



Practical advice for achieving good temperature control in fridges and display cabinets

Regular Maintenance and Cleaning of air intakes, air outlets, the fins or grills of evaporators, defrost water drainage channels and door seals *is important*

1. Siting

The position of chill units may affect their efficiency. Look out for:

- High temperatures in the surrounding room or kitchen
- Draughts, especially across open display units
- Warm air from nearby heaters or cooking units i.e. ovens, deep fat fryers, dish washers
- Radiant energy including sunlight or lamps falling directly onto or into units
- Restricted air flow to compressors (i.e. if it is located under a worktop)

High specification units are recommended, i.e. compressors that are designed to work around 45°C.

2. Management

- Chill display units and holding units do not reduce food temperature efficiently
- Food should already be cooled before being put on display. During preparation, i.e. of sandwiches, take ingredients from the chilled store in small batches and return the finished product to chill as quickly as possible.

3. Air circulation and loading

Proper air circulation is vital for effective temperature control in all types of equipment.

- Don't load food in chilled display units above the chilled air stream (sometimes indicated by a load line)
- Don't overload units or use containers that are unnecessarily large
- Don't position food so that it blocks the airflow.

4. Containers

- Containers that have good insulation properties (especially heavy ones such as ceramic bowls) will interfere with the cooling effect of foods and can have significant effects on food temperatures.
- Ideally containers should be pre-cooled before use.

5. Monitoring – Get to know your fridge

Air temperature

- Monitor fridge or chiller air temperatures daily using:
 - a Calibrated probe thermometer (most accurate)
 - Fridge thermometer
 - Digital display (only takes the temperature from one area)

Change the position of the thermometer or probe, leaving it in one place i.e. top shelf, bottom shelf, middle shelf, for a day or more at a time. Take the temperatures and note on the record sheet where they were taken. Once you have done this for a few days you will have discovered more about how the fridge works and know where the warmest and coldest areas are. You may like to draw a diagram of the fridge noting the warmest area. This is where future temperature measurements should be taken.

- When you have several daily temperatures written down you should be able to detect any future alteration or change in the fridge performance.
- Check and record the temperatures daily (the frequency depends on the type of business and use of the fridge). If air temperatures are above normal (aim for 5°C) Investigate and take appropriate action immediately (note the action taken on record sheet).

Food temperature and calibration

You may wish to take the temperature of food stored in the fridge as this is more accurate than air temperature. This is what the food safety officer will measure and is what the Food Hygiene (England) Regulations 2006 apply to.

- You will need a probe thermometer (or a flat 'between pack' probe).
- The probe and the casing of the unit must be clean and disinfected to ensure that you do not contaminate any food in the fridge.
- The thermometer must be calibrated to ensure that the reading you take is accurate.
- To calibrate the probe, place in boiling water where the reading should be 100°C +/- 1°C and iced water where it should read 0°C +/- 1°C. If you do not get these readings try changing the battery or return to the manufacturer for calibration.

Place the probe thermometer between packs of unopened food and leave in place for several minutes until the readout stabilises. You can leave the unit inside the fridge (keeping it closed) while you do this. Aim to keep the food at 5°C or less as this will result in better food quality. The legal maximum is 8°C.

Raw Fish

Be especially aware that some raw fish may contain bacteria which cause bacterial spoilage and allergic reaction. Scrombotoxin is produced in scrombroid fish (eg Tuna, mackerel) kept under poor storage conditions (including temperatures above 8°C), resulting in the production of histamine and their related chemicals. The scrombotoxin is resistant to high temperatures and **cannot be destroyed on cooking**. Symptoms include diarrhoea, flushing, headache, sweating and sometimes, nausea, abdominal pain and burning in the mouth.

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