Eco-Friendly Ceramics

Do you wonder about how your ceramics practice impacts the health of the world around you, and how you might be able to move towards more eco-friendly best practices and thereby reduce your carbon footprint?

I do! But it feels daunting.

As a small batch potter, I'm drawn to making pottery partly because it's a local, handmade product that comes from natural resources. Sounds eco-friendly, right? How ironic that the process of making ceramics can also harm the environment. Now granted, the biggest negative impacts come from large-scale mining, supply chain, shipping, larger manufacturers and suppliers, and unethical practices. However, as a small batch potter, I've come to realize that there are a few things I can do to help the bigger picture.

The lifecycle of a mug

Initially, I was concerned that adopting eco-friendly practices was going to compromise my design aesthetic, affect the quality of my product, or slow down my efforts. That has not happened. In fact, I've saved money learning how to effectively recycle clay and glaze, and make equipment last longer. But the guilt still lingered. Then I did more research and came across a book about sustainable ceramics called *Potters Save the World*, by Yuliya Makiuk. Yuliya gives an example at the beginning of her book wherein she talks about the carbon footprint and life cycle of a typical ceramic mug, a *dirty* mug (*dirty* = lots of room to improve eco impact), and an eco-friendly mug.

Typical mug	**Dirty mug**	**Eco mug**
7.5 kg of CO2	12 kg CO2	4.1 kg CO2
• 2 kiln firings • Packaging with plastic • Cardboard box • Frit production • Domestic transportation of materials • Clay extraction, international cargo flight, packaging decay • Heating water, soap, and dishwashing	Same as typical, but add or change: • Add cobalt or gold • Imported clay and frit • 3 kiln firings • Polystyrene and plastic packaging • International shipping	Same as typical, but add or change: • Wild clay • Recycled ceramic powder • 1 kiln firing • Reused cardboard box and compostable packaging • Solar panels for dishwashing

She points out that an eco-friendly mug still has a slight carbon footprint and some of the making practices in the eco scenario are hard to achieve. However, the overall point of the three mug scenario is to show how small changes can have a positive impact, and that makers of all kinds can adopt similar changes in their practice. Another important point Yuliya makes (which helped with my lingering guilt) is that the goal is to try to change what's possible within the realm of your design aesthetic and production practices. But you don't need to compromise or stop creating what it is that you make. There is still a need and place for all different types of ceramics. Don't throw the baby out with the bath water, as they say.

The seven R's

Joe Thompson of *Old Forge Creations* summarizes eco-friendly practices as the seven R's:

- Rethink - An overview. What sort of consumer do you want to be?
- Refuse - If a purchase doesn't align with your values, can you live without it?
- Reduce - Can you buy less, or require less shipping and packaging?
- Reuse - Can something have a second use after its original purpose?
- Repair - If it breaks, can it be fixed?
- Regift - If you don't want it, do you know someone who might?
- Recycle - Can the materials be used again?

Eco-friendly tips

Here are a few eco-friendly tips that I've collected from various references and organized according to one of Joe Thompson's blogs. The tips identify eco improvements, but they do not go into detail about how to make those changes. See the Resources section for more online tips and find out how to make these changes.

Water

- Use water sparingly.
- Recycle the leftover water used during wheel throwing and hand building. Let the water sit so that the clay particles sink to the bottom of the container. Sponge the water off the top and reuse it again. Scoop the remaining clay particles into the clay recycling bucket.

Clay

- Recycle all unfired clay.
- Critically assess before you fire pieces. Are the pieces good enough (no S-cracks, wonky handles, thick bottoms, ill-fitted lids, wonky shape.), or should you cut your losses, learn from the experience, and recycle the clay? Once you fire something, it remains in the world for a very, very long time–for 100s and potentially 1000s of years. Glazed and vitrified ceramic pieces do not naturally degrade.

- Consider breaking down flawed pieces that have been fired, grinding the clay shards into a powder, and mixing the powder with other ingredients to make new clay. However, some may argue that the grinding process has a carbon cost.
- How many test tiles do you really need?

Glaze

- Recycle glaze leftovers, including the washing up water. Use it to create a mystery glaze, donate it to a studio, or collect the leftovers and send it to a waste collection site.
- Do not pour glaze leftovers or water down the drain, in the toilet, or dump it in the backyard or garden.
- One disposal suggestion is to let the washing up glaze water sit until the sediment sinks to the bottom of the container. Then sponge the water off the top and dispose of it down the drain. Then recycle the glaze sediment or send it to a waste collection site. However, unless you are an experienced glaze chemist, and know that all the glaze ingredients are not soluble in water or toxic to the environment, do not do this.
- If you use commercial glaze, read the safety data sheet (DS) for each glaze to learn about the ingredients and whether they are hazardous to you and/or the environment. Every glaze and clay manufacturer must publish their DSs, and indicate hazardous and toxic chemicals. You can usually find DSs on the company website.
- If you make your own glaze, are you able to substitute imported minerals for local options? Are you also able to limit your glaze ingredients to a standard set of base ingredients?
- Using dry glaze ingredients (in bulk) rather than using pre-mixed glaze is not only cheaper, it has a smaller shipping/carbon footprint.
- Learn how to troubleshoot and fix glaze issues, such as dead-panning, specific gravity, clumping, etc. rather than throwing it out.
- Reduce or eliminate the use of toxic chemicals and resources, for example lead, cadmium, chromium oxide, nickel oxide, and barium carbonate.
- Reduce or eliminate the use of resources that are often unethically sourced, such as gold and cobalt. In some cases, you can easily replace an expensive or ethically questionable colourant with a stain or an underglaze.

Firing

- The firing process has the biggest impact on your carbon footprint.
- Consider firing at a lower temperature. For example, can you fire at cone 6 rather than at cone 10?
- Explore single firing and raw glazing techniques. If anyone's tried this, let us know!
- When shopping for a new kiln, consider buying a kiln with 3 inch-wide fire brick, which provides better insulation during firing.
- Explore bisque firing for stoneware at temps lower than cone 06. Supposedly, it's doable! If anyone's tried this, let us know!
- Load up your kiln as much as possible before firing.

- Understand the carbon footprint of your power source (wood versus gas versus electricity) and determine if you can improve it.
- Learn how to optimize your firing schedule rather than relying on the built-in kiln programs, which may run longer than required.
- Effectively maintain and calibrate your kiln for optimal performance and efficiency..

Materials

- Economize your tool usage. For example, cut sponges in half and use reusable/washable hand towels.
- Reuse common things around the house as pottery tools, for example, use an old toothbrush as a scoring tool and use food packaging cardboard to create hand-building templates.
- Sharpen your cutting tools rather than replacing them.
- Use washable rags and sponges rather than disposable cleaning cloths.
- Become more aware of the mining impact of clay and other mineral resources that you use in your practice.
- Donate fired, flawed ceramic pieces to a mosaic artist.

Shipping

- Shop local as much as possible rather than using materials and tools that are shipped long distances. Know where your supplies come from.
- Use paper and recycled materials to ship products rather than using plastic.
- Determine whether you can sustainably ship within your city or country, or if there is a specific need to ship globally.

Voice

- Use your artistic abilities to be a positive voice for the protection of the environment and raise awareness.
- Share and teach what you learn.

Carbon Credits

Did you know that you can purchase carbon credits or support tree planting to help offset your pottery production? Buying carbon credits as an individual was news to me! Here are some resources.

https://davidsuzuki.org/project/canadas-climate-ambition/
https://www.goldstandard.org/
https://verra.org/

Resources

AMACO Safety Data Sheets

AMACO Brent publishes their safety data sheets on their website. This is an example of how you can find out what is in your commercial glaze or clay, and whether it is hazardous to you and/or the environment. All commercial glaze and clay producers must publish their data sheets.
https://amaco.com/sds

Claire Ellis

Claire discusses her eco processes and also lists numerous other resources on her website.
https://www.instagram.com/claireellisceramics/
https://bio.site/claireellisceramics
https://www.claireellisceramics.com/sustainability

Digital Fire

This ceramic reference website contains a comprehensive materials list, and indicates all their properties, for example, which ingredients are soluble or hazardous.
https://digitalfire.com/material/list

For Flux Sake Podcast

This podcast covers a lot of eco topics about recycling materials, firing temperatures, pinhole issues and myths, etc.
https://ceramicmaterialsworkshop.com/for-flux-sake-podcast.html
https://www.brickyardnetwork.org/forfluxsake/ep6-ztrlx (Should I bisque higher or lower)

Glazy

This ceramic reference website contains a comprehensive materials list, and indicates all their properties.
https://glazy.org/materials

Here and Now Pottery

https://www.instagram.com/hereandnowpottery/?hl=en

Instagram Hashtags

#ecoceramics
#environmentalceramics
#sustainableart
#sustainableceramic
#sustainableceramicspractice
#potterssavetheworldcommunity

#potterssavetheworld
#rawglazing
#rawceramics
#rawmaterials
#ecoart
#single firing

NCECA Green Task Force

"The Green Task Force is an advisory board that through the tenets of sustainability, community, and education works to expand the capacity of all artists to engage in environmental stewardship."
This site contains a lot of reference links to other sources of information within the ceramics community.
https://www.ncecagtf.com/

Old Forge Creations

Joe Thompson is an avid advocate for eco-friendly ceramics and often posts tips and other resources.
https://www.instagram.com/oldforgecreations/
https://www.oldforgecreations.co.uk/blog/environmentally-friendly-pottery
https://www.oldforgecreations.co.uk/blog/the-co2-cost-of-pottery
https://www.oldforgecreations.co.uk/blog/first-five-ingredients-where-to-start-with-glaze-making

Potters Save the World, by Yuliya Makiuk

https://www.amazon.ca/Potters-Save-World-sustainable-ceramics/dp/B0CM9X5SWH

Tales of a Red Clay Rambler Podcasts

https://www.talesofaredclayrambler.com/episodes
https://talesofaredclayrambler.libsyn.com/501-a-collective-approach-to-sustainability-with-clay-matters

UK Crafts Council
https://www.craftscouncil.org.uk/stories/how-make-your-pottery-practice-greener

https://potterycrafters.com/properly-disposing-of-and-recycling-pottery-glazes/