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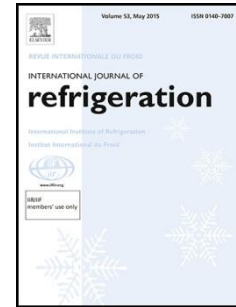
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## Temperature and energy performance of domestic cold appliances in households in England

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### Highlights

- Temperatures and energy consumed by 998 cold appliances in households are reported.
- Mean refrigerator temperature was 5.3°C; the mean freezer temperature was -20.3°C.
- Mean electricity consumption was 354 kWh per year.
- Differences between cold appliance types were determined from statistical analysis.

### Abstract

This paper reports the results of a large-scale survey in which 998 cold appliances were monitored in 766 properties in England. No surveys published to date analyse such a large dataset, which includes data on ambient temperature, cold appliance temperature (refrigerator and/or freezer) and electricity consumption of the cold appliance.

Simultaneous measurements of the temperature inside and outside of the cold appliances and the electricity consumption were taken over a period of seven days during a nine-month period in 2015. An interview was also conducted with the householders to collect further information about the cold appliances and their usage patterns.

The cold appliances monitored in the work included fridge-freezers (52%), refrigerators with ice-box (6%), larder fridges (14%), chest freezers (9%) and upright freezers (19%). It was found that for all monitored cold appliances with valid data that: the mean ambient temperature was 18.5°C; the mean refrigerator temperature was 5.3°C; the mean freezer temperature was -20.3°C; and the mean electricity consumption was 354 kWh per year. Significant differences between the electricity consumption of different types of cold appliance were determined from statistical analysis.

**Keywords:** Survey, Domestic households, Refrigerator, Freezer, Temperature, Electricity consumption, England

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