

**Important WARNINGS, Instructions, and Hints for use of**  
**Tritech Research's Freez-o-File™**  
**Freezer Organizer / Enzyme Cooler**

**WARNINGS AND DISCLAIMERS!!!!**

THE FREEZ-O-FILE™ (FOR RESEARCH USE ONLY) HAS A 30-DAY SATISFACTION GUARANTEE. IF USED CORRECTLY, IT CAN PROVIDE AN EFFECTIVE MEANS FOR STORING AND ORGANIZING SAMPLES AND REDUCING TEMPERATURE FLUCTUATIONS DURING FREEZER DEFROST CYCLES AND WHEN THE FREEZER DOOR IS OPENED; HOWEVER TRITECH RESEARCH, INC. DOES NOT WARRANT THAT THE THE FREEZ-O-FILE™ OR DOCUMENTATION IS 100% RELIABLE. IN NO EVENT SHALL TRITECH RESEARCH, INC. BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO: CLAIMS FOR LOSS OF SAMPLE MATERIAL, USE, TIME, OR REVENUES. IN ANY EVENT, TRITECH RESEARCH'S LIABILITY IS STRICTLY LIMITED TO THE PURCHASE PRICE OF THE FREEZ-O-FILE. IT IS VERY IMPORTANT TO FOLLOW THE ACCOMPANYING INSTRUCTIONS AND HEED ACCOMPANYING WARNINGS IN ORDER TO MINIMIZE THE CHANCES OF PROBLEMS. IF ANY PART OR STATEMENT IN THE WARRANTY OR DISCLAIMER IS UNLAWFUL, THE REMAINING PARTS SHALL CONTINUE TO BE IN FULL EFFECT. IF YOU DO NOT AGREE TO FOLLOW THE WARNINGS AND ACCEPT THE DISCLAIMERS, PLEASE RETURN YOUR FREEZ-O-FILE TO TRITECH RESEARCH FOR A FULL REFUND.

**Storing Samples with the FREEZ-O-FILE™ Freezer Organizer**

Congratulations on your purchase. The Freeze-o-File™ Freezer Organizer can provide an inexpensive, indispensable way to organize your -20°C freezer and prolong the life of thermally sensitive samples. Precious samples stored in the Freeze-o-File™ often retain biological activity longer because they are less subject to the temperature fluctuations that occur in many freezers (e.g. during defrost cycles and when the door is opened).

**SET UP:**

The Freeze-o-File™ works to thermostatically control your samples partly by insulating them from heat loss or gain but primarily by acting as a thermal sink. While it takes only one calorie to raise one gram of water 1°C, it takes about 80 calories to turn one gram of ice into one gram of water. In order to take advantage of “latent heat of fusion” at -20°C instead of 0°C, you will saturate the foam drawer pads with a mixture of ethanol and water. Here is a table of freezing points of different ethanol / water mixtures:

% Ethanol in Water (v/v)	Freezing/Melting Temperature (°C)
24.8%	-10.6
27.0%	-12.2
29.5%	-14.0
32.4%	-16.0
<b>36.1%</b>	<b>-18.9</b>
40.5%	-23.6
46.3%	-28.7

Choose a percentage that will be frozen at your “normal” freezer temperature. For example, 36.1% ethanol will freeze at -20°C. When the ambient temperature warms up, the mixture will warm up to -18.9°C and stay there until virtually all of the mixture melts, which will take a lot of calories. Make up plenty of ethanol / water mixture (e.g. for -18.9°C: 1 liter = 380 ml 95% ethanol + 620 ml distilled water). Saturate the foam pads by squishing it in, then squish out the excess. Then place the Freeze-o-File in your freezer, and in a few hours it's ready for service. Carrying enzymes to the bench in the small transporter drawer will keep them colder (briefly) than regular water ice. **WARNINGS:** Ethanol may dissolve some labels and ink markings. If ethanol evaporates or water is added (e.g. by repeated condensation) the ethanol / water mixture may change over time and lower the thermostatic temperature point.