



Microvolume UV-Vis and Fluorescence

# NanoDrop Products

## Safety Guide

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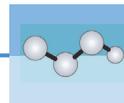
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**For Research Use Only. This instrument or accessory is not a medical device and is not intended to be used for the prevention, diagnosis, treatment or cure of disease.**



**WARNING** Avoid an explosion or fire hazard. This instrument or accessory is not designed for use in an explosive atmosphere.



# Safety Information

Before installation, please read this manual and follow its recommendations for the system.

## Safety and Special Notices

In many cases, safety information is displayed on the instrument itself. The symbol indicates that there is additional safety information in the documentation and failure to heed the safety precautions could result in injury.



**WARNING** Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



**CAUTION** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

**NOTICE** Follow instructions with this label to avoid damaging the system hardware or losing data.

**Note** Contains helpful supplementary information.

The following table lists some of the safety symbols and their indications that may appear in the user documentation.

Symbols	Indication
	This is a mandatory action symbol. It is used to indicate that an action shall be taken to avoid a hazard.
	This is a prohibition symbol. The graphic in this symbol is used to alert the user to actions that shall not be taken or shall be stopped.
	This is the general warning sign. Failure to heed the safety precautions could result in personal injury.
	<b>Avoid shock hazard.</b> If you see either of these symbols, there is a risk of electrical shock in the vicinity. Only qualified persons shall perform the related procedures.
	<b>Avoid fire hazard.</b> Do not test flammable or explosive samples. Read and follow the associated instructions carefully.
	<b>Avoid eye injury.</b> If you see these symbols, there is a risk of exposure to ultraviolet light, which can harm your eyes if safety glasses are not worn.
	<b>Avoid Biohazard.</b> This icon informs of a biological hazard in the area. Read and follow the associated instructions carefully.
	<b>Avoid chemical burns.</b> This symbol alerts you to possible skin irritation. Wear gloves when handling toxic, carcinogenic, mutagenic, or corrosive or irritant chemicals. Use approved containers and proper procedures to dispose of waste.

Symbol	Description
	Alternating current
	Earth terminal or ground
	Direct current
	Protective conductor terminal
	Frame or chassis terminal
	Fuse
	Power on
	Power off

## When the System Arrives



**WARNING** Avoid personal injury. If this equipment is used in a manner not specified in the accompanying documentation, the protection provided by the equipment may be impaired.



**CAUTION** Avoid personal injury. Perform *only* those procedures described in the documentation. If there are other problems, contact us. Any other service must be performed by trained personnel.



**CAUTION** Avoid shock hazard. Do not remove the cover of the instrument. All service to the instrument must be performed by trained personnel.

When the instrument arrives, check the exterior of the shipping box for signs of damage. If damage is apparent, contact us or your local distributor for instructions.

- Move the shipping box to the installation location at least 24 hours before installation.

### NOTICE

- Inside the shipping box, the instrument is sealed in a plastic bag to keep the unit dry.
  - Allow 24 hours for the instrument to reach room temperature before opening the bag. If the bag is opened before the instrument reaches room temperature, moisture could condense on the optical components and cause permanent damage.
- Keep the instrument upright at all times.

The warranty will not cover:

- Damage due to improper moving techniques.
- Damage due to removing the sealed plastic bag before the instrument has come to room temperature.

**Note** It is important to have all system utilities installed before the instrument arrives. Utility installations must comply with all local building and safety codes.

## Lifting or Moving the Instrument

To avoid risk of injury, use proper lifting techniques when lifting or moving the instrument or other system components.

## Electrical Requirements and Safety

Power supplied to the system must be from dedicated, uninterrupted sources. Power must be free of voltage dropouts, transient spikes, frequency shifts, and other line disturbances that impair reliable performance.

If you suspect power quality problems at your site, or if your system will be installed in a heavy industrial environment, we recommend a power quality audit before installation. Contact us or your local electrical authority for more information.

**CAUTION** Avoid shock hazard.

- Only a qualified person using the appropriate measuring device shall check the line voltage, current and frequency.
- Only our trained and certified service representatives shall attempt to service a component that carries this symbol.
- If a protective cover on a system component appears damaged, turn off the system and secure it against any unintended operation. Always examine the protective cover for transport stresses after shipping.
- Even after this instrument has been disconnected from all voltage sources, capacitors may remain charged for up to 30 seconds and can cause an electrical shock.
- Do not allow liquid to run over or into any surface where it may gain entry into the instrument.
- Do not attempt to remove the cover of the instrument.



## Grounding



**CAUTION** Avoid shock hazard. Each wall outlet used must be equipped with a ground. The ground must be a noncurrent-carrying wire connected to earth ground at the main distribution box.

## Power Cords

Be sure to use an appropriate grounded power cord for your electrical service. If the power cord received is not appropriate for the electrical system in your location, or if the power cord becomes damaged, contact us.

## Power Line Conditioning Accessories

A UPS reduces the probability of a system shutdown if power is lost elsewhere in the building. Power line conditioners (which ensure that your service is free from sags, surges or other line disturbances) also are available in the U.S.A. from us for 120 volt operation. Line conditioners for 220 volt operation can be purchased locally. Contact technical support for information about power conditioners and UPS.

## Electrical Service Specifications

The following table lists the specifications for electrical service. Contact our service representative in your area if you have questions about the requirements.

Requirements	Specifications
Input current	5.0 A (max.)
Input voltage	100-240 VAC
Line frequency	50-60 Hz
Line disturbances	Sags, surges or other line disturbances must not exceed 10% of input voltage (even for a half cycle).
Noise	< 2 V (common mode) < 20 V (normal mode)

## Power Consumption

Generally, 50% more power should be available than the entire system (including accessories) typically uses. Maximum power consumption and heat dissipation specifications for the spectrometer and accessories are shown below. The values are approximate.

Item	Power Consumption	Max. Heat Dissipation
instrument	60 W	205 Btu/hr

## Fire Safety and Burn Hazards

**NOTICE** Do not position the instrument so that it is difficult to operate the power switch or access the power supply and power cord.

To avoid a burn injury and the risk of fire or explosion:

- Use caution when testing flammable or explosive samples (see the “Hazardous Materials” section)
- Never block any of the vents on the instrument or its power supply
- Only use exact replacement power supplies from us

## Optical Safety

This instrument was designed with a protective housing to prevent user exposure to ultraviolet light.



**WARNING** Avoid personal injury. Never look at the lamp while illuminated.

## Hazardous Materials

Many standard spectroscopy methods are based on the use of solvents. Others involve corrosive samples or pressurized samples in a gaseous state.

## Volatile Solvents and Flammable Samples



**CAUTION** Avoid personal injury. Do not leave solvents or flammable samples near the instrument. Be sure that the workspace is properly ventilated.

## Compatible Solvents

Most solvents typically used in life science laboratories are compatible with the fiber optic pedestals of all NanoDrop spectrophotometers. However, the high vapor pressure properties of some solvents may not be conducive to small volume measurements when using the pedestal for measurements on any of the NanoDrop instruments. If you are measuring samples with high vapor pressures, use an instrument with provision for measuring samples in cuvettes.

The following solvents are compatible for use on the **pedestals** of all NanoDrop instruments.

**NOTICE** Spillage of these solvents on surfaces other than the pedestals may damage the instrument.

- methanol
- isopropanol
- ether
- DMSO
- THF
- benzene
- dilute HCl
- ethanol
- butanol
- chloroform
- DMF
- toluene
- sodium hydroxide
- dilute HNO<sub>3</sub>
- n-propanol
- acetone
- carbon tetrachloride
- acetonitrile
- hexane
- sodium hypochlorite (bleach)
- dilute acetic acid

It is recommended that all corrosive solvents be wiped from the pedestal immediately upon completion of a measurement. It is also recommended that the user end a series of measurements with a dH<sub>2</sub>O sample to ensure that solvents are not inadvertently left on the pedestal.

The diaphragm around the pedestal of the NanoDrop is permanently affixed to the instrument. Do not attempt to remove the diaphragm or break the seal. Avoid prolonged exposure of the diaphragm to HCl, alcohol, bleach, acetone or other solvents as the adhesive securing the seal may be affected. If the seal comes loose please contact us.

**NOTICE** All forms of Hydrofluoric Acid (HF) are incompatible as the fluoride ion will etch the quartz fiber optic cable.

## Biohazard or Radioactive Materials and Infectious Agents

Biological samples such as tissues, body fluids, infectious agents, and blood of humans and other animals have the potential to transmit infectious diseases. Wear appropriate protective equipment. Individuals should be trained according to applicable regulatory and organization requirements before working with potentially infectious materials. Follow your organization's Biosafety Program protocols for working with and/or handling potentially infectious materials.



**WARNING** Reduce the risk associated with potentially infectious samples:

- Do not spill samples on any of the instrument components.
- If spill occurs, disinfect the external surfaces immediately following your laboratory protocols.

**Safety Information**

## Hazardous Materials

Instruments, accessories, components or other associated materials should not be disposed of and may not be returned to us or other accessory manufacturers if they are contaminated with biohazard or radioactive materials, infectious agents, or any other materials and/or conditions that could constitute a health or injury hazard to employees. Contact us if you have questions about decontamination requirements.



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