Green Chemistry and Sustainability Efforts within the Chemistry Department at the University of Colorado Boulder

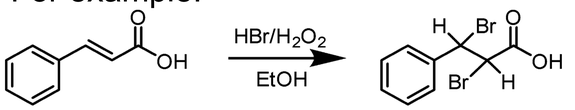
University of Colorado Boulder

Green your lab!

Green Chemistry in Teaching Labs

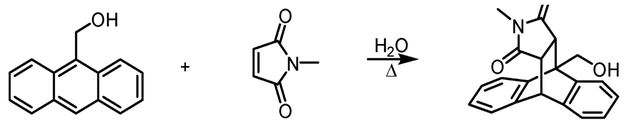
Many undergrad experiments have been redesigned to focus on green chemistry, reduce toxicity, & minimize resource use.

For example:



Green Bromination:

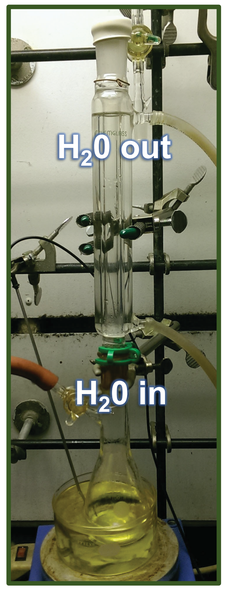
Eliminated Br_2, CH_2Cl_2, and large amounts of $NaS_2O_{3\,(aq)}$ waste



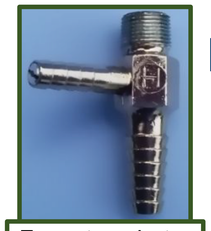
Green Diels-Alder:

Eliminated energy intensive cyclopentadiene distillation & large amounts of water and energy to purify product

Water Saving Efforts



Switch to waterless condensers for medium & high boiling solvents



Faucet aspirator

Switch from water faucet aspirators to gravity filtration & vacuum pumps

Vacuum pump

Recirculating chillers & vacuum pumps on rotary evaporators

Green Chemistry Scholarships for CU Boulder Students

Univ. of Washington Green Chemistry Certification (3 online classes;10 months)

Funded by CU Chem Department, Sustainable CU & EH&S ($2,730 per student)

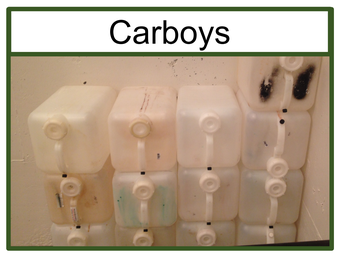
- 2 students in 2018-2019
- 1 student in 2019-2020
- 2 students for 2020-2021– *Apply Now!* ***Email gccs.scholarship@gmail.com***

Recycling of Lab Materials

Plastic Film

Metal Containers

Brown Glass

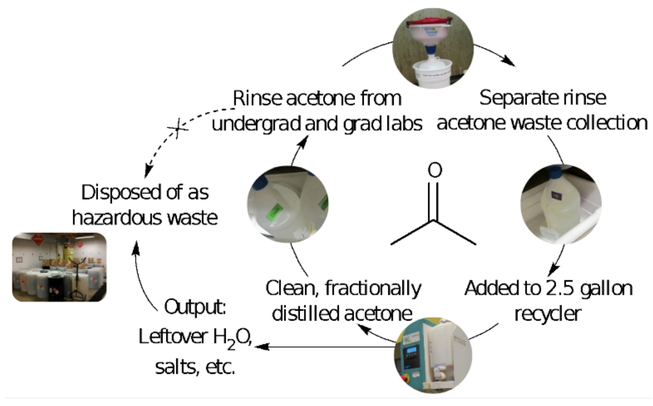


Carboys

Pipette Tip Boxes

Solvent Recycling – Acetone Data 2013-2019

Total Input	1,791 gallons
Total Output	1,297 gallons
Efficiency	72.4%
Acetone Cost	$14.9/gallon
Savings	$19,325



Glove Recycling Pilot – GenChem Teaching Labs

Estimated 100,000 gloves recycled per semester while campus determines the best program to adopt.

CU Boulder Acknowledgements:

Chemistry Department
Green Labs Program
Environmental Health & Safety
Environmental Center
Facilities Management