

Green Labs Program – University Waste Initiatives



Take Back Schemes

Many scientific facilities are directing their scientists to use lab supplier recycling programs. However, none of these are currently available in Australia.

Schemes in other countries

- Corning's packaging recycle program (US only).
- Kimberly Clark RightCycle - enables our customers to collect nitrile gloves and Kimtech single-use apparel for recycling (UK only).
- Millipore-Sigma: Collection and Recycling Program for Lab Water purification cartridges (US only).
- New England Biolabs: operates free shipping box recycling program, for cardboard and polystyrene (UK and US).
- STARLAB: Both the TipOne® pipette tip system racks and Robotic tip racks can be recycled using STARLAB's free recycling collection service.
- Thermo Fisher: SeqStudio Cartridge recycling program - not yet available. Ion Chip Recycling through E-waste stream (**E-Waste recycling already available at UQ**).
- Thomas Scientific: ez CODTM Recycling Service for Mercury based Chemical Oxygen Demand (COD) vials (US only).
- VWR: Returnable Container Advantage Program (ReCAP) and Garment Recycling Program (not available in Australia).

While these services are not yet available in Australia, we can continue to put pressure on manufacturers to bring them here. Check out the Sample Letter to Supplier below:

Dear [supplier],

Our lab is currently revising procurement practices with a specific focus on the sustainability of lab consumables. From your position as a large scale supplier of laboratory products, you have the power to significantly reduce environmental harm caused by plastic use.

Source reduction (that is, waste prevention) is the best way to reduce the impact of solid waste on the environment because it avoids waste generation altogether. Overall, source reduction has many environmental benefits, including conservation of resources, protection of the environment, and prevention of greenhouse-gas formation.

Our team is committed to being a leader in waste reduction and resource efficiency. Please let me know how your company will help our team reach this waste prevention/recycling goal.

The following are a few actions your company might take to help support us in reaching our goals:

- Use minimal packaging, providing materials in bulk packaging.
- Take back, for reuse or recycling, all packaging for your product.
- At a minimum, provide your product in easy to recycle packaging, such as cardboard, wood, or metal.
- Offer "just-in-time" delivery to minimize damage to materials during on-site storage.
- Provide information and support for accurate estimating.
- Take back all unused product.
- Identify any recycled-content in your product.
- Offer alternative products with recycled-content.

We look forward to learning how you will help us to achieve our sustainable lab product procurement goals.

Sincerely,
[your name]
[Lab name]
The University of Queensland

Lab Swap Days

A number of American universities run centralised lab swap events to divert unused lab supplies from landfill. Staff bring their unneeded lab consumables (i.e. glassware, pipette tips, gloves), office supplies, and field equipment to the swap events and take any donated items back to their lab for free. E.g. Stanford's [Annual lab swap event](#).

Procurement

For guidance on environmental impact of laboratory products and equipment, look out for these labels.

Impact Labels

- [The ACT Label](#) is an eco-nutrition label for laboratory products. The ACT assessment process aims to provide you with the information necessary to make smart, sustainable choices about the products you buy.
- [Energy Star](#) – This certification identifies the most energy efficient equipment for over 50 different product categories.
- [Epeat](#) – Evaluates the effect of a product on the environment by assessing life cycle environmental standards, and ranks products as gold, silver or bronze based on a set of environmental performance criteria.
- [Green Lab supplies and equipment guide](#) by Labconscious assist you find eco-friendly laboratory equipment and lab consumables.

Recycling

TerraCycle

This program involves selling prepaid shipping boxes for a specific category of material. All of the costs of material handling and processing are factored into the cost of the box.

- **Protective Eyewear Recycling Box, TerraCycle®** - All brands of safety glasses and goggles are accepted, including glasses and goggles with rubber, nylon, and other types of materials. \$230.50/box, capacity 818 Safety Glasses and Goggles.
- **Disposable Gloves Recycling Box TerraCycle®** - accepts Latex, nitrile vinyl and plastic gloves. Does not accept clinical waste. Small box est. capacity 620 + \$110.99
- **TerraCycle® Pipette Tip Box** – Pack of 5 = \$348.36. Holds 113 Empty Pipet Tip Boxes. 11 brands of plastic pipette tip boxes are accepted. Typically made of #5 plastic, pipet tip boxes are rarely accepted by curbside recycling programs.

Solvent Recycling

A number of American university Environmental Health and Safety (EH&S) departments undertake solvent recycling on their campuses, reducing chemical waste and decreasing costs.

At the [University of Colorado](#), the following steps have been taken:

- Labs collect their solvent waste.
- EH&S will transport the solvent waste to one of the two campus fractional distillation units.

- Solvent gets distilled.
- Free recycled solvent is distributed. Recycled solvents are typically used for teaching labs, rinsing glassware, sterilizing biosafety cabinets, and for Coomassie staining and destaining.

ChemSwap Program

Environmental Health and Safety (EH&S) departments at several American universities run a ChemSwap program, which is designed to allow university departments to redistribute unwanted, usable chemicals.

Any excess chemicals that are not expired or contaminated may be placed into the ChemSwap inventory for use in another lab. The free chemicals are delivered with a SDS by an EH&S staff member directly to the claimants lab. It saves money and reduces waste by redistributing unwanted chemicals.

- Chem Swap [University of Florida](#)
- ChemSwap Program [University of Texas](#)

Biodegradable Latex Gloves

Biodegradable Nitrile Gloves have now come onto the market but are they as environmentally friendly as they claim?

Clinical and perceived clinical waste is incinerated at UQ, therefore any of the claimed benefits aren't going to be realised for us.

EcoTek's Biodegradable Nitrile Gloves state 92.6% biodegradability within 2.5 years, but what happens with the other 7.4% of plastic?

Reuse

Substitute single-use plastic for glass

Substitutions which have been found effective:

- Falcon tubes
- Pipettes
- Filter bottles
- Petri dishes
- Bijou bottles
- Test tubes
- Replace plastic weigh boats with watch glass

There are a number of reasons it won't work for all labs, but could it work for you? [Labconscious](#) have an interesting article on how you switch to using petri dishes in your lab.

Purchasing Reusable Test-Tube Racks

[Reducing single-use laboratory plastics](#) - University of Edinburgh

Washing, sterilising and reusing pipette tips

Dutch laboratory equipment supplier GC Biotech has developed a machine called the [Grenova Tipnovus](#) that washes and sterilizes contaminated plastic pipette tips in 10 minutes so researchers can reuse them. Labconscious has written a blog about it [here](#).



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