1. Frozen Foods Handling & Storage

In order to keep your food fresh, store it at the proper temperature. The refrigerator and freezer compartments must operate under conditions which will prevent the development of bacteria and ensure your food is preserved properly. Monitor the temperatures of the refrigerated rooms in predetermined intervals. Fluctuating temperatures may cause an accumulation of ice deposits. Calibrate refrigerators and freezers’ thermometers to monitor fridge temperature. This enables you to get regular accurate temperature readings and thus be reassured that your food is being well-preserved.

Keeping a Temperature Log is the indicative way to refrigerator and freezer temperatures proper monitoring. This enables you to get regular accurate temperature readings and thus be reassured that your food is being well-preserved. Assign this task to a designated Galley crewmember and make sure that time, air, temperature and his name and signature are properly logged. Take the measurements once in the morning (Daily Refrigerator / Freezer / Storage Room Temperature Log) (please refer to **Tables 1** and **2**).

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|  | In case of Third Party inspection during defrosting operation:   * Do not allow the Inspector to get a screenshot of the thermometer reading while in defrosting operation. * Politely explain that current measure does not do justice to ship’s Health and Hygiene Protocol and advise him to return during normal operation circle of the cold/refrigerated and freezer stores. |
| **CAUTION** |

# The Ideal Temperatures for Your Refrigerator and Freezer

## **Starting With Your Freezers**

Ship’s freezers in which you store meat, poultry, fish and vegetables, must be set at -17 0C, to slow the metabolic rate of spoilage and preserve your foods' nutrient level.

## **Essential Freezing Tips**

* To reduce food loss in your freezer, make sure to store food in airtight containers and be sure to date everything, for monitoring purposes, in order to avoid consuming freezer burned goods.
* Prevent freezer burn by using [freezer-friendly bags](http://www.foodnetwork.ca/kitchen-basics/photos/genius-freezer-bag-hacks/) and remove as much air as possible from containers and bags of food to avoid spoilage.
* If freezing soups, stews and other dishes that are high in liquids, remember that when frozen, food expands, so be sure to leave headspace on your container to avoid bursting.
* Misplacing your food may lead to loss through overcooling and/or undercooling.
* Avoid storing sensitive items near the refrigerator door where temperatures are more likely to fluctuate.
* Label foods before freezing with the date and its contents.
* Make at least one meal per week to use up freezer foods.
* Deep frozen food which has been defrosted is not to be refrozen. Eliminate the risks of cross contamination by thoroughly stripping and cleaning the relevant parts of equipment when successive different foods are to be used (especially raw and cooked foods).
* Do note place defrosting food anywhere near cooked food, or preparation counters. There is a high risk of food contamination caused by the leaking fluids.

## **The Right Refrigerator Temperatures**

As a rule, the interior temperature of a refrigerator varies between 30C and 50C, with Food Safety Organizations recommending that the ideal temperature must be set below 40C.

Keep in mind that the temperature is not the same at different levels of your refrigerator. As a rule, the bottom of the fridge is the coldest and the temperature rises as you climb. For example, on the middle shelf, the average temperature is approximately 50C, while the lowest shelves are colder, at about 20C. This is why you should place different foods in different levels, depending on their needs in terms of temperature:

* Store your vegetables and fruits in the bottom drawers.
* Put your dairy and deli products on the middle shelf.
* Store precooked and ready to eat items on the top shelf.

Avoid overloading the refrigerator. An overstock can impede the free circulation of air, which can lead to both warm and cold pockets in the refrigerator that can speed up spoilage. However, at the other extreme, you should also keep in mind that a refrigerator left virtually empty will consume more energy than a well-stocked one.

# Housekeeping and Maintenance of Refrigerators and Freezers Guide

* Keep refrigerated spaces in clean and sanitary condition.
* Store food securely.
* Keep shelves, racks, gratings, refrigerating coils and rails free of scraps of food and packaging material.
* Properly dispose scraps of vegetables and decayed fruits in garbage disposal facilities, as soon as identified.
* Keep scuppers free for proper drainage.
* Keep refrigerated spaces ventilated to prevent damage to provisions.
* Entry into these spaces is restricted to minimum necessary for efficient operation.
* **Cook:** Notify the C/E when it is intended to wash refrigerators or chill rooms. In the event of technical problems with refrigeration plant, follow the C/E's recommendations concerning frequency of access to chambers.
* Keep all rooms thoroughly clean and hygienic.
* Keep refrigerators in mess rooms and pantries in clean and sanitary condition at all times.
* Remove any solid carbon dioxide (dry ice) used as packaging for frozen goods in transit to the vessel, before goods are placed in refrigerated rooms.

## **Safety procedures when working in refrigerated spaces**

* No one enters a refrigerated room without first informing a responsible person who must be instructed to raise the alarm if an absence is prolonged.
* The space or flat in which refrigerated machinery is installed must be adequately ventilated and illuminated.
* All refrigerated rooms must have means of opening the door from the inside and an inside alarm button which must be tested at least weekly.
* Those likely to enter the refrigerated spaces must make themselves familiar, in the dark, with the alarm and the release systems.
* Always secure refrigerators doors, when opened. Do not allow it to swing freely.
* If padlocks are fitted, take the padlock inside, when entering the space.
* Keep all doors to refrigerated rooms securely closed and locked at all times and, when closed, extinguish all lights.
* Freon gas, when heated, gives off toxic fumes. Entirely empty all lines and machinery of gas before commencing any hot work repairs. Keep thereafter the appropriate valves open to prevent pressure build up.
* No one enters the refrigerated space if leakage of refrigerant (Freon) is known or suspected (freon has a distinctive oily smell). In this event:
* Post a warning notice on the respective doors.
* Follow “Enclosed Space” precautions before entering a space suspected or known to be contaminated with leaking refrigerant which can displace air and cause suffocation.
* If it is necessary to enter the space where a leakage of refrigerant (Freon) is known or suspected, the space must be thoroughly ventilated and those entering be protected by breathing apparatus.
* Wear adequate clothing for protection against cold conditions when entering in refrigerated spaces.
* Personnel charging or repairing refrigeration plant must be fully aware of the necessary precautions when handling refrigerant.
* Cold stores or refrigerated rooms should not be entered if it is suspected that there has been a leakage of refrigerant, or there is a shortage of oxygen.
* A warning notice to this effect should be posted outside the doors.
* In freezer units, the combination of high humidity and fluctuating temperatures (warmer than minus 10˚C) accelerate mold and other spoilage bacterial growth. Therefore, avoid recurrent and unjustified opening of doors.

## **Food Safety Measurements**

**Cook:**

* During receipt of provisions, check quantity, quality and expiring dates and promptly stow into their respective areas. Subsequently, advice the Master of any discrepancies between delivery note / invoice and quantity delivered and also the quality of items supplied.
* Store the food including meat, fish, milk and milk products, vegetables, fruit and dry provisions safely and hygienically on the shelves with respect to stock rotation, segregation and spillages.
* As a rule, store fish and meat at the temperature of below – 2°C, for storage up to 1 month. Longer storage periods require a temperature of – 17°C or below.
* Hang raw meat on deckheads if such facilities exist.
* Stow bagged or carton-packed provisions on slatted shelves or suitable deck battens to permit a free flow of cold air but sufficiently close to prevent accidents.
* Stow carton packed meat or fish properly and secured so as to prevent a risk of falling due to ship’s movement and causing injury to any person.
* Maintain vegetables and salads at 4°C.
* Properly store all green and root vegetables on racks.
* Vegetables must not contact other foodstuffs before you wash and prepare them for cooking. Inspect vegetables daily for signs of mildew/rot - jettison and discard any affected vegetables.
* Clean thoroughly the rooms at regular intervals.

Remember that you may keep both frozen and cooled foods, in better condition, when the freezer and refrigerator units are properly drained, clean and free of:

* Ice/Frost
* Food spillage
* Residue
* Fungus
* Slime.

## **Guide to Freezing Food**

Using the [freezer](http://www.foodnetwork.ca/kitchen-basics/photos/life-changing-freezer-hacks/)to preserve make-ahead meals, desserts, snacks and more can reduce [food waste](http://www.foodnetwork.ca/kitchen-basics/photos/ways-cut-food-waste-kitchen/) and turn you into a kitchen savior on busy days.

Foods high in water, cucumber, melons and squash, don’t freeze well, rendering them granular upon defrosting. While others like [chicken breasts](http://www.foodnetwork.ca/everyday-cooking/photos/popular-chicken-breast-recipes-you-need-to-try/), cookie dough and chili were seemingly made for the deep freeze. From vegetables and fruit to fully prepared dinners, keep the below Food Freezing Guide posted for your easy reference.

## **Product Life After Freezing**

### Vegetables & fruits

6 to 12 months

Prepared smoothies: 1 month

### Meat and Poultry

Beef (steaks) and lamb: 6 to 12 months

Pork: 4 to 6 months

Chicken and Turkey (whole): 12 months

Chicken and Turkey (parts): 6 months

Ground meat and poultry: 3 to 6 months

Sausages: 2 to 3 months

Cooked meat and poultry: 3 months

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|  | Vegetables and fruits not to freeze:   * Melons * Citrus (juice can be frozen, no whole fruit or segments) * Apples * Pears * Lettuce * Radishes * Alfalfa sprouts * Potatoes (unprepared, you can freeze mashed potatoes) * Eggplant * Mashed pumpkin and squash.   Meat and Poultry not to freeze: Deli Meats. |
| **WARNING** |

*Bread and Grains*

Baked bread: 3 months  
Unbaked bread: 1 month  
Pizza (homemade): 1 to 2 months  
Cooked rice: 3 months  
Cooked whole grains: 3 months  
Cooked pasta: 3 months

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|  | Bread and grains not to freeze:   * Cooked quinoa * Uncooked grains * Uncooked pasta * Cereal * Cooked and raw oatmeal. |
| **WARNING** |

*Seafood*

Fatty fish (salmon, mackerel, sardines): 3 months  
Lean fish (tilapia, halibut): 6 months  
Cooked fish: 4 to 6 months  
Shellfish: 3 months  
Lobster: 12 months  
Oysters: 2 to 3 months  
Clams: 2 to 3 months  
Mussels: 2 to 3 months

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|  | Seafood not to freeze: Canned fish (you may remove fish from the can, store in a suitable container and freeze up to 3 months). |
| **WARNING** |

*Dairy and Eggs*

Milk: 3 to 6 months  
Butter (unsalted, salted): 8 to 12 months  
Margarine: 12 months  
Eggs (out of shell): 1 month  
Hard cheese: 6 months

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|  | Dairy and Eggs not to freeze:   * Whole eggs in shell * Hard boiled or cooked eggs * Cottage cheese * Yogurt, soft cheese (goat cheese, cream cheese) * Sour cream * Buttermilk * Kefir.   Beverages not to freeze:   * Carbonated drinks * Soda * Coffee (beans and brewed) * Tea (leaves and brewed) * Anything in glass bottles. |
| **WARNING** |

*Prepared Meals and Miscellaneous*

Broth: 3 months  
Soups: 3 months  
Stews: 3 months  
Chili: 3 months  
Casseroles (without eggs, meat or fish): 2 months  
Casseroles (with eggs, meat or fish): 1 month  
Frozen TV dinners: 3 to 4 months

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|  | Miscellaneous not to freeze:   * Mayonnaise * Prepared deli salads (egg salad, tuna salad, macaroni salad) * Salad dressings. |
| **WARNING** |

*Desserts and Baked Goods*

Cookies (baked): 6 to 8 months  
Cookie dough (unbaked): 3 months  
Cake (frosted): 1 month  
Cake (unfrosted): 3 months  
Cheesecake: 6 to 8 months  
Pie (unbaked, fruit): 2 to 4 months  
Pie (baked, fruit): 6 to 8 months  
Pie (baked, pumpkin, sweet potato, pecan): 1 to 2 months  
Muffins and quick breads: 6 to 12 months

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|  | Desserts and Baked Goods not to freeze:   * Custards * Cream pies * Pudding * Prepared milkshakes. |
| **WARNING** |

**Table 1 Sample of Refrigerator and Freezer Temperature Log**



**Table 2 Refrigerator and Freezer Storage Chart**

