

SMART PURCHASING GUIDE

Caltech Sustainability

WHAT IS SMART PURCHASING?

Smart purchasing is making well-informed purchasing decisions while supporting both cost reduction and sustainability efforts.

We hope this guide will provide information on how to spot greenwashing, common certifications, important considerations while making a purchase, what questions to ask vendors (and what to look for when they respond), and more.

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GREENWASHING

GREENWASHING IS A DECEPTIVE MARKETING PRACTICE THAT MISREPRESENTS THE ENVIRONMENTAL BENEFITS OF A PRODUCT OR SERVICE TO MAKE IT APPEAR MORE ECO-FRIENDLY THAN IT ACTUALLY IS.

Why do companies greenwash?

1. Because they can! There are very few regulations on how companies talk about their products, and many companies self-report sustainability efforts and can create their own sustainability certifications they then award their products.
2. To outcompete rivals.
3. To meet rising consumer and investor demand for sustainable products and practices.
4. Maximize profit and minimize costs - greenwashing allows companies to increase consumers and investors without sinking the cost required to do actual “green” behaviours.

What are the impacts?

1. Consumers make choices that are not actually environmentally friendly or sustainable (unintentionally undermining their own interests).
2. Keeps consumers from interacting with the reality and consequences of their purchasing behaviour.
3. Undermines consumer and shareholder confidence in green products.

METHODS AND TACTICS OF GREENWASHING

Method	What it looks like	Example
Hidden tradeoffs	*Suggesting a product is sustainable based on a single or small group of attributes, while ignoring other factors.*	*Paper making from sustainably harvested forests. (But: Are they also taking steps to curb energy use, carbon emissions, and water and air pollution? Just the use of sustainably harvested trees alone is marketed but other factors may not be considered.)*
No proof	*Claims are not followed up with supporting evidence or third-party verification. Some companies make claims in good faith based on internal data alone. Data can be manipulated or overstated to support narratives.*	*Products that claim a certain amount of post-consumer recycled content without any sort of supporting evidence for those numbers, OR self-certifying claims.*
Vague or misleading claims	*Broad claims that convey a certain message. Sometimes includes vague language or a lack of transparency.*	*Statements that have no clear meaning/ definition such as just saying a product is "all natural".*
Irrelevant data	*Making a claim that is not useful.*	*Advertising as "CFC-free" when CFCs are already prohibited by law.* *Can also include pictures of leaves or green colours to imply the product is eco-friendly.*
Lesser of two evils	*Claims that risk distracting the purchaser from greater environmental impacts.*	*Fuel-efficient sport utility vehicles.*
Outright lying	*Making claims that are demonstrably false.*	*Products falsely claiming to be Energy Star certified.*

WHAT TO LOOK FOR

Things to look out for include

- Phrases that give the illusion of significant impact ("On the road to xyz goal", "Committed to protecting the planet", "Leaders in sustainability" but don't have data to back these claims up.
- Company carbon offsetting initiatives (offsets are not really equal to the carbon output and are sometimes scams (some companies do undertake carbon offsetting initiatives in good faith!).
- No third-party verification (sometimes claims are made in good faith based on internal data).
- Using broad statements for tangible goals.
- Sales representatives unable or unwilling to provide information about the products or services.
- No transparency from the company of the meaning of their buzzwords.

Common buzzwords (but they lack detail into the true meaning of the word)

- *carbon neutral*
- *eco-friendly*
- *climate friendly*
- *bio-based*
- *biodegradable*
- *carbon neutral*
- *climate friendly*
- *compostable*
- *degradable*
- *environmentally friendly*
- *green*
- *net zero*
- *ocean plastic*
- *oxo-degradable*
- *plant-based*
- *plastic free*
- *recycled / recyclable*
- *reusable*
- *sustainable*

Bonus investigating: Look at the company as a whole and see what their overall environmental practices and policies are

- Search "company name" + "investor relations".
- Look for dedicated sustainability sections or reports on their website (sometimes these are integrated into financial reports).
- Look for certifications like Energy Star or LEED as indicators of commitment.
- Check for waste management or reduction strategies, waste audits, recycling programs, takeback programs, or other efforts to minimize waste generation.
- See if they have tools like this one for assessing the sustainability of chemical processes.

WHAT TO LOOK FOR

01 Third party verifications

Companies should not use data that is self-reported, they should use reputable third-party verifiers to ensure the data is valid, defensible, and accurate. Any claims a company makes should be paired with quantified and/or third-party verified data that is readily available and freely shared with a purchaser.

02 Certifications and accredations

Many companies use labels that appear to be sustainable, but are not real accreditations or certifications (or are created by their own company). Verify certifications are reliable by searching for them on reliable secondary databases.

03 Other sustainability considerations

Investigate other qualities that make the product more sustainable compared to other products. This may be that the item is Energy Star certified, uses fewer consumables, be locally developed and shipped, have a better end-of-life plan (ie. a takeback program when an item can no longer be used) etc.

01

THIRD PARTY VERIFICATIONS

For example: the ACT (Accountability, Consistency, and Transparency) label is one of the better certifications in terms of the third party validation and the ability to compare consumables and equipment across brands by the same metrics. The ACT 2.0 label also incorporates emissions considerations on different scales (institutional, supplier-based) to give the consumer a wider picture of the sustainability practices of the vendor. For equipment, including cold storage units, computers, and other appliance size items, the Energy Star certification is also a well documented certification that can inform the consumer across brands. Certified B corporations are also starting to emerge in the lab vendor space. Inform yourself of what this means for sustainability and equity.

02

CERTIFICATIONS AND ACCREDITATIONS

The ACT label and the Energy Star label are examples of certifications that are supported by data and verified. However, many vendors use marketing schemes that look like they might be accountably aligned with sustainability, but unfortunately these labels are dubious. False accreditations or certifications include those that are from self-certification, self-disclosure, or lack quantification; sometimes companies create their own sustainability certifications and award their own products with it. The ACT label and others fill the gap to some extent, but there is still a vacancy of universal standards that allows for-profit companies to measure their own credentials. Be on the lookout for pictures of leaves, trees, or green colours.

02

CERTIFICATIONS AND ACCREDITATIONS



Verify certifications - do they come from reputable organizations?

Below are some reputable sources to investigate labels on your products.

02

CERTIFICATIONS AND ACCREDITATIONS

The Federal Trade Commission

Created Green Guides designed to help marketers avoid making environmental claims that can be misleading to consumers. They were first issued in 1992, and last revised in 2012.

Below is an example on clarifying language for how a product was made:

Language used	Language explained	Manufacturer's responsibility
Made with recycled content	*Material that was kept out of the trash during the manufacturing process or after people used it.*	*Clearly state whether language applies to the product, packaging or both and if it isn't completely recycled content, the label should tell you what amount is.*
Made with renewable materials	*Materials that can be restored as quickly as they're utilized. Ex "bamboo flooring made from 100% bamboo which grows at the same rate as we use it".*	*Renewable claims often describe what the materials are, why they're renewable and how much of the product is derived.*
Made with renewable energy	*Manufacturing is powered with renewable energy (ex. wind/ solar) or with non-renewable fossil fuels (ex. coal/petroleum) but the manufacturer has purchased renewable energy certificates (RECs) to "off-set" non-renew energy used.*	*"Made with" = all/almost all of the significant manufacturing processes should be powered by renewable energy or the manufacturer should have the RECs to match the manufacturing process. Manufact. should tell you how much of the process is powered that way.*
Carbon offsets	*Actions taken to reduce greenhouse gasses (ex. planting trees) that are translated as "credits".* (*Note: we are generally skeptical of carbon offsets as many are scams and/ or remove responsibility from the vendor for changing habits.*)	*Companies can earn credits by taking action or by buying credits off of other companies as a way to reduce their carbon footprint.*

03

OTHER SUSTAINABILITY CONSIDERATIONS

Our checklist below comments on several aspects of end of life considerations for consumables (such as lower-waste swaps, divestment of surplus, approaching vendors) and samples (such as inventory, cleanup). We'll focus instead on the end of life considerations for equipment, which can come up more seldomly in the lab. It can be harder to develop lab-memory and SOPs around the phasing out of equipment because it occurs at more rare intervals and each equipment piece may have different concerns.

If your equipment is still functional, or functional with reasonable maintenance and cost, a good option at the end of its useful life for your lab is to try to find a place for the equipment in another setting where it will be used. Another lab might be thrilled to inherit your equipment that still has some good use left in it. The Green Labs Marketplace can be used to make your equipment available to other labs. For small equipment (bench top devices) the ReStore can also offer your equipment to others. A division wide email blast would likely reach the largest audience and may receive a response for your equipment. The LEAP program can also be used for placing both equipment and consumables, though coordination with this group has been mixed due to limited responsiveness at times.

For all of the above described avenues for re-use, it is highly recommended that you do an honest assessment of why you are moving the equipment out of your lab - is it because your needs have changed or is it because the piece of equipment doesn't actually work? If the equipment isn't functional, be plain with the facts to any prospective future user. If the equipment doesn't work well and is beyond repair, it's your responsibility to dispose of it responsibly and not pass a lemon onto someone else.

If this is the end of the useful life for your equipment, there are several disposal routes to be aware of. When shopping for equipment, it is often advertised that equipment is easy to recycle. I recently investigated the recycling options for cold storage units with maintenance issues that made them no longer cost effective to maintain. How do these recycling options actually pan out at end of life?

For example: We found that for cold storage units there are two major providers of recycling services external to Caltech, and there is Caltech internal process as well. Unit decommissioning - clean out and decontaminate, prepare for removal of any hazardous refrigerant. Request this service from facilities. Coordination with Facilities Services and EH&S - Caltech ultimately uses https://erecyclingofca.com/ for electronics recycling after recovering refrigerant from cold storage units. Thermo Scientific uses https://e-stewards.org/ and https://sustainableelectronics.org/r2/

03

OTHER SUSTAINABILITY CONSIDERATIONS

1. CHECK if your products have return programs for packaging (including Styrofoam), if products are recyclable after use, if TechMart recommends these products as “green” (indicated by a green leaf near the product), or if they have an ACT LABEL (a label that provides clear information about the environmental impact of a product).
2. CONSIDER swapping the products you commonly order to sustainable options (if needed, reach out to vendors to see if you can get price-matching discounts!)
3. COMPARE equipment choices see if: there are “eco-friendly” modes which reduce energy consumption; items have more sustainable consumable options; a longer average lifespan; fewer maintenance requirements; or if the end-of-life recyclability of an item is environmentally friendly.
4. REDUCE the number of purchases you make by minimizing the size of experiments, or collaborate with a neighbouring lab to reduce the number of orders.
5. INVENTORY supplies and equipment to ensure you are not over-ordering, and establish an easy system for labs to order common goods. Also check out the Green Labs Marketplace (Glassware/Equipment/Chemical share program).

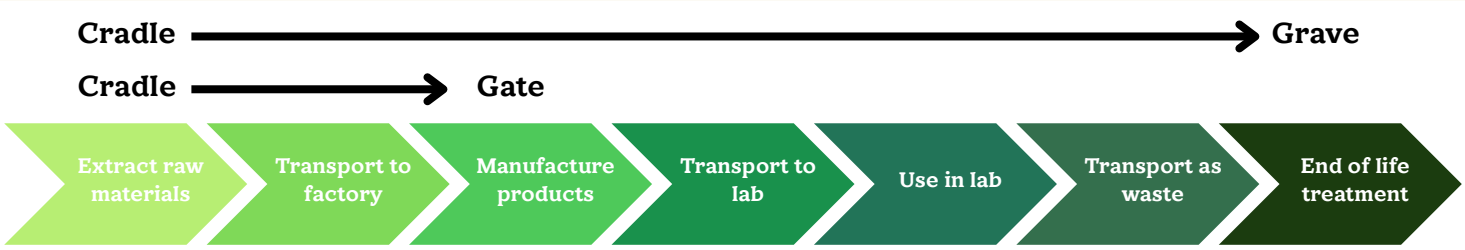
Other resources:

a. Check out the resources on our Clean Up Event page on specific topics to help keep your lab organized and efficient, including recycling signage, chemical inventory spreadsheets, mock order sheets, or sustainable products list.
b. We are also making available digitally fillable inventory sheets or blank printable inventory sheets for freezer inventories. We recommend laminating these sheets or putting them in a sleeve protector to keep them clean and legible.
c. You can search for or divest lab items such as surplus supplies, chemicals, equipment, furniture, and more with our new (beta) Green Labs Marketplace!
d. Check out our Lab Spring Clean Event webpage for more tips and tricks to keeping your lab safe and clutter-free!

03

OTHER SUSTAINABILITY CONSIDERATIONS

Supply chain emissions (or carbon footprint) calculations.
Some vendors will report the carbon footprint of their items as being very "green", but make sure you double-check how that is reported! See the figure below. Some vendors report only "cradle to gate" estimates (as these are the aspects of the supply chain they control), but what might be more useful for you as a purchaser are the "cradle to grave" estimates. Some additional considerations are outlined below.



1. Supply chain emissions are often reported as "**CO2e**", which represents the "carbon dioxide equivalents". This value is a standardized measurement of the climate impact of various greenhouse gases combined into one value.
2. Some groups cannot report on some aspects of their supply chain due to **confidentiality**. This can sometimes be a red flag, but other times it is simply protecting patented processes etc. Use your best judgement here.
3. "**Transport to labs**" aspect of the supply chain is often a generalized estimate (or, sometimes, ignored). The company may know and report how far an item traveled to get to a warehouse, but not how far it travels from the warehouse to the lab. Some companies minimize this value, so do your own research to see if what they report checks out, or take this value with a grain of salt.
4. Another consideration is you should consider is **how your item will be used** in the lab. For example, a pipette tip is used then disposed of very quickly, but a centrifuge, for example, may be used once a week or four hours a day! So those values are also estimated - some companies (like through the ACT label) will report how they did these estimates. Use your smart-purchasing-senses to determine if those values seem realistic for your assessment.
5. These **values are constantly changing** as companies gain better access to information in their supply chain, so don't be surprised if values change!

WHAT CAN YOU DO?

Do your research! You have all the purchasing power and it is valuable to let the vendor know that sustainability is important to you!

We've created a few resources you may find helpful:

- Sustainable purchasing list and mock order sheet.
  - Check out our growing list and/or add your own sustainable products. Keep track of your purchases in an order sheet to prevent over-ordering and keep track of purchases your lab likes/dislikes.

- Sustainability comparison calculator. ***Launching December 2026**
  - Use this calculator to compare several products with weighted scores for sustainability,

- Email templates (below).
  - Below are some email templates you can use to start the conversation with vendors either at the company or product level. We have found that sending two emails, one exploratory and one asking for more detail, is the most effective strategy for getting accurate answers about sustainability from a company.
  - Note, anything in **RED** should be filled in by you or considered optional or additional information not be included in the actual email to the vendor. An answer "key" is available here to help interpret answers from the company.

FIRST EMAIL – COMPANY LEVEL

Hello,

My name is NAME, and I am JOB TITLE at Caltech. I am currently working with Caltech Sustainability to develop a list of sustainable companies that we recommend purchasing from. As such, I would like to ask some questions about your company's sustainability initiatives. If your company has sustainability staff, or something similar, please feel free to pass this message along to them.

1. Can you provide environmental impact or sustainability statements to us? And/or can you describe zero waste, energy or water reduction, or other supply chain or manufacturing efficiency/sustainability initiatives your company has.
2. Has your company committed to the UN Race to Zero, signed MASS, or have SBti targets, Green Lab Certification, or other similar sustainability related commitments or certifications?
3. What workplace protections or commitments (such as B-Corp Certification or ESG (Environmental, Social, and Governance) commitments) does your company have in place for employees throughout your supply chain and at your company?

Thank you very much for your time and consideration. I look forward to hearing from you and developing a mutually beneficial working relationship.

Best,

NAME

FOLLOWUP EMAIL – COMPANY LEVEL

Hello,

Thank you very much for getting back to me. Would you be able to share more information with us, including answering the questions below?

1. Does your company provide product repair or servicing, or trainings for us to repair items ourselves?
2. Can you share some examples of sustainability, ESG standards, and/or labor and wage protection commitments or goals your company has? Do these commitments protect members and communities throughout your supply chain (e.g. factory workers, procurement specialists, product sourcing areas, factories, and their communities)?
    i. NOTE: This question comes with some background research needed after responses, so if they tell you where they source their products you can do some sleuthing on your own.
    ii. OPTIONAL: Are there policies or commitments limiting CEO to worker salary ratios?
        1. NOTE: Most companies that have this brag about it so should be easy-ish to find online.
3. Is your company addressing your Scope 1-3 greenhouse gas emissions? If yes, how so?
    a. NOTE: You could also say: Our University recently analyzed our Scope 1-3 greenhouse gas emissions and are making strides to mitigate some of the effects. Is you company also tracking or mitigating greenhouse gas emissions? If so, how?
4. Can you describe any sustainability related certifications your company and/or factories have? What percentage of products sold by your company are manufactured in a factory that has the sustainability related certifications mentioned?

Best,

NAME

FIRST EMAIL – PRODUCT LEVEL

Hello,

My name is NAME, and I am JOB TITLE at Caltech. I am currently working with Caltech Sustainability to develop a list of recommended sustainable products. As such, I would like to ask some questions about PRODUCT NAME HERE. If your company has sustainability staff, or something similar, please feel free to pass this message along to them.

1. Can you share the ACT label or a Life Cycle Analysis (LCA) or other sustainability standards for this product? If not, has your company considered requesting these analyses for your product?
2. Does the manual for this item provide guidance on how to sustainably use your product (i.e. ways to minimize water and/or energy use)?
3. Is the product made from recycled or sustainable materials, or is it compostable? If so, please share the sustainable standards the product meets (e.g. percentage of recycled materials, or the American Society for Testing and Materials (ASTM) standards).

Thank you very much for your time and consideration. I look forward to hearing from you and developing a mutually beneficial working relationship.

Best,

NAME

FOLLOW UP EMAIL – PRODUCT LEVEL

Hello,

Thank you very much for getting back to me. Would you be able to share more information with us, including answering the questions below?

1. Where is this item sourced, manufactured, and distributed from?
    a. OPTIONAL (if you didn't ask above): Can you share some examples of sustainability, ESG standards, and/or labor and wage protection commitments or goals your company has? Do these commitments protect members and communities throughout your supply chain (e.g. factory workers, procurement specialists, product sourcing areas, factories, and their communities)?
2. Has your company worked to reduce waste, conserve water and energy, and reduce greenhouse gas emissions in the sourcing, production, and distribution of the product (e.g. is this product manufactured in a factory powered from renewable energy, or is the item recyclable through a takeback program or in municipal recycling facilities)?
3. How is this item shipped?
    a. OPTIONAL (depends on product): Have you considered sustainable alternatives such as room temperature shipping or compostable packaging?
    b. OPTIONAL (depends on product): Do you have takeback or recycling programs for these items or their shipping materials?

Best,

NAME

We hope these templates give you a head start in doing your own research! Remember to check out the answer "keys" to understand responses from vendors, based on our experience. Good luck, and let us know what you find out!

FINAL CONSIDERATIONS BEFORE PURCHASING AN ITEM:

01 Do you need this item?

Can you share or borrow the product instead of purchasing it? Can you purchase a used item or get the item for free from the campus Surplus Store and/or Lab ReStore?

02 What is the end-of-life for this item?

How will you use and dispose of this item in the most sustainable way? Can it be reused, recycled, donated?

03 What are the impacts of this item?

What are the supply chain considerations for manufacturing and use of the item? How does this item compare to other similar items on climate impact, wellbeing, or health?



ENDMATTER

We hope this guide is useful for you and provides you with the confidence to purchase smartly and sustainably.

In summary, do your homework! Keep an eye out for greenwashing or red flags. Read resistantly and ask for sources. Always confirm that any values reported by a vendor have third-party verifications. Check that certifications and/or accreditations are legit. Finally, use our checklist to: check that the product is sustainable; consider other sustainable alternatives (perhaps those with better end-of-life options, or items with recycled content, or items that can be repaired etc.); compare products and companies and make informed choices (consider purchasing from vendors that are local or small businesses); reduce order size and frequency/speed of orders; and keep an updated inventory of supplies to prevent over-ordering.

You have the the power to make a difference in our supply chain. By reaching out to vendors and asking them about their sustainable practices, or by choosing to purchase items that are verified to be more sustainable, you are voting with your dollars and showing vendors that this is valuable and important to you. The more pressure we put on vendors to act sustainably, the more they will be inclined to do so! Keep up the hard work.

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