ISTA Environmental Footprint 2018–2024

Methodology

The inventory covers Scope 1, 2, and 3 emissions for 2018 to 2024. Emissions from energy use (Scope 1 and 2) are calculated from consumption data using Austrian ClimCalc emission factors (2022 factors applied to 2023 and 2024). Indirect emissions from purchased goods and services (Scope 3) are estimated through an inflation-corrected, spend-based analysis using the Exiobase environmental input–output database (version AR5 for 2018–2021, AR6 from 2022), complemented by Ecoinvent data. Flights and other travel, IT equipment, and selected special materials are calculated separately, and laboratory consumables and laboratory equipment are grouped into a single materials category.

Because no single accounting tool provides laboratory-specific emission factors for all categories, the spend-based results for materials were cross-checked against Labos 1point5, developed by a French academic consortium and used by EPFL, the University of Geneva, and French research organizations, and the UK government's DEFRA conversion factors, used by EMBL and the Francis Crick Institute (see Table 4). All tools show the same trend over time; Exiobase, which is used for the inventory, yields the lowest absolute values and DEFRA the highest.

Table 1: Total Footprint and Selected Indicators per Full-Time Equivalent 2018–2024

Indicator	2018	2019	2020	2021	2022	2023	2024
Total footprint (t CO_2eq)	21,300	19,300	18,200	19,200	21,900	24,400	28,700
Footprint (t CO_2eq)	32	26	22	21	23	23	25
Flight emissions (t CO_2eq)	3.1	2.4	0.8	0.4	1.6	2.2	2.3
Commuting emissions (t CO_2eq)	0.66	0.62	0.60	0.56	0.54	0.49	0.47

Values rounded.

Table 2: Composition of the Footprint by Category (Share of Total / Selected Years)

Category	2018	2021	2024
Materials (laboratory equipment and consumables)	42%	42%	50%
Energy (Scope 1 and 2)	24%	28%	22%
Buildings	21%	24%	16%
Travel	10%	2%	9%
Commuting	2%	3%	2%
Food, IT equipment, and paper	1%	1%	1%

Values rounded.

Table 3: Breakdown of Spend-Based Emissions by Procurement Category 2024

Category	Share
Laboratory equipment	43%
Laboratory consumables and supplies	25%
Construction	13%
Computing	12%
Research services	3%
Hotels and restaurants	2%
Other business services	2%
Food, transport, and waste	<1%

Values rounded.

Table 4: Emissions from Materials (t CO_2eq) Calculated with Different Accounting Tools (Selected Years)

Accounting tool	2018	2021	2024
Exiobase (2022 version; used for the inventory)	9,400	7,800	14,800
Exiobase (2019 version)	9,100	8,100	15,400
Labos 1point5	9,200	7,900	16,600
DEFRA	13,400	10,000	16,900

Values rounded.