

Green Labs Handbook

A practical guide for EPFL SV scientists looking to conduct research in a more sustainable manner.

The purpose of this document is to suggest feasible and impactful actions to limit the environmental footprint of SV labs. The Green Labs Handbook was developed by the [Sustainability Office of the EPFL School of Life Sciences](#), with the help of a consultation committee. It was first developed in 2021 and undergoes a yearly update.

for all lab members

1/ Consumables

Consumables (including single use plastics, chemicals and biological products) are a major source of environmental impacts in the lab, especially during their production and disposal stages.

- **Design your experiment** by brainstorming with your colleagues about how to generate the least waste as possible and favor material reuse or recycling.
- **Borrow products from other labs** when you only need a small quantity. Before buying a new product, check its availability in other labs through [Catalyse](#)¹ and contact the owner.
- **Use hazardous waste bins exclusively for contaminated waste.** This serves to avoid non-contaminated waste undergoing unnecessary energy-intensive end-of-life processing. Follow [SV](#) and [EPFL](#) waste guidelines.
- **Sort your non-contaminated recyclable waste properly** (aluminum, paper, glass...) and bring them to the [SV](#) or [AI](#) recycling points, or dispose them in the outside containers.
- **Autoclave your solutions and devices only when necessary.** Autoclaving is an energy intensive process that can be replaced by high temperature washing in some cases.

2/ Lab equipment

- **Shut down** equipment as often as possible to save electricity. **Avoid leaving devices on stand-by mode** when possible.
- **Contact the [SV Workshop](#)** as soon as lab equipment presents **failures or malfunctions**.

Cooling devices

Cooling devices are a major source of electricity consumption in a lab, especially -80°C freezers (each of them consumes as much energy as an average household²).

- **Optimize sample preservation temperatures** to be as close to room temperature as possible. For example, set your freezer temperature to -20°C, your fridge temperature to 4°C, not lower, or **increase PCR end-of-cycle temperature** to 15°C (rather than 4°C overnight incubations).
- **Optimize freezer space and turn off unused fridges.** Readable sample labels and an annual fridge cleanout can help save significant amounts of energy. In addition, try to anticipate what will happen with the samples of anyone leaving the lab.
- **Open freezer doors as rarely as possible.** Organize and post a freezer map or inventory on each freezer door so you can locate your sample before opening the freezer. If the doors are not tightly shut (e.g. due to excessive frost accumulation), contact the [SV Workshop](#) quickly.

¹ [Catalyse](#) > open the left-hand menu > "🔍 Search and Request" > "Request Item Search" > "Advanced Search"
> Under "Product name contains", enter the name or CAS number of the product you are looking for

² [My green lab](#)

IT equipment

Most of the environmental impact of IT equipment happens at the manufacturing stage³.

- **Avoid replacing IT equipment** that is still in good condition.
- **Avoid purchasing multiple screens** if not strictly necessary.
- Use [SCITAS](#) services for your computation needs (rather than private servers).
- Organize an **annual cleanout of large files** that have become obsolete.

Biological and chemical extraction hoods

- **Lower the sash** of fume hoods all the way down between each use⁴.

for lab managers
(and curious scientists!)

1/ Consumables

- **Centralize purchase requests** to minimize transportation and packaging needs.
- **Keep a chemical and biological inventory** (e.g. through [SLIMS](#)) and **a proper labelling** to avoid product expiry and unnecessary purchases.
- **Consider referring to the [ACT environmental impact factor label](#)**. It can be a starting point to compare the environmental impact of similar products.

2/ Lab equipment

- Before ordering new equipment:
 - **Consider sharing equipment** with other labs and core facilities. Some equipment may be booked or made available via [PPMS](#).
 - **Contact the [SV Workshop](#)** to investigate the availability of free refurbished equipment.
 - **Check the [SESAME equipment exchange platform](#)**⁵.
 - **Take advantage of the expertise provided by the [SV Workshop](#) team** once you decide to buy a new standard piece of equipment. They can help you choose the best option.
- Contact the [SV Workshop](#) whenever lab equipment is not in use anymore.
- Contact [SV-IT](#) whenever IT equipment is not in use anymore.

And do not hesitate to **contact us** at sustainability.sv@epfl.ch 😊

³ [ADEME](#) (in French)

⁴ [UC Berkeley & UCLA "Shut the sash: fume hood ventilation in laboratories"](#)

⁵ [SESAME](#) > Procurement > Inventory > Equipment to give or sell