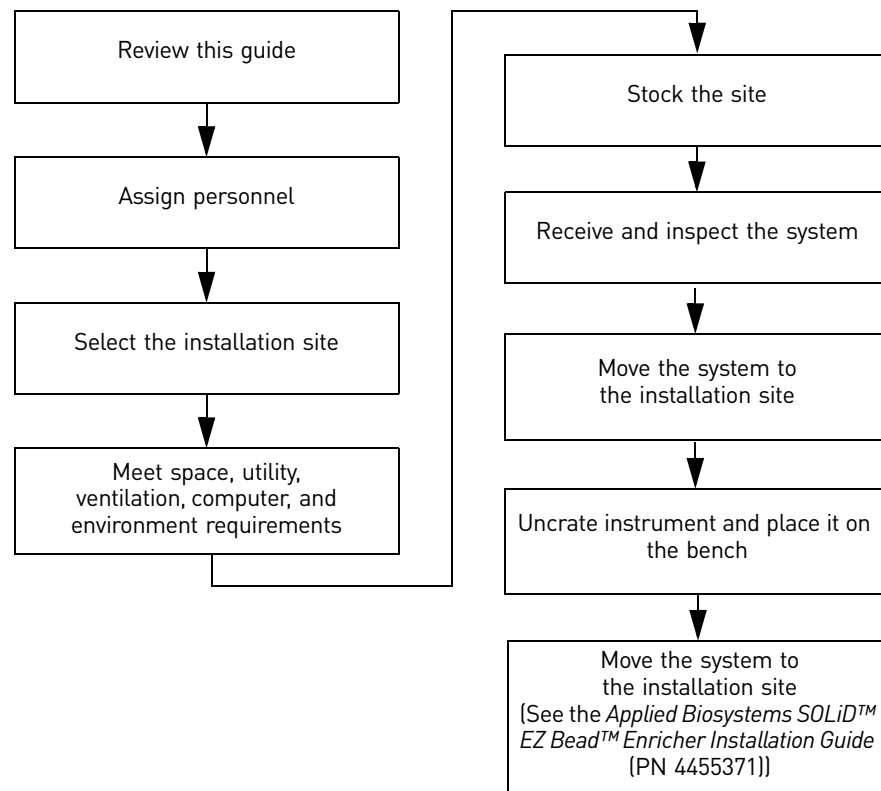
To minimize the time between the shipment arrival and system installation:

1. Complete the site preparation tasks ([Chapter 1](#)).
2. Fill out the corresponding checklists ([Chapter 2](#)).
3. Before the SOLiD™ EZ Bead™ Enricher arrives, verify that:
 - All checklists are complete.
 - The purchase order is complete.
 - You have considered all components and options in preparing the site.

Site preparation process

The general site preparation tasks and a suggested sequence for completing the tasks are summarized in [Figure 1](#). The sequence can vary, but always review this guide first.

Figure 1 Site preparation tasks and their suggested sequence



Assign personnel

Laboratory safety representative The laboratory safety representative should be familiar with laboratory safety procedures and know the location of all the safety equipment.

Tasks and personnel **Table 1** summarizes specific site-preparation tasks and suggests the personnel to accomplish the tasks. Use the table to help schedule and manage the site-preparation process.


Table 1 Suggested personnel tasks

Personnel	Tasks
Site Preparation/ Installation Coordinator	<ul style="list-style-type: none"> • Reviews the site preparation guide for safety information and system requirements. • Coordinates personnel and tasks. • Orders required materials. • Chooses the site. • Reviews checklists with applicable personnel to verify that the site is properly prepared. • Receives and inspects the system. • Schedules the installation and informs personnel of the installation date. • Ensures that the site is clear of unnecessary material on the installation day. • Is available to assist throughout installation.
Laboratory Safety Representative	<ul style="list-style-type: none"> • Reviews the site preparation guide for safety information. • Ensures that the required safety practices and equipment are in place.
Laboratory Personnel/ Primary Users	<ul style="list-style-type: none"> • Review safety information. • Ensure that all customer-provided materials for installation are present at the site. • Uncrate the instrument and place it on the bench. • Move the system to the installation site. See the <i>Applied Biosystems SOLiD™ EZ Bead™ Enricher Installation Guide</i> (PN 4455371).
Facilities Personnel	<ul style="list-style-type: none"> • Ensure that installation requirements are met for: <ul style="list-style-type: none"> – Space at the installation site – Building clearances – Temperature and humidity – Ventilation and waste collection – Electrical supply – Computer (laptop) – Safety and installation materials • If possible, move the crated system to the site before the installation date. • Are available to assist the laboratory personnel throughout installation. • At least 2 people are available to move and position the system.

Select the site

When deciding where to install the instrument, refer to the following sections for site requirements:

- [“Space requirements” on page 10](#)
- [“Environmental requirements” on page 13](#)
- [“Ventilation and waste collection requirements” on page 14](#)
- [“Electrical requirements” on page 15](#)
- [“Computer requirements” on page 15](#)
- [“Safety and materials requirements” on page 16](#)

 **IMPORTANT!** The site cannot be designated BioSafety Level 3 (BSL-3) or BioSafety Level 4 (BSL-4). Applied Biosystems does not service or repair instruments in areas designated BSL-3 or BSL-4.

Space requirements



WARNING! To prevent contamination, the Applied Biosystems SOLiD™ EZ Bead™ Enricher must not be placed in the same room that is used to prepare emulsions containing library template and P1 Beads.



CAUTION! The Applied Biosystems SOLiD™ EZ Bead™ Enricher has components that cause vibration. It is important that the instrument is placed on a stable surface.

Required tools Pallet jack to expedite the handling of the instrument crate and utility knife to open the crate.

System components The Applied Biosystems SOLiD™ EZ Bead™ Enricher ([Figure 2](#)) includes the:

- SOLiD™ EZ Bead™ Enricher
- Waste bottle (inside the instrument)
- Small bottle racks with the bottles attached (inside the instrument)
- Large bottle racks with the bottles attached (inside the instrument)
- Dell™ Latitude™ E6500 laptop and cables
- USB cord (connecting cord)
- Documents. See [“Related documentation” on page 37](#).

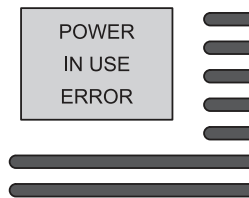
Figure 2 Applied Biosystems SOLiD™ EZ Bead™ Enricher



Instrument front panel

Figure 3 shows the SOLiD™ EZ Bead™ Enricher's front panel, which includes the indicator lights.

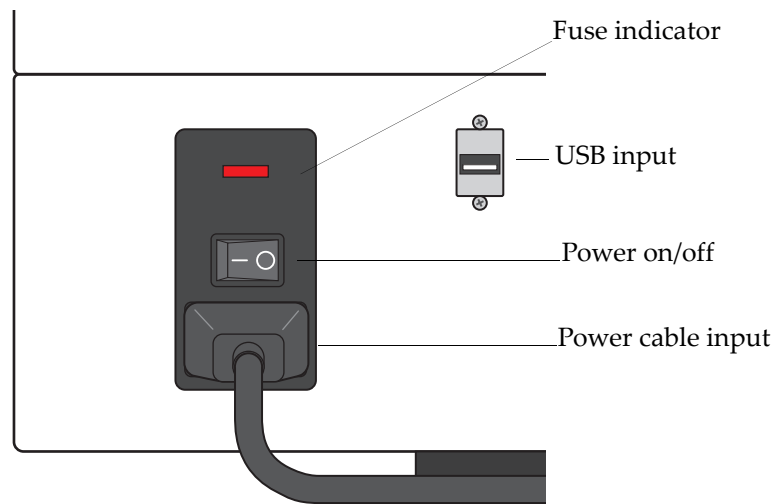
Figure 3 SOLiD™ EZ Bead™ Enricher indicator lights



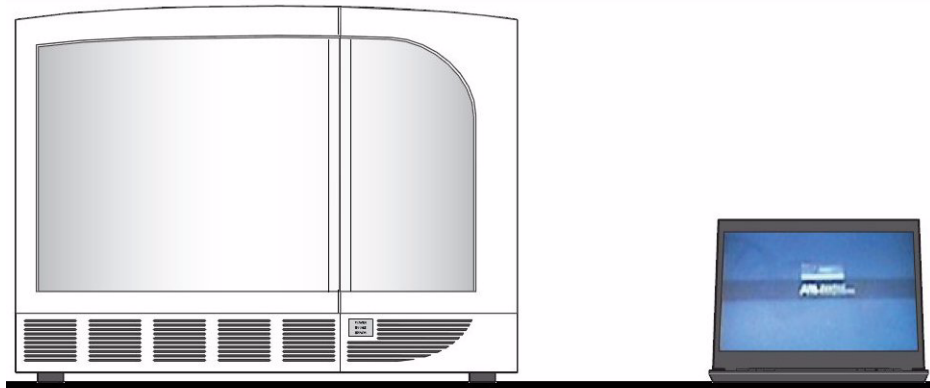
Connections to the computer (laptop) and power outlet

Figure 4 shows the SOLiD™ EZ Bead™ Enricher connections to the computer (laptop) as well as the power outlet input.

Figure 4 Connections to the computer and power outlet



Layout requirements [Figure 5 on page 12](#) shows a typical layout and some basic layout considerations for the SOLiD™ EZ Bead™ Enricher. For details on the SOLiD™ EZ Bead™ Enricher space requirements, see [“Space requirements” on page 10](#).

Figure 5 Layout requirements (*not to scale*)

Dimensions and weights

The table below indicates dimensions and weights of the system components. Ensure that the installation site (floor space and/or bench space) can accommodate the dimensions and support the weights.

Component	Width	Depth	Height	Weight
SOLiD™ EZ Bead™ Enricher crate Includes the laptop and other contents. See "System components" on page 10.	61.6 cm (24.25 in.)	85.1 cm (33.5 in.)	76.8 cm (30.25 in.)	56.7 kg (125 lbs)
SOLiD™ EZ Bead™ Enricher	49.53 cm (19.5 in.)	73.2 cm (28.75 in.)	52.4 cm (20.63 in.)	39.0 kg (86 lbs)
Dell™ Latitude™ E6500 laptop	35.81 cm (14.1 in.)	25.65 cm (10.1 in.)	3.3 cm (1.3 in.)	3.6 kg (5.2 lbs)

Required clearances

Clearance on all sides

At least 50 cm (20 in.) of clearance for ventilation, service access, and cable routing. Allow space to move the instrument for easy access to the back and sides.

Vertical clearance

At least 50 cm (20 in.) of unobstructed vertical clearance above the top of the SOLiD™ EZ Bead™ Enricher to allow the top to be lifted during service.

Environmental requirements


Altitude

This SOLiD™ EZ Bead™ Enricher is for indoor use only and for altitudes not exceeding 2000 m (6562 ft.) above the sea level.

Temperature and humidity requirements

Ensure that the installation site is maintained under the following conditions:

Condition	Acceptable range
Temperature	15 to 30 °C (59 to 86 °F)
Humidity	20 to 80% relative humidity, noncondensing

 **IMPORTANT!** The Applied Biosystems SOLiD™ EZ Bead™ Enricher is for indoor use only.

Avoid placing the system (the instrument and laptop) adjacent to heaters, cooling ducts, or in direct sunlight. Fluctuations between day and night temperatures can cause system instability.

Pollution

The Applied Biosystems SOLiD™ EZ Bead™ Enricher has a Pollution Degree rating of II. It may be installed in an environment that has nonconductive pollutants only, such as dust particles or wood chips. Typical environments with a Pollution Degree II rating are laboratories, sales, and commercial areas.

Ventilation and waste collection requirements

Ventilation requirements

At least 50 cm (20 in.) of clearance around the instrument for ventilation.

Collecting liquid waste

Liquid waste is collected in the waste bottle inside the instrument. Empty the waste bottle into a hazardous waste container according to all local, state/provincial, and/or national regulations, then return the waste bottle to the instrument.



WARNING! CHEMICAL WASTE HAZARD. Waste produced by Applied Biosystems instruments can be hazardous and can cause injury, illness, or death.



WARNING! CHEMICAL STORAGE HAZARD. Never collect or store waste in a glass container because of the risk of breaking or shattering. Reagent and waste bottles can crack and leak. Each waste bottle should be secured in a low-density polyethylene safety container with the cover fastened and the handles locked in the upright position. Wear appropriate eyewear, clothing, and gloves when handling reagent and waste bottles.

Cleaning or decontaminating the instrument


Refer to the *Applied Biosystems SOLiD™EZ Bead™ Enricher Getting Started Guide* (PN 4443496) for information on how to clean or decontaminate the instrument.

- Wear appropriate protection, including gloves, laboratory goggles, and coat whenever you work with the fluids used on this instrument, or parts that may come into contact with these fluids.
- Use only the cleaning agents as described in the *Applied Biosystems SOLiD™EZ Bead™ Enricher Getting Started Guide* (PN 4443496). Use of cleaning agents not described in this manual can impair the instrument. Contact your local Life Technologies sales office if you have any questions.
- Wipe off any liquid on or around the instrument using a lint-free tissue.
- Clean off any build-up crystals on the instrument, including the tube connections, with deionized water and lint-free tissue.
- Clean the reagent racks with deionized water, or presaturated Isopropyl Alcohol (IPA) wipes, and lint-free tissue.

Electrical requirements

Disconnecting power In case of emergency, you must be able to immediately disconnect the main power supply to the instrument.

Power connectors and receptacles The SOLiD™ EZ Bead™ Enricher is shipped to customers in North America with NEMA 5-15 power connectors. These connectors require NEMA 5-15 electrical receptacles (standard 10 A wall receptacles) with proper grounding.

 **WARNING!** Do not use extension cords.

System electrical requirements The SOLiD™ EZ Bead™ Enricher is configured to use voltages of 100 to 240 VAC at 50 or 60 Hz. [Table 2](#) provides electrical specifications for the SOLiD™ EZ Bead™ Enricher. For all indicated input voltages, a 10 A circuit is required.


 **WARNING!** Protective grounding is required for all devices. Ensure that each device is properly grounded via the ground pin of each cordset.

Table 2 SOLiD™ EZ Bead™ Enricher Electrical specifications


Input Voltage (VAC)	Frequency (Hz)	Power (W)
100-240	50-60	200


Power line regulator In areas where the supplied power is subject to voltage fluctuations exceeding ±10% of the nominal value, a power line regulator may be required. High or low voltages can adversely affect the electronic components of the instrument.


 **Note:** The use of an Uninterrupted Power Supply (UPS) is recommended.

Computer requirements

The integrated Dell™ Latitude™ E6500 laptop provided by Applied Biosystems has the Microsoft Windows® XP operating system with Service Pack 3 installed.

 **CAUTION!** Do not install additional software on the laptop. Changes to the configured software could void the instrument warranty and cause the system to be nonoperational.

 **IMPORTANT!** Applied Biosystems strongly recommends that you do not connect the laptop to the internet to prevent virus attacks.

 **CAUTION!** No antivirus software is installed on the laptop.

Safety and materials requirements

Safety practices

- ⚠ **IMPORTANT!** The site must not be designated BioSafety Level 3 (BSL-3) or BioSafety Level 4 (BSL-4). Applied Biosystems does not install, service, or repair instruments in areas designated BSL-3 or BSL-4.
- ⚠ **IMPORTANT!** A safety representative from your facility must ensure that:
 - Personnel establish and follow all applicable safety practices and policies to protect laboratory personnel from potential hazards.
 - All applicable safety devices and equipment are available at all times.

Required safety equipment

Your laboratory has specific safety practices and policies designed to protect laboratory personnel from potential hazards that are present. Applied Biosystems expects that you will follow all applicable safety-related procedures at all times.

The following safety protection and equipment must be available at the installation site:

- Protection from any sources of hazardous chemicals that may be present in the area.
- Appropriate fire extinguisher:
 - You are responsible for providing an appropriate fire extinguisher for use on or near Applied Biosystems equipment.
 - The types and sizes of fire extinguishers shall be suitable for use on electrical and chemical fires as specified in current codes, regulations, and/or standards, and with approval of the Fire Marshall or other authority having jurisdiction.
 - The installation of appropriate fire extinguishers shall be in addition to other fire-protection systems and not as a substitute or alternative to them.
- Eyewash
- Safety shower
- Eye and hand protection
- Adequate ventilation
- First-aid equipment
- Spill cleanup equipment
- Applicable SDSs

Materials for general installation

Provide the following materials for the installation:

- Safety glasses, lab coats, chemical-resistant, disposable gloves (powder-free)
- Lint-free tissues
- Isopropanol, HPLC-grade or better
- Water, Milli-Q® grade
- Three sizes of micropipettors and tips
 - 1- to 10- μ L
 - 10- to 100- μ L
 - 100- to 1,000- μ L
- Mini vortexer, picofuge, incubator (37 °C), and pipettors

Materials for routine operation

The following supplies and consumables are necessary for routine operation of the SOLiD™ EZ Bead™ Enricher. Before the system is installed, contact the Applied Biosystems sales representative to order these additional supplies. For details, refer to the *Applied Biosystems SOLiD™EZ Bead™ Enricher Getting Started Guide* (PN 4443496).

Table 3 Required equipment

Product name	Vendor and part number
Applied Biosystems SOLiD™ EZ Bead™ Enricher	4448420
Covaris™ S2 System†	Applied Biosystems 4387833 (110 V) or Applied Biosystems 4392718 (220 V)
6-Tube Magnetic Stand	Applied Biosystems AM10055
NanoDrop® ND-1000 Spectrophotometer (computer required)	Thermo Scientific ND-1000
Labquake Rotisserie Rotator, Barnstead/Thermolyne	Thermo Scientific 400110
Scale, 250g capacity	MLS‡
Incubator (37 °C)	MLS
Vortexer	MLS
Picofuge	MLS
Pipettors 2 µL, 200 µL, and 1000 µL	MLS
Ice bucket	MLS

† For system materials summary, refer to “Covaris™ S2 System Materials Summary,” in the SOLiD™ 4 System Site Preparation Guide (PN 4448639).

‡ Major Laboratory Supplier.

Table 4 Optional equipment†

Product name	Vendor and part number
SOLiD™ EZ Bead™ Emulsifier	Applied Biosystems 4448419
SOLiD™ EZ Bead™ Amplifier	Applied Biosystems 4448418

† Each kit contains other components. For details refer to the *Applied Biosystems SOLiD™EZ Bead™ Enricher Getting Started Guide* (PN 4443496).

 **IMPORTANT!** For the storage conditions, see the package label or the product insert.

Table 5 Required kits[†]

Description	Part number
SOLiD™ EZ Bead™ Enricher E10 Reagent Kit	4452723
SOLiD™ EZ Bead™ Enricher Buffer Kit	4444140
SOLiD™ EZ Bead™ Enricher Accessories Kit	4453073
SOLiD™ EZ Bead™ Enricher E20 Reagent Kit	4452724
SOLiD™ EZ Bead™ Enricher E80 Reagent Kit	4452725
SOLiD™ Pre Deposition Kit	4452805

[†] Each kit contains other components. For details refer to the *Applied Biosystems SOLiD™EZ Bead™ Enricher Getting Started Guide* (PN 4443496).


 **IMPORTANT!** For the storage conditions, see the package label or the product insert.

Table 6 Optional kits[†]

Product name	Units	Catalog number
SOLiD™ Bead QC Kit	1	4456038

[†] Each kit contains other components. For details refer to the *Applied Biosystems SOLiD™EZ Bead™ Enricher Getting Started Guide* (PN 4443496).

Receive and inspect the system

Shipped contents

The SOLiD™ EZ Bead™ Enricher shipment includes the:

- SOLiD™ EZ Bead™ Enricher
- Dell™ Latitude™ E6500 laptop

Shipping list

Verify that the items shown on the shipping list are the same items that you ordered.

Inspect shipping containers for damage

Carefully inspect the shipping containers and report any damage to Applied Biosystems. Record any damage or mishandling on the shipping documents.

Move the crated instrument to the laboratory

Move schedule

Before the date of installation:

- Clear the installation site of all unnecessary materials to provide a clear path from the delivery area to the bench.
- Move the crated Applied Biosystems SOLiD™ EZ Bead™ Enricher from the receiving area to the installation site. See [“Required tools” on page 10](#).
- Move the other shipping containers from the shipping area to the installation site.

Required building clearances

To move the SOLiD™ EZ Bead™ Enricher shipment crate to the installation site, verify that the building clearances allow passage of the following crate dimensions:

Crate Dimension	Minimum Building Clearance
Height	76.71 cm (30.2 in.)
Length	84.84 cm (33.4 in.)
Depth	61.29 cm (24.13 in.)

Instrument weight

The instrument weighs approximately 39.0 kg (86 lbs). The crate weighs approximately 56.7 kg (125 lbs) and has the following specifications.

Component	Width	Depth	Height	Weight
SOLiD™ EZ Bead™ Enricher crate Includes the laptop and other contents. See “System components” on page 10 .	61.6 cm (24.25 in.)	85.1 cm (33.5 in.)	76.8 cm (30.25 in.)	56.7 kg (125 lbs)



WARNING! PHYSICAL INJURY HAZARD. Do not attempt to lift the crated SOLiD™ EZ Bead™ Enricher.

Move and lift the instrument



CAUTION! PHYSICAL INJURY HAZARD. If you decide to lift or move the instrument after it has been installed, do not attempt to lift or move the instrument without the assistance of others, the use of appropriate moving equipment, and proper lifting techniques. Improper lifting can cause painful and permanent back injury. Depending on the weight, moving or lifting an instrument may require two or more persons.



CAUTION! Do not tip the crate on end. Tipping damages the hardware and electronics.

2

Checklists

This chapter includes the following topics:

■ Overview	22
■ Personnel checklist	22
■ Space and layout checklist	22
■ Environmental checklist	23
■ Ventilation and waste collection checklist	23
■ Electrical checklist	23
■ Safety checklist	24
■ Safety checklist	24
■ Materials checklist	24
■ System receipt and inspection checklist	25
■ Move the crated instrument checklist	25

Overview

Before using the checklists, read all previous sections in this guide.

Use the checklists in this chapter to ensure that you have made all preparations for installing the system.

In the following checklists, date each item after verifying its completion.

Personnel checklist

For more information, see [“Assign personnel” on page 9](#).

Date Verified	Designated Personnel
	Site Preparation/Installation coordinator
	Laboratory safety representative
	Laboratory personnel: <ul style="list-style-type: none"> • To ensure that customer-supplied materials are on hand
	Facilities personnel: <ul style="list-style-type: none"> • To provide environmental, electrical, and computer site-preparation requirements • To verify that at least 2 people are available for uncrating

Space and layout checklist

For more information, see [“Space requirements” on page 10](#).

Date Verified	Requirements
	Location is away from: <ul style="list-style-type: none"> • Heating or cooling ducts • Direct sunlight
	Air space of 50 cm (20 in.) around the instrument.
	Space for the computer desk is within 100 cm (40 in) of the SOLiD™ EZ Bead™ Enricher.
	Computer workspace allows for proper ergonomics during use.
	Location accommodates the dimensions and weights specified in “Dimensions and weights” on page 13 .
	Location meets the requirements specified in “Required clearances” on page 13 .

Environmental checklist

For more information, see [“Environmental requirements” on page 13](#).

Date Verified	Requirement
	The altitude does not exceed 2000 m (6562 ft) above sea level.
	The conditions specified in “Temperature and humidity requirements” on page 13 have been met.
	Pollution Degree II – Only nonconductive pollutants, if any, are present.

Ventilation and waste collection checklist

See [“Ventilation and waste collection requirements” on page 14](#).

Date Verified	Requirement
	At least 50 cm (20 in.) of clearance around the instrument for ventilation.
	Liquid waste is collected in the waste bottle inside the instrument.
	The waste bottle handling conditions specified in “Collecting liquid waste” on page 14 have been met.
	The cleaning, or decontaminating, the instrument conditions specified in “Cleaning or decontaminating the instrument” on page 14 .

Electrical checklist

For more information, see [“Electrical requirements” on page 15](#).

Date Verified	Requirement
	The main power supply to the instrument can be immediately disconnected.
	Appropriate grounded power receptacles are available (see “Electrical requirements” on page 15).
	The main power supply to the instrument can accommodate the length of the instrument’s power cord.

Safety checklist

For more information, see [“Safety practices” on page 16](#).

Date Verified	Requirement
	The site is not designated BioSafety level 3 (BSL-3) or BioSafety level 4 (BSL-4).
	Safety practices and policies to protect laboratory personnel from potential hazards are in place and are followed.
	Protection from any sources of hazardous chemicals that may be present in the area.
	Appropriate fire extinguisher is available
	Eye and hand protection are provided
	Eyewash is provided
	Safety shower is available
	First-aid equipment is available
	Spill cleanup equipment is available
	SDSs readily available and accessible

Materials checklist

For more information, see [“Safety and materials requirements” on page 16](#).

Date Verified	Requirement
Materials for general installation	
	Safety glasses and lab coats
	Chemical-resistant disposable gloves (powder free)
	Lint-free tissues
	Isopropanol HPLC-grade or better
	Water, Milli-Q grade
	Three sizes of micropipettors and tips: <ul style="list-style-type: none"> • 1- to 10-μL • 10- to 100-μL • 100- to 1000-μL
	Mini vortexer, picofuge, incubator (37 °C)
Materials for routine operation	
	Materials for routine operation after the installation are available or have been ordered (see “Materials for routine operation” on page 17).


System receipt and inspection checklist

For more information, see [“Receive and inspect the system”](#) on page 18.

Date Verified	Action
	Verified that items on the packing list are those that were ordered. Otherwise, reported to the Applied Biosystems about discrepancies in the packing list.
	Received the system and inspected the shipping containers for mishandling or damage.
	Reported to the Applied Biosystems: <ul style="list-style-type: none"> • Any damage to the shipping containers • Tip indicators or shock indicators that show evidence of mishandling during transit

Move the crated instrument checklist

For more information, see [“Move the crated instrument to the laboratory”](#) on page 19.

Date Verified	Item
	The measured building clearances can accommodate the SOLiD™ EZ Bead™ Enricher crate and pallet jack (see “Required building clearances” on page 19).
	<p>Moved all the <i>crated</i> equipment to the laboratory before the date of the scheduled installation.</p> <p> WARNING! PHYSICAL INJURY HAZARD. Incorrect lifting can cause painful and sometimes permanent back injury. Use proper lifting techniques when lifting or moving items. At least 2 people must be available to move the crated equipment.</p>
	Cleared the installation site of all unnecessary materials.

A

Safety

This appendix covers the following topics:

■ Instrumentation safety	28
Symbols on instruments	28
Locations of safety labels on instrument.	29
General instrument safety	29
Physical hazard safety	30
Electrical safety	30
Workstation safety	31
Safety and electromagnetic compatibility (EMC) standards	32
■ Chemical safety	33
General chemical safety	33
SDSs	34
Chemical waste safety	34
■ Safety alerts	35
General alerts for all chemicals.	35











Instrumentation safety

Symbols on instruments



Electrical symbols on instrument

The following table describes the electrical symbols that may be displayed on Applied Biosystems instruments.

Symbol	Description
	Indicates the On position of the main power switch.
	Indicates the Off position of the main power switch.
	Indicates a standby switch by which the instrument is switched on to the Standby condition. Hazardous voltage may be present if this switch is on standby.
	Indicates the On/Off position of a push-push main power switch.
	Indicates a terminal that may be connected to the signal ground reference of another instrument. This is not a protected ground terminal.
	Indicates a protective grounding terminal that must be connected to earth ground before any other electrical connections are made to the instrument.
	Indicates a terminal that can receive or supply alternating current or voltage.
	Indicates a terminal that can receive or supply alternating or direct current or voltage.


Safety symbols

The following table describes the safety symbols that may be displayed on Applied Biosystems instruments. Each symbol may appear by itself or with text that explains the relevant hazard (see [“Safety labels on instruments” on page 6](#)). These safety symbols may also appear next to DANGERS, WARNINGS, and CAUTIONS that occur in the text of this and other product-support documents.

Symbol	Description
	Indicates that you should consult the manual for further information and to proceed with appropriate caution.
	Indicates the presence of an electrical shock hazard and to proceed with appropriate caution.

Environmental symbols on instrument

The following symbol applies to all Applied Biosystems electrical and electronic products placed on the European market after August 13, 2005.

Symbol	Description
	<p>Do not dispose of this product as unsorted municipal waste. Follow local municipal waste ordinances for proper disposal provisions to reduce the environmental impact of waste electrical and electronic equipment (WEEE).</p> <p>European Union customers: Call your local Applied Biosystems Customer Service office for equipment pick-up and recycling. See www.appliedbiosystems.com for a list of customer service offices in the European Union.</p>


Locations of safety labels on instrument

The SOLiD™ EZ Bead™ Enricher contains safety warnings on the back of the instrument (on the manufacturing and ratings label).

General instrument safety

Moving and lifting the instrument

 **WARNING! PHYSICAL INJURY HAZARD.** Using the instrument in a manner not specified by Applied Biosystems may result in personal injury or damage to the instrument.


 **CAUTION! PHYSICAL INJURY HAZARD.** The instrument is to be moved and positioned only by the personnel specified in this site preparation guide. If you decide to lift or move the instrument after it has been installed, do not attempt to lift or move the instrument without the assistance of others, the use of appropriate moving equipment, and proper lifting techniques. Improper lifting can cause painful and permanent back injury. Depending on the weight, moving or lifting an instrument may require two or more persons.

Operating the instrument

Ensure that anyone who operates the instrument has:

- Received instructions in general safety practices for laboratories.
- Read and understood all applicable Safety Data Sheets (SDSs). See [“About SDSs” on page 34.](#)

Cleaning or decontaminating the instrument

 **CAUTION!** Before using a cleaning or decontamination method other than those recommended, verify with Applied Biosystems that the proposed method will not damage the equipment.



Physical hazard safety

Solvents and
pressurized fluids



WARNING! PHYSICAL INJURY HAZARD. Always wear eye protection when working with solvents or any pressurized fluids.



WARNING! PHYSICAL INJURY HAZARD. To avoid hazards associated with high-pressure fluids in polymeric tubing:

- Be aware that PEEK™ tubing is a polymeric material. Use caution when working with any polymer tubing that is under pressure.
- Always wear eye protection when near pressurized polymer tubing.
- Extinguish all nearby flames if you use flammable solvents.
- Do not use PEEK tubing that has been severely stressed or kinked.
- Do not use PEEK tubing with tetrahydrofuran or nitric and sulfuric acids.
- Be aware that methylene chloride and dimethyl sulfoxide cause PEEK tubing to swell and greatly reduce the rupture pressure of the tubing.
- Be aware that high solvent flow rates (~40 mL/min) may cause a static charge to build up on the surface of the tubing. Electrical sparks may result.

Electrical safety



WARNING! ELECTRICAL SHOCK HAZARD. Severe electrical shock can result from operating the SOLiD™ EZ Bead™ Enricher without its instrument panels in place. Do not remove instrument panels. High-voltage contacts are exposed when instrument panels are removed from the instrument.

Power



WARNING! ELECTRICAL HAZARD. Grounding circuit continuity is required for the safe operation of equipment. Never operate equipment with the grounding conductor disconnected.



WARNING! ELECTRICAL HAZARD. Use properly configured and approved line cords for the voltage supply in your facility.



WARNING! ELECTRICAL HAZARD. Plug the system into a properly grounded receptacle with adequate current capacity.

Overvoltage rating

The Applied Biosystems SOLiD™ EZ Bead™ Enricher has an installation (overvoltage) category of II, and is classified as a portable equipment.

Workstation safety

Correct ergonomic configuration of your workstation can reduce or prevent effects such as fatigue, pain, and strain. Minimize or eliminate these effects by configuring your workstation to promote neutral or relaxed working positions.



CAUTION! MUSCULOSKELETAL AND REPETITIVE MOTION HAZARD.

These hazards are caused by potential risk factors that include but are not limited to repetitive motion, awkward posture, forceful exertion, holding static unhealthy positions, contact pressure, and other workstation environmental factors.

To minimize musculoskeletal and repetitive motion risks:

- Use equipment that comfortably supports you in neutral working positions and allows adequate accessibility to the keyboard, monitor, and mouse.
- Position the keyboard, mouse, and monitor to promote relaxed body and head postures.



Safety and electromagnetic compatibility (EMC) standards

This section provides information on:

- U.S. and Canadian safety standards
- Canadian EMC standard
- European safety and EMC standards
- Australian EMC Standards

U.S. and Canadian
safety
standards



The SOLiD™ EZ Bead™ Enricher has been tested to and complies with standard:

UL 61010-1:2nd Edition/CSA C22.2 No. 61010-1, "Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use, Part 1: General Requirements."

Canadian EMC
standard

This instrument has been tested to and complies with ICES-001, Issue 3: "Industrial, Scientific, and Medical Radio Frequency Generators."

European safety and
EMC
standards



Safety

This instrument meets European requirements for safety (Low Voltage Directive 2006/95/EC). This instrument has been tested to and complies with standards EN 61010-1:2001, "Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use, Part 1: General Requirements."

EMC

This instrument meets European requirements for emission and immunity (EMC Directive 2004/108/EC). This instrument has been tested to and complies with standard EN 61326 (Group 1, Class B), "Electrical Equipment for Measurement, Control and Laboratory Use – EMC Requirements."

Australian EMC
Standards



This instrument has been tested to and complies with standard AS/NZS 2064, "Limits and Methods Measurement of Electromagnetic Disturbance Characteristics of Industrial, Scientific, and Medical (ISM) Radio-frequency Equipment."

Chemical safety

General chemical safety

Chemical hazard warning



WARNING! CHEMICAL HAZARD. Before handling any chemicals, refer to the Safety Data Sheets (SDSs) provided by the manufacturer and observe all relevant precautions.



WARNING! CHEMICAL HAZARD. All chemicals in the instrument, including liquid in the lines, are potentially hazardous. Always determine what chemicals have been used in the instrument before changing reagents or instrument components. Wear appropriate eyewear, protective clothing, and gloves when working on the instrument.



WARNING! CHEMICAL HAZARD. Four-liter reagent and waste bottles can crack and leak. Each 4-liter bottle should be secured in a low-density polyethylene safety container with the cover fastened and the handles locked in the upright position. Wear appropriate eyewear, clothing, and gloves when handling reagent and waste bottles.



WARNING! CHEMICAL STORAGE HAZARD. Never collect or store waste in a glass container because of the risk of breaking or shattering. Reagent and waste bottles can crack and leak. Each waste bottle should be secured in a low-density polyethylene safety container with the cover fastened and the handles locked in the upright position. Wear appropriate eyewear, clothing, and gloves when handling reagent and waste bottles.

Chemical safety guidelines

To minimize the hazards of chemicals:

- Read and understand the Safety Data Sheets (SDSs) provided by the chemical manufacturer before you store, handle, or work with any chemicals or hazardous materials. (See “About SDSs” on page 34.)
- Minimize contact with chemicals. Wear appropriate personal protective equipment when handling chemicals (for example, safety glasses, gloves, or protective clothing). For additional safety guidelines, consult the Safety Data Sheets (SDSs) provided by the manufacturer.
- Minimize the inhalation of chemicals. Do not leave chemical containers open. Use only with adequate ventilation (for example, fume hood). For additional safety guidelines, consult the Safety Data Sheets (SDSs) provided by the manufacturer.
- Check regularly for chemical leaks or spills. If a leak or spill occurs, follow the manufacturer’s cleanup procedures as recommended in the Safety Data Sheets (SDSs) provided by the manufacturer.
- Comply with all local, state/provincial, or national laws and regulations related to chemical storage, handling, and disposal.



SDSs

About SDSs

Chemical manufacturers supply current Safety Data Sheets (SDSs) with shipments of hazardous chemicals to new customers. They also provide SDSs with the first shipment of a hazardous chemical to a customer after an SDS has been updated. SDSs provide the safety information you need to store, handle, transport, and dispose of the chemicals safely.

Each time you receive a new SDS packaged with a hazardous chemical, be sure to replace the appropriate SDS in your files.

Obtaining SDSs

The Safety Data Sheets (SDSs), for any chemical supplied by Applied Biosystems, is available to you free 24 hours a day. To obtain Safety Data Sheets (SDSs):

1. Go to www.appliedbiosystems.com, click **Support**, then select **SDS**.
2. In the Keyword Search field, enter the chemical name, product name, SDS part number, or other information that appears in the SDS of interest. Select the language of your choice, then click **Search**.
3. Find the document of interest, right-click the document title, then select any of the following:
 - **Open** – To view the document
 - **Print Target** – To print the document
 - **Save Target As** – To download a PDF version of the document to a destination that you choose



Note: For the SDSs of chemicals not distributed by Life Technologies and Applied Biosystems, contact the chemical manufacturer.

Chemical waste safety

Chemical waste hazards



CAUTION! HAZARDOUS WASTE. Refer to Safety Data Sheets (SDSs) and local regulations for handling and disposal.



WARNING! CHEMICAL WASTE HAZARD. Wastes produced by Applied Biosystems instruments are potentially hazardous and can cause injury, illness, or death.



WARNING! CHEMICAL STORAGE HAZARD. Never collect or store waste in a glass container because of the risk of breaking or shattering. Reagent and waste bottles can crack and leak. Each waste bottle should be secured in a low-density polyethylene safety container with the cover fastened and the handles locked in the upright position. Wear appropriate eyewear, clothing, and gloves when handling reagent and waste bottles.

Chemical waste safety guidelines

To minimize the hazards of chemical waste:

- Read and understand the Safety Data Sheets (SDSs) provided by the manufacturers of the chemicals in the waste container before you store, handle, or dispose of chemical waste.
- Provide primary and secondary waste containers. (A primary waste container holds the immediate waste. A secondary container contains spills or leaks from the primary container. Both containers must be compatible with the waste material and meet federal, state, and local requirements for container storage.)
- Minimize contact with chemicals. Wear appropriate personal protective equipment when handling chemicals (for example, safety glasses, gloves, or protective clothing). For additional safety guidelines, consult the SDSs.
- Minimize the inhalation of chemicals. Do not leave chemical containers open. Use only with adequate ventilation (for example, fume hood). For additional safety guidelines, consult the SDSs.
- After emptying a waste container, seal it with the cap provided.
- Dispose of the contents of the waste tray and waste bottle in accordance with good laboratory practices and local, state/provincial, or national environmental and health regulations.

Waste disposal

If potentially hazardous waste is generated when you operate the instrument, you must:

- Characterize (by analysis if necessary) the waste generated by the particular applications, reagents, and substrates used in your laboratory.
- Ensure the health and safety of all personnel in your laboratory.
- Ensure that the instrument waste is stored, transferred, transported, and disposed of according to all local, state/provincial, and/or national regulations.

Safety alerts

For the definitions of the alert words **IMPORTANT**, **CAUTION**, **WARNING**, and **DANGER**, see [“Safety alert words” on page 5](#).

General alerts for all chemicals

Avoid contact with (skin, eyes, and/or clothing). Read the Safety Data Sheets (SDSs), and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves.





Documentation and Support

Related documentation

The following related documents are shipped with the system:

Document and part number	Description
<i>Applied Biosystems SOLiD™EZ Bead™ Enricher Getting Started Guide (PN 4443496)</i>	Describes the SOLiD™ EZ Bead™ Enricher hardware and software and provides information on preparing, maintaining, and troubleshooting the system. Also describes how to perform emulsion break and enrichment using the SOLiD™ EZ Bead™ Enricher.
<i>Applied Biosystems SOLiD™EZ Bead™ Enricher Quick Reference Card (PN 4443497)</i>	The document is designed to help you quickly learn to use the SOLiD™ EZ Bead™ Enricher.



Note: For additional documentation, see [“Obtaining support” on page 37](#).

Obtaining support

For the latest services and support information for all locations, go to:

www.appliedbiosystems.com

At the Applied Biosystems web site, you can:

- Access worldwide telephone and fax numbers to contact Applied Biosystems Technical Support and Sales facilities.
- Search through frequently asked questions (FAQs).
- Submit a question directly to Technical Support.
- Order Applied Biosystems user documents, SDSs, certificates of analysis, and other related documents.
- Download PDF documents.
- Obtain information about customer training.
- Download software updates and patches.

Index

B

biosafety levels 10
building clearances, required 19

C

CAUTION, description 5
checklists
 electrical 23
 environmental 23
 inspection 25
 layout 22
 materials 24
 moving the instrument 25
 personnel assignments 22
 safety 24
 site 22
 site preparation 21
 space 22
 system receipt 25
 ventilation 23
 waste collection 23
chemical safety 33
chemical waste safety 34, 35
clearances
 building 19
 required 13
 system components 13
consumables, ordering 17
crate
 See also moving the crated system
 dimensions 19
 reporting shipping damage or tipping 18

D

damage, reporting 18
DANGER, description 5
dimensions of system components 13
documentation, related 37

E

electrical 15
electrical checklist 23
electrical requirements 15
electrical safety 30
electrical specifications 15
electromagnetic compatibility standards. *See* EMC standards
EMC standards 32
environmental checklist 23
environmental requirements 13
ergonomics, safety 31

F

facilities personnel, tasks 9
fire extinguisher 16

G

guidelines
 chemical safety 33
 chemical waste disposal 34
 chemical waste safety 35

H

hazard icons. *See* safety symbols, on instruments 28
hazard symbols. *See* safety symbols, on instruments
hazards. *See* safety

I

IMPORTANT, description 5
inspection checklist 25
installation
 checklist 8
 conditions for postponing 8
 scheduling 8
installation category 30
installation coordinator 22, 24
instrument operation, safety 29

L

laboratory layout, typical 12
 laboratory personnel, tasks 9
 laboratory safety representative 9
 layout checklist 22
 lifting, safety 19
 installation site. *See* laboratory layout

M

materials
 checklist 24
 for routine operation 17
 moving the crated system
 building clearances 19
 no lifting caution 19
 safety 19
 weight 19
 moving the instrument checklist 25
 MSDS. *See* SDS

O

overvoltage category (rating) 30

P

personnel assignments 9, 22
 personnel checklist 22
 personnel tasks 9
 physical hazard safety 30
 positioning system components 12
 preinstallation review of site preparation 8
 pressurized fluids, safety 30

R

repetitive motion, safety 31
 reporting, shipping damage 18
 requirements
 component clearances and positioning 13
 electrical 15
 environmental 13
 no tipping 19
 physical clearances 13
 quick disconnect 10
 space 10, 13
 system layout 12
 temperature and humidity 13

S

safety
 before operating the instrument 29
 checklist 24
 chemical 33
 chemical waste 34
 electrical 30
 ergonomic 31
 guidelines 33, 34, 35
 instrument operation 29
 moving and lifting 19
 physical hazard 30
 pressurized fluids. *See also* compressed gases,
 safety
 repetitive motion 31
 solvents 30
 standards 32
 workstation 31
 safety devices, availability 16
 safety equipment, availability 16
 safety information
 electrical quick disconnect 10
 lifting 19
 safety labels, on instruments 6, 29
 safety practices, required 16
 safety standards 32
 safety symbols, on instruments 28
 SDSs
 about 6
 description 34
 obtaining 34, 37
 shipping crate. *See* Crate
 shipping damage, reporting 18
 shipping list, verifying 10, 18
 shipping, reporting damage 18
 site checklist 22
 site preparation
 See also requirements
 checklists 21
 flowchart 8
 overview 8
 schedule 8
 tasks 9
 tasks overview 8
 site preparation process, overview 8
 site. *See* laboratory
 solvents, safety 30
 space checklist 22

- space requirements 10, 13
- specifications 15
- standards
 - EMC 32
 - safety 32
- symbols, safety 28
- system
 - building clearances 19
 - components 10
 - dimensions 13
 - layout 12
 - positioning components 10, 12
 - requirements 10
 - weight 13
- system layout requirements 12
- system receipt checklist 25

T

- tasks
 - facilities personnel 9
 - laboratory personnel 9
 - laboratory safety representative 9
 - personnel 9
- temperature and humidity, acceptable range 13
- TOF/TOF Proteomics System
 - components shipped 10, 18
 - dimensions of components 13
 - weight 13
- training, information on 37

V

- ventilation
 - checklist 23

W

- WARNING, description 5
- WARNINGs
 - lifting 19
 - tipping the instrument 19
- waste collection checklist 23
- waste disposal, guidelines 35
- waste profiles, description 35
- weight of system components 13
- workstation safety 31

Part Number 4454036 Rev. B 05/2010



Headquarters
5791 Van Allen Way | Carlsbad, CA 92008 USA
Phone 760.603.7200
www.lifetechnologies.com

Technical Resources and Support
For the latest technical resources and support information
for all locations, please refer to our Web site at
www.appliedbiosystems.com/support