



Prepared on 21/03/2017 by Liz Cooper.

Living Lab project summary – Glass vs plasticware in Labs

Description of the paper

This paper describes the findings of an investigation into the relative sustainability merits of glassware vs plasticware in labs, undertaken by a group from the MSc course Case Studies in Sustainable Development.

Research question

Compare the sustainability merits of replacing lab plasticware with glassware.

Objectives

1. Undertake a lifecycle carbon analysis of the main groups of plasticware and relevant glassware replacement options.
2. Provide recommendations for implementing actions to reduce lab plastic waste.

Findings and recommendations

During production, plastic generates significantly more emissions than glass. Even considering the difference in emissions produced from disposal to landfill, the emissions from laboratory plastic are still 2000 times greater than those of glass. If all plastic in labs was switched to glass, 3.6 times less CO₂ would be produced.

Strategic recommendations:

1. Improve communication between the SRS, laboratories and waste department
2. Generate lab specific waste data
3. Implement simple bulk-ordering system
4. Implement central core facilities

Specific recommendations:

1. Replace plastic Falcon tubes with glass tubes.
 - Particularly successful in molecular biology
 - Glass tubes can also be used to prepare small volumes of buffer solutions
2. Replace plastic pipettes for glass where procedure does not require a sterile environment.
3. Purchase bagged falcons, instead of racked to reduce polystyrene.