

University of Huddersfield Emissions and Discharges Audit Report

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Introduction

This report summarises the findings and recommendations of an in-depth audit of Emissions and Discharges at the University of Huddersfield.

Table of abbreviations

F-gas	Fluorinated gas
GHG	Greenhouse Gas
GWP	Global Warming Potential

Audit Methodology

The process undertaken for this audit is as follows:

- Collect relevant refrigerant top-up data.
- Develop a baseline for refrigerant emissions, assuming that top-up quantities are equal to the quantities leaked, and that refrigerants are not changed.
- Analyse data to identify significance of discharges and any trends.
- Put forward recommendations for further research or mitigation.

Baseline: 2023-2024 Financial Year

The University has only had centralised collection of refrigerant emissions data since February 2025 (data going back to August 2023). The data we do have covers all of our serviced air conditioning, heat pump, and chiller systems. It does not include any emissions associated with packaged refrigeration equipment such as kitchen refrigerators – however, such emissions are expected to be negligible.

The F-gas emissions from August 2023 – July 2024 totalled 188,733 kgCO₂e, as seen in the table below. This is equivalent to 4% of our Scope 1 and 2 GHG emissions.

Refrigerant	GWP	Top-up Amount Used (kg)	kgCO ₂ e
R407C	1,774	25.7	45,592
R410a	2088	42.2	88,114
R417a	2346	23	53,958
R452a	2139	0.5	1,070
		Total	188,733

Analysis, Findings, Results

Several observations are made from the data:

- At 4% of Scope 1 and 2 GHG emissions, refrigerant emissions are a material proportion of the University's carbon footprint.
- All of the refrigerants which were recorded as being used in refrigerant top-ups are high-GWP refrigerants, with a GWP of over 1750.
- The most significant single refrigerant leak (in GHG terms) was a leak of 23kg of R417a from Ramsden Building.

Recommendations

- The Sustainability team should request more contextual data for each refrigerant top up. For example, age of the system, whether a cause for the leak was identified. This could help the next audit report identify trends or potential causes of emissions, which could drive future change.
- The University should investigate whether any systems with high GWP refrigerants could be replaced with low GWP systems.
- The University should include F-gas emissions in its published Scope 1 emissions data (in addition to natural gas and vehicle fuel combustion).