

Overview of CoolBox 30 Workstation

CoolBox 30 is a portable device for maintaining cooling and freezing sample temperature on the bench top. It is intended for use with any of the 30-well CoolRack® tube modules such as CoolRack M30, M30-PF, CF30, CFT30, 500 uL and MassSpec. The design and thermal conductivity of CoolRack modules, maintain samples at identical well to well temperature throughout the cooling period regardless of sample position. By selecting from a number of cartridges and cooling options, samples can be maintained within a variety of temperature bands that range from -78°C to 4°C.

Temperature Range	Cooling Source	Cooling Duration Open Lid	Cooling Duration Closed Lid
0.5°C to 4°C	+2°C Cartridge - Blue	Over 4 hours	Over 10 hours
0.5°C to 4°C	Wet Ice Cartridge - Red	Over 4 hours	Over 10 hours
-18°C to -4°C	-12°C Cartridge - Green	Over 3 hours	Over 6 hours
-30°C to -20°C	Dry Ice with Insulator Pad	Over 5 hours	Over 10 hours
-78°C	Dry Ice	Over 5 hours	Over 6 hours

Note 1: Use of the insulator pad to protect exposed surface of CoolRack from environmental heat influx will provide optimal cooling duration.
Note 2: Actual performance may vary depending upon ambient temperature, start-up parameters, sample load, initial sample temperature, air currents, radiant energy sources and other conditions.

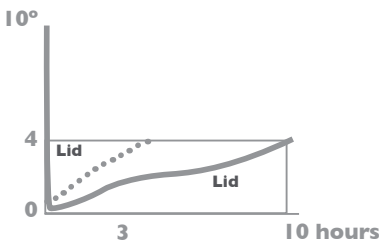
0.5°C to 4°C (+2°C Gel Cartridge - Blue)

Freeze blue +2°C cartridges in a -20°C freezer for a minimum of four hours. Pre-chill the CoolRack module to 0 to 4°C in a refrigerator for approximately 30 minutes. Remove cartridge from freezer and allow cartridge to sit at room temperature until the surface frost begins to melt (approximately 10 minutes). Place a frozen cartridge in the CoolBox 30 base followed by a CoolRack module. The CoolRack temperature should equilibrate between 0.5°C to 4°C. Keep the lid on the CoolBox 30 to prolong the cooling duration; use insulator pad to extend cartridge service interval or in conditions of higher environmental temperatures.

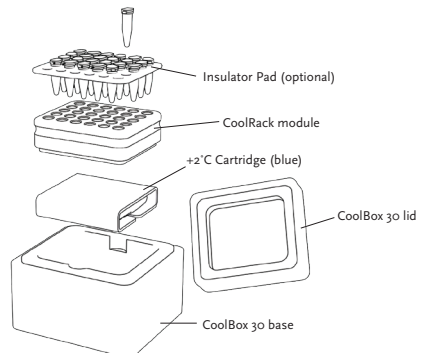
IMPORTANT: It is possible to also start with a room temperature CoolRack module placed directly onto frozen cartridge immediately after removing it from the freezer. The system will take approximately 20 minutes to equilibrate to approximately 4°C and will not undercool samples below 0°C.

For cooling beyond the specified times shown below, simply exchange the cooling cartridge with a freshly charged one.

Use of the insulator pad for extended cooling time: Using the insulator pad on top of the CoolRack or closing the lid will significantly enhance cooling time and reduce condensation. Tubes can be inserted through the pad.

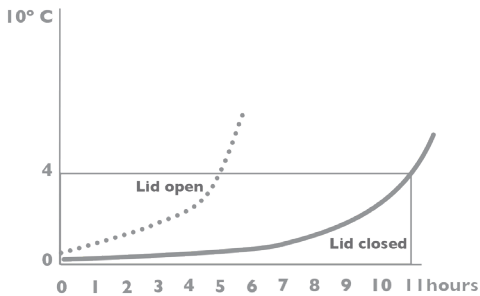


*Data obtained from pre-chilled (4°C) CoolRack at approximately 18-20°C ambient room temperature.

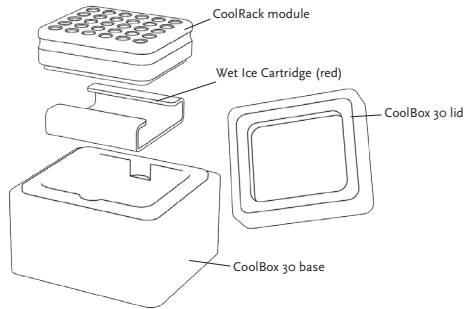


0.5°C to 4°C (Wet Ice Cartridge - Red)

When conventional ice cooling is needed, place the red ice cartridge flat side down in the CoolBox 30 and fill the cartridge with crushed ice. It is fine to slightly overfill the red cartridge as the CoolRack module will settle onto the cartridge quickly during initial cool down. Place a room temperature or pre-chilled (4°C) CoolRack on top of the cartridge. Melting ice and ice-water will absorb heat from the CoolRack module through the thermo-conductive ice cartridge and will continue to cool until all ice has melted - up to approximately 10 hours with lid closed.



*Results may vary when room temperature exceeds 18-20°C

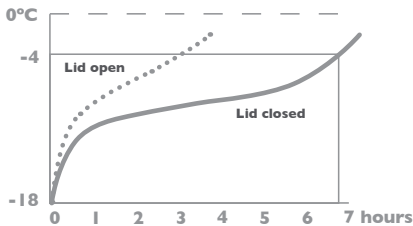


-18°C to -4°C (-12°C Gel Cartridge - Green)

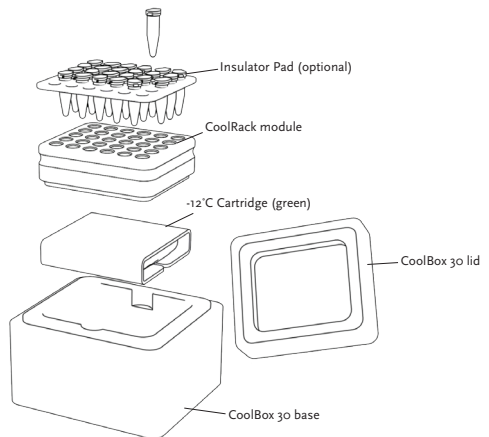
Freeze green -12°C cartridges in a -20°C freezer for a minimum of 6 hours. Pre-chill the CoolRack module in the -20°C freezer for approximately one-half hour. Place a frozen cartridge in the CoolBox 30 followed by the pre-chilled CoolRack module.

For cooling beyond the times shown below simply exchange the cooling cartridge with a recharged one.

Use insulator pad for extended cooling time: Using the insulator pad on top of the CoolRack module or closing the lid will significantly enhance the useful cooling time. Tubes can be inserted through the pad.



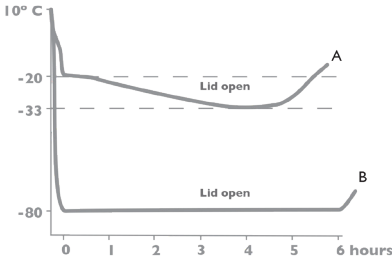
*Results may vary when room temperature exceeds 18-20°C



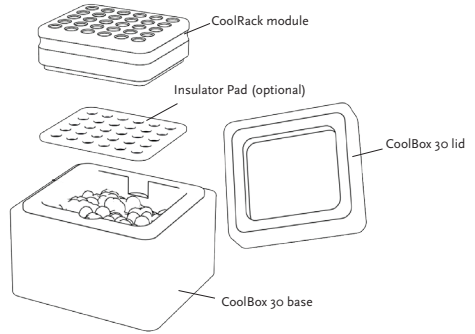
-30°C to -20°C - Graph A

Fill the CoolBox 30 cavity with pulverized dry ice level with the bottom of the finger grip recesses as shown. Place the insulator pad onto the dry ice. Place the CoolRack module on top of the insulator pad. CoolRack module temperatures will quickly equilibrate to approximately -20°C and slowly drop to -30°C as the dry ice sublimates.

IMPORTANT: Keep lid OPEN for -30°C work. Closing the CoolBox 30 lid will cause the CoolRack module temperatures to drop significantly.

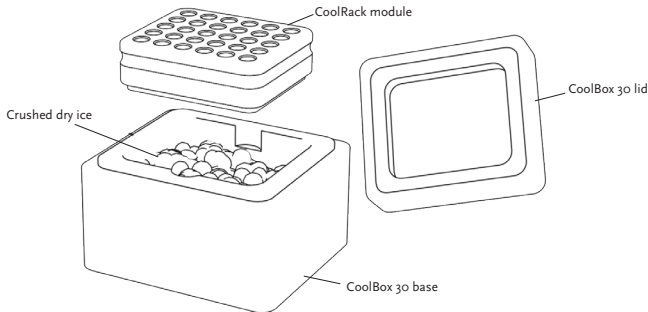


*Results may vary when room temperature exceeds 18-20°C



-78°C - Graph B

Fill the CoolBox 30 cavity with pulverized dry ice up to level with the bottom of the finger grip recesses as shown. Place the CoolRack module directly onto dry ice. CoolRack module temperatures will quickly reach dry ice temperature in approximately 8 minutes. Closing the CoolBox 30 lid will not further decrease the CoolRack module temperature, however it will extend the cooling duration.



Care and Cleaning

CoolBox 30 is constructed from high density closed cell polyethylene foam. The CoolBox 30 is compatible with prolonged cryogenic temperature exposure. The foam may be cleaned by water and mild soap. Rinse thoroughly. The CoolBox 30 is resistant to alcohols and 10% bleach solutions. Avoid abrasive or sharp objects. Do not use the CoolBox for pulverizing dry ice. Do not autoclave. Maximum temperature exposure: 60°C. Avoid exposure to UV light sources. The CoolBox 30 is not recommended for shipping of temperature-sensitive samples.

Temperature Measurement

The CoolRack module's thermoconductive design ensures that all well temperatures are identical.

Test Equipment:

- Temperature probe with small thermal mass such as a K-type beaded thermocouple probe
- Digital thermometer to match probe
- Representative closed sample tube with cap

Test procedure

- Drill a small hole in the center of the sample tube cap with a diameter that provides a snug fit for the temperature probe wire so there will be minimal ambient air influx into the tube
- Fill the sample tube with 1 mL of water
- Place the cap on sample tube and insert temperature probe
- Place the instrumented sample tube in any well of the CoolRack module
- Rack temperatures can be measured by direct contact of the probe in any of the rack wells

Caution: The product described here are intended for the exclusive use by trained and experienced laboratory and medical personnel. A portion of the methods described require the use of dry ice. Direct skin contact with dry ice or metal components that have been touching dry ice can cause freezing injury. Always use appropriate protective equipment for eyes and skin when handling dry ice and cold metal components. Made in USA.



12 E. Sir Francis Drake Blvd. Larkspur CA, 94939, USA, info@biocision.com, www.biocision.com

CoolBox 30 Instructions, April 2013.

CoolBox 30 ©2013. BioCision, LLC. All rights reserved. Patents pending. BioCision, Standardizing Samples CoolBox, CoolRack, CoolSink designations are trademarks owned by BioCision, LLC.

PURCHASE AND/OR USE OF THIS PRODUCT SHALL CONSTITUTE ACKNOWLEDGMENT AND ACCEPTANCE OF THE TERMS AND CONDITIONS OF THIS RESEARCH LICENSE AGREEMENT. The purchase of this product ("the Product") conveys to the buyer only the non-transferable right to use the product in internal non-commercial research ("Research Use") conducted by the buyer. Research Use does not include the right to use the Product to manufacture products, including but not limited to cells or other biological materials, for subsequent sale; the use of the Products to discover, develop, or test any commercial product; and the re-sale of Products, either alone or in combination with other products. The sale or any other transfer or distribution to third parties of (i) the Product, or (ii) any cells or other materials created using the Product is strictly prohibited under this Research License Agreement. Also, the use of cells or other materials created using the Product to discover, develop, or test any commercial product is strictly prohibited under this Research License Agreement. A commercial license is required for any commercial use of the Product, or any commercial use of cells or other materials discovered, developed, or tested using the Product. To obtain a commercial license to use the Product, please contact BioCision. The buyer's rights to have and use the Product under the Research License Agreement will terminate immediately if the buyer engages in commercial use of the Product. Upon such termination of the buyer's rights, the buyer agrees to return the Products to BioCision. This Research License Agreement shall not be assigned or otherwise transferred by the buyer.