2400 Elemental Analyzer: Site Readiness Instructions

a) Order Review:
Please review this order. Record any discrepancies between the PerkinElmer order and your Purchase Order, along with any agreements or commitments made by your PerkinElmer Sales Representative that are NOT listed on the order. Let your Customer Care Representative know about these discrepancies and/or commitments with your Site Readiness Confirmation.

b) Site Requirements:

Bench Space

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Dimensions</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2400 Elemental Analyzer</td>
<td>Width</td>
<td>Depth</td>
<td>Height</td>
<td>Weight</td>
</tr>
<tr>
<td></td>
<td>61.0 cm</td>
<td>55.0 cm</td>
<td>55.0 cm</td>
<td>45 kg (100 lbs)</td>
</tr>
<tr>
<td></td>
<td>(22.0 in)</td>
<td>(22.0 in)</td>
<td>(22.0 in)</td>
<td></td>
</tr>
<tr>
<td>Computer</td>
<td>Width</td>
<td>Depth</td>
<td>Height</td>
<td>Weight</td>
</tr>
<tr>
<td></td>
<td>86.0 cm</td>
<td>48.0 cm</td>
<td>43.0 cm</td>
<td>~4.5 kg (~10 lbs)</td>
</tr>
<tr>
<td></td>
<td>(34.0 in)</td>
<td>(19.0 in)</td>
<td>(17.0 in)</td>
<td></td>
</tr>
</tbody>
</table>

A bench top of 140 cm (55 in) W x 58 cm (23 in) D will accommodate a PE 2400 and an AD-6 Autobalance and the printer. The Autobalance weighing unit may be turned so 14 cm (5.5 in) is the bench space needed rather than 26 cm (10 in).

Peripherals, Accessories

<table>
<thead>
<tr>
<th>AD-4 or AD-6 Autobalance</th>
<th>Dimensions</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Unit</td>
<td>Width</td>
<td>Depth</td>
<td>Height</td>
<td>Weight</td>
</tr>
<tr>
<td></td>
<td>26.0 cm</td>
<td>45.0 cm</td>
<td>19 cm</td>
<td>16.5 kg (36 lbs)</td>
</tr>
<tr>
<td></td>
<td>(10.0 in)</td>
<td>(18.0 in)</td>
<td>(7.5 in)</td>
<td></td>
</tr>
<tr>
<td>Weighing Unit</td>
<td>Width</td>
<td>Depth</td>
<td>Height</td>
<td>Weight</td>
</tr>
<tr>
<td></td>
<td>26.0 cm</td>
<td>14.0 cm</td>
<td>21 cm</td>
<td>16.5 kg (36 lbs)</td>
</tr>
<tr>
<td></td>
<td>(10.0 in)</td>
<td>(5.5 in)</td>
<td>(8.0 in)</td>
<td></td>
</tr>
<tr>
<td>Printer</td>
<td>Width</td>
<td>Depth</td>
<td>Height</td>
<td>Weight</td>
</tr>
<tr>
<td></td>
<td>38.0 cm</td>
<td>33.0 cm</td>
<td>14.0 cm</td>
<td>5.0 kg (11.0 lbs)</td>
</tr>
<tr>
<td></td>
<td>(15.0 in)</td>
<td>(13.0 in)</td>
<td>(5.5 in)</td>
<td></td>
</tr>
</tbody>
</table>

Column Switching Accessory is available but requires no additional space since it is installed in the PE 2400

Other

It will be necessary to have a 30.5 cm (12 in) W x 18 cm (7 in) D area near the balance to prepare and crimp samples. Additional space will be required if one of the sealing units is being used.
c) Electrical Requirements:

**Power Specifications**

The complete PE 2400 system (analyzer, Autobalance and printer) requires an independent 20 amp line. The power source should not be associated with heavy equipment, such as large motors, or with possible sources of high-frequency interference, such as photocopying systems, discharge lamps, or radio transmitters.

**Power Outlets**

<table>
<thead>
<tr>
<th>2400 Elemental Analyzer</th>
<th>1 standard outlet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Accessories</td>
<td>As Required</td>
</tr>
</tbody>
</table>

All outlets should share a common earth ground.

d) Gas Requirements:

<table>
<thead>
<tr>
<th>Gas</th>
<th>Purity</th>
<th>Cylinder</th>
<th>Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helium (Preferred) or Argon, carrier gas</td>
<td>Pre-purified, 99.995 mole percent minimum purity</td>
<td>Size 1A cylinder, 6 cubic meters (200 cubic feet)</td>
<td>Cylinder valve outlet must be a CGA # 580 connection</td>
</tr>
<tr>
<td>Oxygen, combustion gas</td>
<td>99.995 mole percent minimum purity</td>
<td>Size 2 cylinder, 2.6 cubic meters (86 cubic feet) or larger</td>
<td>Cylinder valve outlet must be a CGA # 540 connection</td>
</tr>
<tr>
<td>Nitrogen, air or argon, pneumatic gas</td>
<td>99 mole percent purity, free of oil and other contaminants</td>
<td>Cylinder valve outlet must be a CGA # 590 connection for nitrogen and air</td>
<td>Cylinder valve outlet must be a CGA # 580 connection for argon.</td>
</tr>
<tr>
<td>Helium/Hydrogen mixture, pyrolysis gas for Oxygen Mode or to regenerate copper reagent</td>
<td>99.995 mole percent minimum purity of 5-8% hydrogen in helium</td>
<td>Size 1A cylinder, 6 cubic meters (200 cubic feet)</td>
<td>Cylinder valve outlet must be CGA # 350 connection</td>
</tr>
</tbody>
</table>

Rev. 6
Other:
It is strongly recommended that the gas tanks be installed close enough to the instrument so the gas lines supplied with the instrument can be used for initial installation.

If gas supplies are located more than 2.0 meters (7 feet) away from the analyzer, you should use a 1/4 inch plumbing line (copper or stainless steel tubing). The plumbing line must be clean and free of any contaminants.

It is recommended that each tank be dedicated to its particular function in the operation of the analyzer. Tanks should not be "teed" or used for more than one purpose.

GAS REGULATORS:
Helium, argon (carrier gases), oxygen (combustion gas) and helium/hydrogen mixture (pyrolysis gas) ALL require dual-stage stainless steel diaphragm regulators for high purity gases. Outlet pressure from 35 - 415 kPa (5 - 60 psig). Only use gas regulators having safety blow-out valves, which do not exceed 690 kPa (100 psig).

Nitrogen, air or argon for driving pneumatics requires a single-stage metal diaphragm regulator. If a house supply of pneumatic gas is used, a regulator should be install on the line going to the instrument to insure that the recommended pressure is not exceed. If the pressure is exceeded the pneumatic valves can be damaged.

e) Environmental Requirements:

Laboratory Environment

<table>
<thead>
<tr>
<th>Temperature range</th>
<th>12 to 32ºC (55º F to 90º F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humidity</td>
<td>20 - 80% non-condensing</td>
</tr>
</tbody>
</table>

The analyzer and Autobalance should be placed in an area where there are no dramatic air or temperature changes. These instruments should not be positioned next to doors, beneath air conditioning ducts, or in any area where stability of operation would be adversely affected.

f) Safety Requirements:

Gas Cylinders and Gas Delivery Lines
Lock down straps should be present on all gas cylinders.

Combustible Gases
Safety blow-out valves are necessary on the pyrolysis and oxygen regulators

Reagents
Material safety data sheets are included with all the reagents
**Ventilation**
As required

**Other**
When packing the reaction tubes for the analyzer the precautions described in the manual are to be followed.

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**g) PC Configuration:**
Windows XP Service Pack 2

Configuration Tested and Supported:
Dell GX-280 Windows XP Service Pack 2
- Model: Dell OptiPlex GX-280, 2.8 GHz Intel Pentium 4, 800 MHz front Side Bus (FSB), 1M L2 cache
- Chasis: Small Mini Tower (SMT)
- Factory Installed Operating System: Microsoft Windows XP Professional SP2
- Memory: 512 MB, Non-ECC 400 MHz, DDR2 2x256
- Hard Drive: 80GB SATA, 7200 RPM
- Networking: Broadcom, 10/100/1000, Ethernet remote Wake Up and PXE Support
- External I/O Ports: 8 USB 2.0 (2 front, 6 rear), 1 Ethernet (RJ45), 2 serial (9 pin)(16550 compatible), 1 parallel (25-hole, biderectioinal), 1 VGA out
- Expansion Slots: 3 PCI up to 4.2"Hx11"L, 1 PCIe x 1 up to 4.2"Hx9"L, 1 PCIe16
- CD-RW: 48xMax CD Rewritable Drive
- Video: Integrated video, Intel DVMT
- Floppy Drive: 3.5" 1.44MB diskette drive standard
- Mouse: Dell USB 2-button optical mouse with scroll
- Keyboard: Dell USB Keyboard (No Hot Keys)
- Audio: Integrated ADI 1981 AC97 codec

**NOTES:**

1. Due to numerous differences in PC hardware, PerkinElmer can not guarantee that our software will run on a customer supplied computer, even if the system meets the minimum configuration requirements. Installation of a customer supplied PC is available at prevailing service rates. If a return visit is required to complete the installation of the elemental analyzer due to computer incompatibility, the customer is responsible for all costs associated with the return visit.

2. If you are installing the EA 2400 Data Manager software on a computer (i.e. customer supplied) that already has Microsoft SQL server installed you must make sure that the version is Microsoft SQL 2000, older versions of Microsoft SQL are not compatible with the EA 2400 Data Manager Software.
3. Note: If you are installing the software on a computer (i.e. customer supplied) that already has SQL/MSDE installed you must make sure that the mode of authentication is set to SQL Server and Windows. If you already have Microsoft SQL Server/MSDE installed and the authentication is set to Windows authentication.

h) Installation Overview:

The customer is to unpack and verify the layout of Instruments and accessories with an eye to possible missing or damaged parts.

The instrument should be placed on the bench along with associated components.

Customer to hold Packing Material for CSE
If PerkinElmer is installing your instrument, you should hold the instrument packing material for the Customer Service Engineer (CSE).

Physical Installation (Instrument, PC and Software)
- The physical installation will vary based on system configuration.
- An appropriate analysis kit must be available at the time of installation.
- A PE 2400 Series Dot Matrix Printer (N2410021/0022) or computer (see minimum requirements above) is required to install and operate the system (EA 2400 SW is included with the instrument)
- EA 2400 SW will be installed (Enhanced Security or Non-Enhanced Security). The type installed is the decision of the customer at the time of install. (NOTE: If ES is selected, an administrator or IT person must be available at the time of install)

Physical Installation (Accessories)
As Required

Installation Test Standards
If we install your instrument, our Service Engineer will test the instrument in order to insure that its performance meets PerkinElmer’s manufacturing specifications.

Customer Orientation
The customer must be available for an instrumentation orientation.

i) Miscellaneous:
All reference materials required for installation are included in the Option kits for each mode of operation.

Sample Preparation:
Methods for weighing the samples and crimping the capsules are described in the manual.

Weighing device A laboratory balance capable of weighing to ≤0.001 mg is required to accurately weigh reference materials used calibration and verification.