

Laboratory Instrument Pre-purchase Risk Assessment Checklist

Acquiring a new piece of laboratory equipment is a large investment, and it can be challenging to determine ahead of time what will be the best choice for your laboratory. Use this pre-purchase checklist to navigate the process with confidence!

This checklist allows users to identify, characterize and mitigate risks related to an instrument’s design, operation and infrastructure needs, or maintenance and training requirements. By identifying such hazards, laboratories and manufacturers can address any issues and potential risks prior to instrument purchase and installation.

Assessment Instructions

- Use the clickable checkboxes to record your answers and record notes in the fillable fields in the comment columns, where needed.
- Questions with an * are likely to require consultation with the manufacturer.
- While comment fields are scrollable, if you wish to print the assessment it may be easier to put overflow notes in the **Additional Information (page 6)** section.
- This may not be an all-encompassing assessment, as each facility has its own procedures. Additional methods—including risk assessments—should be performed by technical supervisors, laboratorians who perform work with the instrument/agents, and safety and quality specialists.
- For questions about this tool, contact APHL at biosafety@aphl.org.

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Assessment Information

Instrument Name:

Instrument's Intended Use:

Model Number:

Manufacturer:

Instrument Dimensions:

Name of Assessor:

Lab Unit/Section:

Date of Assessment:

Instrument Design

Evaluate whether biosafety considerations have been integrated into the instrument design, including decontamination and risk mitigation. It is recommended you work with the manufacturer to complete this portion.

Instrument Questions	Answer	Comments
* Were biosafety considerations taken into account in the design phase for decontamination/sterilization?	Yes No	
* Were biosafety considerations taken into account in the design phase for disposable parts?	Yes No	
* Was the instrument designed as a closed system to fully contain the specimen during processing?	Yes No	
* Are additional biosafety considerations outlined?	Yes No	
* Are any biosafety mitigation tools incorporated? If yes, please list the mitigation tools incorporated (e.g., high efficiency particulate air (HEPA) filters, alarms, door locks, etc.).	Yes No	
* Does the manufacturer provide a risk assessment?	Yes No	
Will the instrument be integrated into the existing information technology (IT) infrastructure?	Yes No	

Operations

Assess biosafety/exposure risks to instrument operators during routine use of the instrument.

Operations Questions	Answer	Comments
<p>Is the specimen rendered non-viable before instrument use? (e.g., inactivated)</p>	<p>Yes</p> <p>No</p>	
<p>Does the instrument require manual sample handling at multiple points? (e.g., pipetting, reagent mixing)</p>	<p>Yes</p> <p>No</p>	
<p>Are there potential risks for exposure when the operator interacts with the instrument? If yes, list the potential risks for exposure.</p>	<p>Yes</p> <p>No</p>	
<p>Is there a potential for aerosol generation during use?</p>	<p>Yes</p> <p>No</p>	
<p>Is personal protective equipment (PPE) necessary for routine use of the instrument, beyond following standard precautions? If yes, list any additional PPE required.</p>	<p>Yes</p> <p>No</p>	
<p>Are the manufacturer's instructions/user manual on biosafety procedures for testing, cleaning, disinfection/decontamination and maintenance clear and specific?</p>	<p>Yes</p> <p>No</p>	
<p>Are there any hazardous materials (e.g., chemical reagents) that the operator will be exposed to? If yes, list the hazardous materials.</p>	<p>Yes</p> <p>No</p>	
<p>Are there any points where the operator must empty waste that places them at risk of exposure?</p>	<p>Yes</p> <p>No</p>	
<p>* Does the manufacturer have a policy about identifying high consequence or emerging pathogen specimens post testing? If yes, describe the policy (e.g., warranty, decontamination, etc.).</p>	<p>Yes</p> <p>No</p>	
<p>Will the instrument warranty and service contract remain valid following decontamination procedures after testing a high consequence/emerging pathogen sample on the instrument?</p>	<p>Yes</p> <p>No</p>	

Maintenance

Assess routine risks associated with routine maintenance and servicing.

Maintenance Questions	Answer	Comments
* Does routine maintenance of the instrument pose any risk of exposure?	Yes No	
Is a maintenance contract included? If so, what are the terms? (e.g., 24/7 technical support)	Yes No	
Are there any potential implications or considerations for decontamination during the service or warranty claim process?	Yes No	

Instrument Placement

Evaluate factors such as space, ventilation, noise levels and infrastructure needs to properly consider where the instrument will be installed.

Placement Questions	Answer	Comments
If located in a high traffic area, will there be any risk to individuals passing through the area?	Yes No	
* Does the instrument have to be located near a sink or have access to plumbing?	Yes No	
Does the instrument require a connection to a gas supply? (e.g., CO ₂ , nitrogen, hydrogen, etc.)	Yes No	
Does the instrument require a connection to a vacuum or compressed air system, or have other facility supply needs/adaptations?	Yes No	
* Does the instrument have air handling issues to consider? (e.g., requires direct ducting)	Yes No	

Placement Questions	Answer	Comments
<p>* Does the instrument have any electrical, heating, cooling, ventilation and/or plumbing issues to consider? If yes, please describe. For electrical needs, include the specific power requirements (e.g., 120V, 220V), and consider whether the instrument will share a circuit with other equipment (e.g., refrigerators, freezers) that may increase the risk of circuit overload or breaker trips.</p>	<p>Yes</p> <p>No</p>	
<p>Does the instrument require a specific humidity and/or temperature range? If yes, how will it be monitored or generated? Will it pose an infectious risk?</p>	<p>Yes</p> <p>No</p>	
<p>Does the instrument require an emergency backup connection? (e.g., uninterruptible power supply, generator, etc.)</p>	<p>Yes</p> <p>No</p>	
<p>How does data flow from the instrument to the laboratory information system? Are there any information security concerns?</p>	<p>Yes</p> <p>No</p>	
<p>Is data stored in a cloud system?</p>	<p>Yes</p> <p>No</p>	
<p>* Does the instrument generate noise higher than 85 decibels?¹</p>	<p>Yes</p> <p>No</p>	

Training

Ensure training resources are available for staff and service technicians.

Training Questions	Answer	Comments
<p>* Are there training materials for staff that focus on instrument operation, routine cleaning, preventative maintenance disinfection practices?</p>	<p>Yes</p> <p>No</p>	
<p>* Does the manufacturer provide biosafety training to their service technicians?</p>	<p>Yes</p> <p>No</p>	

¹ Sources: [Occupational Noise Exposure standard: 29 CFR 1910.95 or the Occupational Safety and Health Act](#); [Occupational Safety and Health Standards Fact Sheet: Laboratory Safety Noise](#)

Additional Information



Association of Public Health Laboratories

The Association of Public Health Laboratories (APHL) works to strengthen laboratory systems serving the public's health in the US and globally. APHL's member laboratories protect the public's health by monitoring and detecting infectious and foodborne diseases, environmental contaminants, terrorist agents, genetic disorders in newborns and other diverse health threats.

7700 Wisconsin Avenue, Suite 1000 Bethesda, MD 20814 | 240.485.2745 | www.aphl.org

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