

# Environmental protection at the UFZ

## Fact sheet on plastic reduction

Although plastic is a very practical material, its recycling and additives (flame retardants, plasticizers, etc.) are a cause of concern.

Just a few decades ago, there were only a few plastic products in the laboratory, but today it is hard to imagine life without them.

Reusing plastic containers by washing them in the dishwasher in between uses is good in terms of saving resources and in principle preferable to single use. However, when exposed to heat in the dishwasher and if the surface of the containers is slightly damaged, the additives that have been added dissolve to a greater extent.

We have put together some tips to reduce the plastic amounts that accumulate in the laboratory:

### 1. Avoidance of plastic materials

The top priority should always be to avoid plastic materials wherever possible. First of all, you should make sure that a particular product is needed at all. In a second step, you should check whether there are alternatives to plastic products and whether such procurement makes sense from an experimental, economic and ecological point of view.

When looking for alternatives, it is important to reconcile sustainability with experimental requirements, compatibility and safety aspects. Evaluate performance, sterility and potential impact on experimental results when considering a replacement for plastic materials.

#### Tip:

- Replace single-use plastic products with reusable glass or metal products (see "Plastic alternatives" table)
- Give priority to ordering chemicals in glass packaging

## **2. Reduction of plastic material**

- Special attention in procurement to products with a wide range of applications (e.g. pipette tips, multiwell plates)
- Cross-group procurement of rarely used consumables for joint use and avoidance of non-consumable residual quantities.
- Minimize pipetting steps and thus plastic consumption through careful experiment planning.
- Minimize vessel sizes according to the sample volumes. There are often intermediate vessel sizes, but these are not always available.
- When storing samples, consider whether, for example, small sample volumes can be stored in Eppendorf tubes or microtiter plates. This not only saves plastic, but also space if storage in the freezer is necessary.
- Use of reload pipette tip systems (better than pre-inserted boxes) or insert tips yourself.
- If possible, materials made from or at least with bioplastics can also be procured. It is helpful to look for products with environmental certification.

## **3. Reuse of plastic material**

- Re/reuse of emptied plastic containers such as bottles and centrifuge tubes (if the application permits).
- Re/reuse of used weighing pans for the same, frequently used chemicals by appropriate labeling and storage (if this does not create a hazard).

## **4. Recycling of plastic material**

- PET media bottles from cell culture (clean, dry and decontaminated) can be collected at the chemical drop-off and then recycled.
- Disposable nitrile gloves from KIMTECH (clean, dry and decontaminated) can be collected at the chemical drop-off and then recycled.
- Pens can also be collected and recycled in many places at the UFZ.
- Many suppliers take back empty pipette tip boxes and can recycle them (e.g. Sarstedt, Biozym).

## **5. Alternative Products**

### **Glass Petri dishes**

Can be used several times. The purchase of durable borosilicate glass is recommended. Stainless steel containers are also available to simplify autoclaving. There are also special Petri dish inserts for the dishwasher.

### **Reusable inoculation loops**

An alternative to disposable inoculation loops are autoclavable wooden picks or the good old reusable inoculation loop with replaceable wire.

### **Glass pipettes**

Where appropriate, glass pipettes can be used instead of disposable plastic tips, thus simply reducing the amount of waste.

### **Centrifugation tubes/ sampling tubes**

Sealable glass (centrifugation) tubes can be used instead of Falcon tubes.

### **Glass flasks and culture bottles**

Traditionally used for the cultivation of various organisms, the use of glass culture vessels makes it easy to dispense with plastic vessels.

### **Stainless steel and metal instead of plastic**

Before buying a beautiful, colorful plastic test tube stand, consider a simple stainless steel/metal model.

### **Pipette racks**

Replacing pipette racks can be avoided by filling pipette tips yourself. The Terrapack system is also available as a low-plastic variant.

**Examples for ordering more sustainable lab equipment:**

<b>Product</b>	<b>Provider</b>	<b>Ordering number</b>	<b>Price</b>
Inoculation loop holder, 240 mm long, 1 piece	Th.Geyer	9520179	16,15 €
Inoculation loop, platinum-iridium, 5 mm, 1 piece	Th.Geyer	9520184	32,26 €
Erlenmeyer flasks, narrow neck, borosilicate, 300 mL, 10 pieces	Th.Geyer	7690030	26,95 €
Culture tubes, Fiolax, with screw cap, PP, 10 mL, 100 pieces	Th.Geyer	9010036	34,44 €
Tube rack, stainless steel wire, 18 mm, 1 piece	Th.Geyer	9193848	43,85 €
Envelopes DIN long without window, Blue Angel, recycled, 1000 pieces	Memo	V101401	20,49 €
Tesa paper packing tape, 50 mm, 5 m, FSC-certified, solvent-free	Memo	V222D01	3,99 €
Wooden ballpoint pen made of beech, FSC-certified, refill changeable, Germany	Memo	S129201	1,35 €
Cutlery holder, chromium-nickel steel, Ø11.5cm, H:12 cm, ~1L	Metro.de	1595102	5,32 €
Wine cooler - 19 x 19 cm - ring handles - stainless steel - Promoline, 1 piece	GoosGastro.de	78054	7,49 €

## **Contact and further information**

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Links:

UFZ Environmental Committee: <https://www.intranet.ufz.de/index.php?de=45962>

Technician-Wiki: <https://git.ufz.de/howto/techniker/-/wikis/Umweltschutz>

Recycling-Action: [https://www.intranet.ufz.de/index.php?de=31339&nb\\_item=2004](https://www.intranet.ufz.de/index.php?de=31339&nb_item=2004)