

Maximizing Scientific Refrigerator Performance

There are several actions you can take to improve the performance of your scientific refrigerator as well as ensure the preservation of the materials you store in your unit.

Recommendation #1

Limit the number and length of door openings

It is obvious that you must open a refrigerator's door to place and remove product. However, one of the worst things you can do to the contents of your scientific refrigerator is to open the door and leave the door open for more than a few seconds. Door openings allow outside air to get inside the cabinet which can cause dramatic air temperature changes inside the cabinet as well as introduce humidity from the room environment which may lead to condensation forming inside the cabinet and also cause more frequent defrost cycles. When you need to add contents and retrieve contents, be aware that the longer the door is open, the more outside air gets into the cabinet of the refrigerator, which will lead to negative impact to the temperature stability and uniformity of the cabinet and ultimately impacting the stability of its contents.

NOTE: If you have several types of products in your refrigerator, make a log of which shelf your various products are stored. This way, when you need to retrieve contents from the refrigerators, knowing where to look for them limits the amount of time the door is open.

Recommendation #2

Check and Clean the Condenser Coil

Even though True Scientific models have True's patented self-cleaning condenser technology included, It is still recommended that the condenser coil be checked for dirt and debris monthly and cleaned at least every six months in order to assure all debris is removed from the condenser coil. The instructions can be found in your [True Scientific Installation and Operation Manual](#) provided with your unit.

For upright models, the condenser coil is located behind the front bottom grill ([Condenser Coil Cleaning \(Upright\) pg. 40](#)).

For undercounter models, the condenser is located behind the rear panel ([Condenser Coil Cleaning \(Undercounter\) pg. 41](#)).

Recommendation #3

Do Not Store Product on the Floor of the Cabinet

True Scientific refrigerators are designed to have air flow from the evaporator in the rear top of the cabinet downward from the back of the cabinet to the bottom, then across the bottom of the cabinet to the door and up back to the evaporator.

Placing product on the floor of the refrigerator will restrict air flow and negatively impact the temperature stability and uniformity inside the cabinet. True scientific upright refrigerators are supplied with 7 shelves for 1 door refrigerators and 14 shelves for 2 door models providing a large amount of storage without needing to use the floor of the refrigerator for storage. In addition, the perforated and coated sheet metal shelves have a large weight capacity. Shelf weight capacities are found in the model's spec sheet.



Recommendation #4

Do Not Store Product Against the Back Wall of the Cabinet

For the same rationale provided in Recommendation #3, placing product against the back of the wall of the refrigerator will also restrict air flow. True Scientific shelves are designed to rest in place in the refrigerator and provide a gap between the back wall, the side walls and the door to maximize consistent air flow throughout the cabinet. Although there is a gap between the shelves and the back wall, be sure not to push product on the shelves towards the back wall as it may impact air flow which will impact temperature stability and uniformity of the refrigerator.

Recommendation #5

Test the Battery Back Up and Replace Batteries

True Scientific models are supplied with a battery backup of the control. To assure the battery backup is working properly, unplug the unit. The control should remain on and after a few seconds, you should get a power failure alarm. If the control remains on AND you get a power failure alarm, the battery backup is working properly. If the control goes off after you unplug the unit, replace the batteries. The battery backup is located as shown below. Remove the cover of the battery backup and replace the batteries annually.

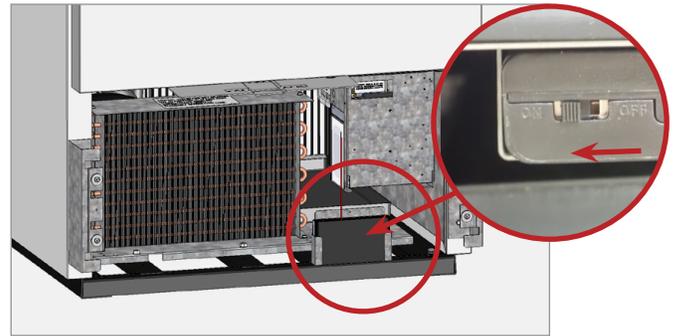


Fig. 1. Upright battery backup location.



Fig. 2. Undercounter battery backup location.



Fig. 3. Slide the battery cover off.

Recommendation #6

Consider Adding Gel Packs or Bottled Water if the Refrigerator is Less than Half Full

True Scientific refrigerators are designed to operate at the peak performance when the refrigerator is at least half full. If you have a situation where your refrigerator is less than half full, we recommend adding bottles of water or gel packs which will tend to have less temperature variance compared to the air temperature and ultimately impact positively the temperature stability of the cabinet. If you decide to add water or gel packs, be sure not to store them on the floor of the cabinet. The best area to place gel packs or water bottles is the rear of shelves which is where the coldest air is located. This way the coldest air absorbs heat from the water bottles/gel packs and improves the stability of your product.

Recommendation #7

Use Temperature Probe Port

True Scientific refrigerators are supplied with a temperature probe port which is located in the upper right side rear section. See figure 1 for location.

If you need to monitor temperature inside the cabinet, use the temperature probe port instead of inserting a probe via the door opening. If you place a probe wire in the door opening, you will compromise the door seal and allow outside air to get into the cabinet which will increase humidity and condensation inside the cabinet and reduce temperature stability and uniformity and increase defrost frequency.



Fig. 1. Location of Temperature Probe Port

Recommendation #8

Access Ports

True Scientific Laboratory and Chromatography models are supplied with a 2-inch diameter access port on each side of the cabinet. Each access port is supplied with a piece of foam insulation that fits inside the access port when not in use. It is recommended that the foam insert be left in the access port when it is not in use to restrict outside air from getting into the cabinet. When using the access ports, seal off the hole as much as possible to limit the amount of outside air getting into the cabinet. Use paper towels, foam, or something similar, then close the lids as tightly as possible, even taping shut if needed.