# Laboratory Plastic



### RECYCLING GUIDANCE

### Welcome to our comprehensive guide on plastic recycling within laboratory settings.

This guidance document is designed to empower you with the knowledge and practical steps required to efficiently segregate your plastic waste, maximising the potential for recycling in your laboratory.

### **1** Identifying plastics to be recycled

RecycleLab **CAN** collect and recycle clean and sterile hard, rigid plastics such as pipette tips, centrifuge tubes and 96-well plates. For a full list of plastics accepted please see Annex A.











Centrifuge Tube

Pipette Tips

96-Well Plates

**Plastic Bottles** 

RecycleLab **CAN'T** accept non-plastic items, such as nitrile gloves, glass or sharps.

RecycleLab **CAN'T** currently accept the below items.



Soft Plastics



Petri Dishes with Agar



Soft Plastic Tubing



Syringe Filters





# 2 Sterilisation of plastics

Laboratory plastics are usually classed as 'hazardous waste' because of the chemical and biological agents that they come into contact with.

However, once sterilised laboratory plastics are classed as 'safe to handle' and can be recycled.

Laboratory plastics **MUST** be sterilised prior to being collected for recycling.

### **Autoclaving plastics**



Use the plastic consumable



Place in separate 'plastics only' bin in the lab

### Chemically disinfecting plastics



Use the plastic consumable



Soak plastic consumables in chemical disinfectant



Autoclave 'plastics only' bin bag



Place autoclaved waste in RecycleLab bin



Rinse thoroughly and place in separate 'plastics only' bin in the lab



Place disinfected waste in RecycleLab bin

For comprehensive guidelines on the different decontamination methods, please see Annex B.

# **3** Collection of plastic waste

When the large recycling bin is full, the plastic waste is ready to be collected by RecycleLab.

The plastic is taken to the RecycleLab sorting facility where it is sorted into the different types of plastics before being sent for recycling.





# 4 FAQs

#### Do we have to sort the plastic into separate bins for PP and PS?

No. Please place all plastic to be recycled in the same bin. RecycleLab will be sorting the plastic at their facility after collection.

#### Does RecycleLab accept filtered pipette tips?

Yes. RecycleLab will accept any brand of pipette tips, even if they contain filters.

#### Does RecycleLab accept filtered stripettes?

Yes. RecycleLab will accept any brand of plastic stripettes, even if they contain filters.

#### We are concerned pipette tips will pierce plastic bags, what should we do?

Some labs class pipette tops as 'sharps' as they can pierce plastic bags and thus increase risk of spillage of waste into the environment or injury. Please place the pipette tips into bag prior to placing into the RecycleLab recycling bin.

# We use plastic lab consumables that are not on the list on this document, can we place these in the RecycleLab recycling bin?

If there are plastic lab consumables that are not on the list in this document, please send an email to: info@recycle-labs.com with the lab consumables you use and would like to be recycled. We can then check which polymer material they are manufactured from and ensure they can be placed in the recycling bin.

### A Annex A - Items that RecycleLab accepts

RecycleLab collects laboratory consumables which are made of Polypropylene (**PP**), Polystyrene (**PS**), High Density Polypropylene (**HDPE**) and Polyethylene Terephthalate (**PET**).

Below is a list of common lab consumables that RecycleLab accepts and the polymer they are made from. Please note this list is not exhaustive, if you use consumables that are not on this list, please let us know.



#### Polypropylene

- 50 ml conical tubes
- Eppendorfs any size
- 15 ml tubes
- Pipette tips (inc. filter tips)
- Pipette tip boxes
- Plastic syringes
- PCR plates
- Falcon centrifuge tubes



Polystyrene

- Stripettes
- Cell culture flasksRound-bottom polystyrene tubes
- Well microplates
- Petri dishes
  - if contain no agar



HDPE

- Bottles
- Lids & caps



PET

BottlesSome packaging



# **B** Annex B - Plastic Decontamination Protocol

### **Biologically Contaminated Waste**

Once inactivated, biological waste can be classified as 'safe to handle', meaning it can then be disposed of by general waste stream or recycled.

Biologically contaminated plastic waste can be inactivated via sterilisation by an autoclave, or by chemical disinfection.

**Sterilisation** - This can be achieved via autoclaving. The minimum recommended autoclaving conditions for decontamination of waste is:

- Temperature 121-124 °C, pressure 15 psi for sterilisation time of 15 minutes
- Temperature of 134 °C, pressure 30 psi for a sterilisation time of 3 minutes

**Chemical disinfection** - This can be achieved by soaking plastic lab consumables in a chemical disinfectant such as Virkon.

A **minimum** contact time of 1 hour is recommended for complete disinfection of virus, yeasts and bacteria with Virkon. A 1 - 2% Virkon solution for disinfection is recommended.

Other chemical disinfectants may be selected, however the disinfectant used must be selected with regards to the situation in which they will be used, and biological agents that may be present. Not all chemical disinfectants are active against all biological agents.

Below is a guideline of the differing types of biological waste contamination and appropriate disinfection methods for plastic laboratory consumables.

**Please note:** if liquid waste is present in for example, a centrifuge tube, the liquid waste must be emptied from the tube prior to sterilisation/disinfection.

**Please note:** RecycleLab is UNABLE to accept any plastic which have been in contact with HG4 biological agents, or cytostatic/cytotoxic/carcinogenic drugs.

Biological hazard group	Decontamination method
HG1/Class 1 GMOs	Plastic waste soaked in disinfectant for minimum contact time, rinsed and then placed in recycling bin. <b>or</b> Plastic placed in clear autoclave bag and autoclaved. Plastic can then be placed in recycling bin.
HG2/Class 2 GMOs	Plastic waste soaked in disinfectant for minimum contact time, rinsed and then placed in recycling bin. or Plastic placed in clear autoclave bag and autoclaved. Plastic can then be placed in recycling bin.
Containment Level 3 Laboratories	The waste must be autoclaved in autoclave present in CL3 lab. Plastic waste can then be placed in recycling bin.

### **Chemically Contaminated Waste**

RecycleLab CAN accept plastics that have been in contact with the following, if they are thoroughly rinsed with water:

- Dilute acids & alkalis
- Non-toxic soluble inorganic salts (eg. CaCL2, MgSO4, Na2SO4)
- Hypochlorite solutions
- Non-toxic water-soluble alcohols (eg. Ethanol, methanol, iso-propanol)
- Dilute aqueous chemical solutions below relevant concentration threshold levels
- TAE/TBE buffers at working solutions



