Help Desk Archive

Below is a list of questions that were asked via the GLRPR Help Desk. Click on the "View Answer" link under each question to see the answer given.

Autobody P2 Checklists
Question submitted on 4/5/16

Looking for new ideas to promote P2 to autobody shops. Have any P2 programs across the country developed new checklists? Thank you. Liz

View Answer

There are lots and lots of P2 and compliance assistance checklists for auto body shops. Here are some that are more recent:

- The State of Rhode Island and the U.S. EPA Region 5 states have developed self-certification programs for auto body shops. The Rhode Island program is a partnership between their Department of Environmental Management; University of Rhode Island (URI) Center for Pollution Prevention; the Department of Health's OSHA Consultative Services; and Davies Vocational School. They work with shops in the state to identify both environmental and health hazards. The Region 5 program is a cooperative effort among the states to develop a comprehensive self-certification checklist and other tools to help the industry understand the environmental, health, and safety regulations that affect them. Both programs include P2 and compliance information.

- The Connecticut Department of the Environment has a variety of fact sheets related to P2 in the automotive repair industry, which were all updated in 2014 and 2015.

- Ohio EPA has an up-to-date collection of compliance information for auto repair and auto body shops.

- The California Department of Toxic Substances Control has P2 information for auto body shops. Their checklist was last updated in 2006.

Finally, you might want to check out the final report from MnTAP's 2008 work with auto body shops, which was part of a Minnesota Environmental Initiative project. It might give you some ideas for future projects. They also have information for companies.

Was this answer helpful to you? Yes No | Permalink

Great Lakes Pollution
Question submitted on 10/29/14

Hello! I am writing to you in regards to a school project where we are doing a project on the Great Lakes pollution. I would like to know, What kind of pollution is the most detrimental to the Great Lakes health? Why? If you could ban one of the types of pollution, what would it be? Why? Finally, What shape do you think that the Lakes will be in 2 years, 5 years and 10 years.

View Answer

2 of 2 people found this answer helpful.

I recommend that you take a look at the following, which may provide answers to your questions:


Was this answer helpful to you? Yes No | Permalink

recycling
Question submitted on 10/24/13

At Orbus (in the Chicago area) we use mdf board to make products. We have been throwing the cutoff pieces in the garbage which eventually goes to a landfill. Are there any local companies that recycle medium-density fibreboard?

View Answer

Some Habitat for Humanity ReStores take particle board, MDF, and other wood scraps that are in rectangular sheet form. They would be willing to send a truck to Orbus to pick up scrap material, but only if it was cut into rectangular sheets. From the picture you sent, it looks like you'd have to cut down all your scrap materials so that the cut-out sections were removed, leaving only square/rectangular sections.

Another option is to send the scrap to Chip Energy Facility (Goodfield, IL). This solution would not be viable until later in 2014. Chip energy is pelletizer of wood/combustible material. The fuel pellets they produce are used in combustion plants to produce electricity. Paul Wever, from Chip Energy, confirmed that MDF/particle board will be a material they can accept once their facility is up and running in late 2014. A key bar to this solution would be the cost of shipping the material, but Chip may have pick up routes or other solutions to this once the facility is operational.

Finally, your company could implement Lean Manufacturing measure(s) to reduce the amount of scrap material produced. The Illinois Manufacturing Excellence Center (IMEC) offers training and assistance in lean manufacturing techniques. You may have already looked at those type of options, but IMEC would be able to send someone out to help you consider reduction techniques you may not have considered.

Was this answer helpful to you? Yes No | Permalink

LUST Database
Question submitted on 3/4/13

I am having a difficult time navigating the LUST database. Can you help with this? I need a list of the present and past leaking tanks in Glen Ellyn (DuPage County) Illinois. What does it mean to be "Red Tagged"?

View Answer
Are you referring to the State Fire Marshal's UST database (http://webapps.sfm.illinois.gov/ustsearch/Search.aspx)?

If so, it looks like you can set the Facility Status to ALL, then search by city and download results into an Excel spreadsheet. They have a Help document at http://webapps.sfm.illinois.gov/ustsearch/Help.pdf. To speak to someone about the database, you need to contact the Division of Petroleum and Chemical Safety (http://www.sfm.illinois.gov/about/divisions/ust.aspx). This web page has a phone number and a contact form you can submit.

I did a search for the term "red tagged" as it relates to LUST. When a tank is red-tagged, no additional fuel can be placed into the tank until it brought into compliance. Fuel remaining in the tank prior to being red-tagged can be dispensed (http://www.sfm.illinois.gov/commercial/ust/fap.aspx#Enforcement%20Legislation).

Was this answer helpful to you?  Yes  No  |  Permalink

**environmental training curriculum for dry cleaners**

*Question submitted on 12/13/12*

I'm looking to see if any environmental agency or technical assistance provider has prepared a training curriculum that informs dry cleaners about best management practices to reduce the potential for environmental spills and leaks at their facilities. So far, my internet research has uncovered a California Air Resources Board document entitled "Curriculum for the Environmental Training Program for Perchloroethylene Dry Cleaning Operations." Any assistance you provide would be greatly appreciated.

[View Answer]

Besides the CARB curriculum (http://www.arb.ca.gov/training/gtpmanual.pdf), I didn't find much. TURI funded a project in 1996 entitled Environmental Technologies Initiative Training Curriculum. Here's the description from the web site:

Garment Cleaning Technology (Process/Sector Training Module). Under an EPA grant, and in conjunction with the Massachusetts Department of Environmental Protection and others, TURI developed a pollution prevention training curriculum designed specifically for environmental professionals in public agencies. One of the modules in this training curriculum focuses on the pollution prevention options and technology alternatives available in dry cleaning. The module was piloted with an audience drawn from Massachusetts DEP staff. A copy of this training module can be ordered from the TTC (978-334-3136).

Via the Dry Cleaning Topic Hub (http://libguides.unomaha.edu/content.php7?oid=2725782&id=2727870), I also found slides (http://www.deq.state.mi.us/documents/deq-ess-retap-ppt_P2-DryCleaning.pdf) from a program that the Kentucky P2 Center did for Michigan DEQ on P2 for dry cleaners.

They aren't directly related to what you asked about, but the following might be of use:

*Training Curriculum for Alternative Clothes Cleaning (TURI)*
http://www.epa.gov/ia/ptbs/garmentTech_reg/clothes.pdf

This is focused on wet cleaning, but it might have some useful stuff.

*Guidance Document for Dry Cleaners' Toxics Use Reduction Plans (TURI)*
http://www.turi.org/content/download/7235/137275/file/Dry%20Cleaner%20TUR%20Plan%20Guidance%209nov2011.pdf Not a curriculum but again useful information. Please note that the PDF will automatically download into your browser's Downloads folder but won't open the browser.

Was this answer helpful to you?  Yes  No  |  Permalink

**Dentistry**

*Question submitted on 11/30/11*

Could you please give information on the percentage of mercury in dental amalgam in modern practice? Previously, it was~ 50%.

[View Answer]

According to the U.S Food and Drug Administration, dental amalgam is approximately 50\% elemental mercury by weight (http://www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/DentalProducts/DentalAmalgam/ucm171094.htm).

There are mercury-free alternatives to dental amalgam. See http://www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/DentalProducts/DentalAmalgam/ucm171108.htm for more information.

For more information, see:


Centers for Disease Control > Dental Amalgam Use and Benefits http://www.cdc.gov/oralhealth/publications/factsheets/amalgam.htm

Was this answer helpful to you?  Yes  No  |  Permalink

**re:use**

*Question submitted on 5/6/10*

We have a hot tub take we would like to get rid of and has no idea how and or where. Please help I am in Buffalo ny 14207.

[View Answer]

After doing a little research, I have several suggestions for you. Buffalo ReUse (http://www.buffaloreuse.org/Donate/Materials) takes donation of old building materials and other items to resell in their retail store. Profits from the store support their non-profit job training program. According to their donation guidelines, they accept all bathroom fixtures, including tubs. I don't know if this includes hot tubs or not.

If you don't want to donate or they won't take it, you could call around to spa dealers in the area to see if any of them buy back old spas and refurbish them. I found several companies on the West Coast that do this. I don't know if there are any in your area though.

You could also offer it for sale on Craigslist (http://buffalo.craigslist.org/) or for free on Freecycle (http://groups.yahoo.com/group/BuffaloFreecycle/).
Finally, if you’re interested in do it yourself projects, you could turn your old hot tub into a water feature in your yard. See [http://www.wikihow.com/Turn-an-Old-Hot-Tub-Into-a-Water-Feature](http://www.wikihow.com/Turn-an-Old-Hot-Tub-Into-a-Water-Feature) for instructions.

Was this answer helpful to you?  Yes  No  |  Permalink

### Household chemical or ingredient listing on label requirement

**Question submitted on 8/18/09**

We have been searching for labeling requirements of household cleaning products such as all purpose cleaner, glass cleaner, dishwasher, laundry detergent, etc and have not been able to find the information. Would you please provide us some references on this subject? Thank you

- [View Answer](#)


Was this answer helpful to you?  Yes  No  |  Permalink

### Auto Fuel Savers

**Question submitted on 3/10/08**

Running CarWithWater.com, claims they can double your auto gas mileage and reduce fuel emissions by installing one of their devices that supposedly extracts a hydrogen compound that mixes with your gas to improve engine efficiency. They claim to be EPA approved. Is this true

- [View Answer](#)

### Start up grants for a green business

**Question submitted on 1/15/08**

We are looking for information about grants for start-up costs for a business in the green industry. We are based in Indiana. The company intents to provide services that allow a homeowner/business owner to retro fit their home/building with energy efficient products. That would include triply polymer foam insulation, high efficiency heating and air (including gas thermal), Solar panels, tankless water heaters, reverse osmosis systems/ water filters, and high efficiency appliances.

- [View Answer](#)

1 of 1 people found this answer helpful.


Was this answer helpful to you?  Yes  No  |  Permalink

### Paper use

**Question submitted on 1/10/08**

I have a question regarding using paper fast food napkins, paper towels and toilet paper to help save the world in doing our part for conservation. The other day on the Oprah show, a guest suggested we should cut down our use of paper napkins to save a bunch of trees. I think we should use less paper towels too. And, I wondered if the use of single ply toilet paper would also help save the trees as well as saving us trouble with our potty drains not just in homes but in homes where the drainage system isn't that great. What do you think? Should we all buy single ply? Shouldn't we use linen napkins more. Any additional suggestions for conservation with regard to paper?

- [View Answer](#)

As with most consumer choices, there are trade-offs. For example, if you use cloth napkins instead of paper, you're still going to effect the environment every time you wash them, especially if you're not using eco-friendly laundry detergent. However, if you use paper products made from post-consumer recycled content, you'll also minimize your environmental footprint.

For an excellent discussion these issues, take a look at The Consumer's Guide to Effective Environmental Choices ([http://www.worldcat.org/oclc/39335766](http://www.worldcat.org/oclc/39335766)). Although it was published in 1999, it's still the best book I've seen for helping consumers make choices that really will have an environmental impact.

That being said, there are ways that we can all reduce our use of paper (although I'm personally not willing to skimp on the toilet paper). Some resources include:


I hope this helps. If you need more information, please let me know.

Was this answer helpful to you?  Yes  No  |  Permalink

### Electronics Disposal

**Question submitted on 12/4/07**
I have a number of electronic items such as tuners, amplifiers, speakers, etc. that I wish to dispose of. Can you direct me to a recycling facility for such equipment? I live in Rockton, IL 61072, just north of Rockford.

View Answer

1 of 2 people found this answer helpful.

If the equipment still works (or even if it doesn't), you could offer it through Rockford's Freecycle group. See http://www.freecycle.org/group/UpI Illinois/Rockford for more information.

Best Buy's recycling program is one option (http://www.bestbuy.com/recycling). They take audio components, but I don't know if they take them at any time or if you have to wait for a specific event. Call your local store to find out.

The Illinois Department of Commerce and Economic Opportunity has a directory of Illinois electronics recyclers on the web at http://www.illinoisbiz.biz/NR/rdonlyres/3627F4E9-0FC6-4F02-9820-231C9902ABBD/1 FY_08_IllinoisDirectorofElectronicEquipmentComputerRecyclers.pdf. There are several listed for Winnebago County.

Green funerals/burial
Question submitted on 11/7/07

What do you think about a green funeral/burial? Where is this option available?

View Answer

I think it sounds like an interesting idea.

The Green Burial Council (http://www.greenburialcouncil.org/) has a wealth of information on green funerals, including information about providers.

You might also want to check out the book Grave Matters: A Journey Through the Modern Funeral Industry to a Natural Way of Burial. See http://gravematters.us/ for more information. To find libraries near you who have the book, see http://worldcat.org/oclc/71189919.

I also found some posts on the topic at Treehugger. The most recent include:

Treehugger Picks: Going Out In Green Style

The Green Goodbye

Death Becomes Her: Dr. G. to Get Green Morgue

Jute In Time for a Green Funeral Revival

Source(s):
Green Burial Council
http://www.greenburialcouncil.org/

Treehugger.com search for "green burial"
http://www.treehugger.com/search.php?q=017401606067716418337%3Atptpqkl1yw8&co=FORID%3A11&co=green+burbial&sa=Search#21

Was this answer helpful to you? Yes No | Permalink

Base catalyzed transesterification with refined oils
Question submitted on 10/12/07

I'm looking for information on base catalyzed transesterification with refined oils. It's related to the process of biodiesel production.

View Answer

I'm not sure how technical an answer you want. Try these to start with: Wikipedia -- Biodiesel Production

Wikipedia -- Transesterification
http://en.wikipedia.org/wiki/Transesterification

Biodiesel Production and Quality

Transesterification of Vegetable Oils: a Review

Review article from the Journal of the Brazilian Chemical Society

Optimization of Base-Catalyzed Transesterification Reaction of Used Cooking Oil
http://pubs.acs.org/ci/doi-bin/abstract.co.en1vem/2004/18/06/abs/ef049891c.html

Abstract of an article from Energy Fuels, published by the American Chemical Society

Base Catalyzed Fast-Transesterification of Soybean Oil Using Ultrasoundation
http://asae.fy.multicom/rest request.asp?JID=5&aid=2.15511&CID=pr0206&T=2

Paper presented at the 2006 American Society of Agricultural and Biological Engineers

I hope this helps. Please let me know if you need more information.

Was this answer helpful to you? Yes No | Permalink

I need info on biodiesel and transesterification
Question submitted on 10/12/07
When was it invented? what are the earliest uses? and list and explain each step? Not asking you to do this for me. Just do you know of a website where I can find this information?

View Answer

0 of 1 people found this answer helpful.

Check out the following web sites for general information on biodiesel and the transesterification process:

DOE's Alternative Fuels Data Center -- Biodiesel  
http://www.eere.energy.gov/aftg/altfuel/biodiesel.html

Biodiesel America.org -- What is Biodiesel  
http://biodieselamerica.org/what_is_biodiesel


You may also be interested in Biodiesel Research: A Bibliography and Finding Aid, available at  

Was this answer helpful to you?  Yes  No  | Permalink

Where can I find a recycling center in Houston that takes plastics and glass?
Question submitted on 10/12/07

Where can I find a recycling center in Houston that takes plastics and glass?

View Answer

1 of 1 people found this answer helpful.

The City of Houston web site's recycling page has a list of neighborhood drop-off sites at  
http://www.houstontx.gov/solidwaste/recycling.html#dropoff. They accept glass food and beverage jars and plastic bottles and jugs (#1 and only).

Was this answer helpful to you?  Yes  No  | Permalink

What is the meaning of biodegradable/biocomposites contained in plastic?
Question submitted on 10/12/07

May I know what is the definitions of and difference between biodegradable and biocomposites?

View Answer

1 of 1 people found this answer helpful.

Here are the definitions from Wikipedia:

Biocomposites: A biocomposite is a material formed by a matrix (resin) and a reinforcement of natural fibers (usually derived from plants or cellulose). With wide-ranging uses from environment-friendly biodegradable composites to biomedical composites for drug/gene delivery, tissue engineering applications and cosmetic orthodontics. They often mimic the structures of the living materials involved in the process in addition to the strengthening properties of the matrix that was used but still providing biocompatibility, e.g. in creating scaffolds in bone tissue engineering.

[Source:  http://en.wikipedia.org/wiki/Biocomposite]

Biodegradable: Biodegradation is the process by which organic substances are broken down by living organisms. The term is often used in relation to ecology, waste management, environmental remediation (bioremediation) and to plastic materials, due to their long life span. Organic material can be degraded aerobically, with oxygen, or anaerobically, without oxygen.

[Source:  http://en.wikipedia.org/wiki/Biodegradable]

Was this answer helpful to you?  Yes  No  | Permalink

Where can I recycle non-working stereo equipment?
Question submitted on 10/12/07

The local electronics recycling programs seem to accept only computer equipment and wireless phones. I'd like to recycle a Teac bookshelf mi component system. I'm in East Brunswick, NJ 08816.

View Answer

Middlesex has a permanent drop-off site for broken or outdated consumer electronic items, located at the office of Hestech, LLC - 45 Executive Ave., Edison.

Hours: First Saturday of each month from 9:00 a.m. - 1:00 p.m.; and the third Monday of each month from 12 noon - 4:00 p.m. Closed holidays and some weekends.

This service is free to Middlesex County residents (proof of residency will be requested).

Items accepted include: computer equipment (including CPUs, monitors, keyboards, scanners, modems, printers, and cables), TVs, telephone irons, fluorescent lamps and thermostats and thermostats containing mercury.

For directions and information: Contact the Middlesex County Division of Solid Waste Management at (732) 745-4170, or e-mail solidwaste@co.middlesex.nj.us.

I suggest contacting them before hauling it there, just to make sure that they'll take it.

[Source:  http://www.oldbridgeo.com/content/50/156/193/default.aspx]

Was this answer helpful to you?  Yes  No  | Permalink

Recycling project
Question submitted on 10/12/07

Can you guys give me some ideas about our recycle project? Did I mention that we need to use plastic?
View Answer
I need a little more information in order to really answer your question. What specifically do you need to do for your recycling project?
For background information on recycling, explore [http://www.epa.gov/hschool/waste.htm#solid](http://www.epa.gov/hschool/waste.htm#solid) Meanwhile, if you can supply some details, I'll be happy to help you.
Was this answer helpful to you? [Yes] [No] | Permalink

Who are the best "green" commercial lighting contractors in the Midatlantic region? LEED accredited?
Question submitted on 10/12/07
I am designing a LEED silver office building, and I have some questions regarding daylighting and other energy efficient lighting technologies, from a contractors practical point of view.
View Answer
I don't have any suggestions for the best commercial lighting contractors. However, the U.S. Green Building Council's membership directory is good place to start. You can access it online at no charge at [http://www.usgbc.org/myUSGBC/Members/MembersDirectory.aspx?CategoryID=2&CMSPageId=140](http://www.usgbc.org/myUSGBC/Members/MembersDirectory.aspx?CategoryID=2&CMSPageId=140). You can retrieve results by category (Contractors and Builders) and State.
Was this answer helpful to you? [Yes] [No] | Permalink

Is there a Whole Earth Catalogue available today?
Question submitted on 10/12/07
Is there a Whole Earth Catalogue available today?
View Answer
According to Wikipedia ([http://en.wikipedia.org/wiki/Whole_Earth_Catalog](http://en.wikipedia.org/wiki/Whole_Earth_Catalog)), the last Whole Earth Catalog was published in 1998. You can purchase used copies from various sellers on E-Bay, Amazon, and Half.com, among others.
Was this answer helpful to you? [Yes] [No] | Permalink

Question submitted on 10/12/07
I want find info about straw bale, adobe and other types of construction beyond the "stick house" that is still so much the norm.
View Answer
There are quite a few good books on the subject. Worldcat.org has a comprehensive list available at [http://worldcat.org/search?gss=y%5AEcological+houses+&qt=subject](http://worldcat.org/search?gss=y%5AEcological+houses+&qt=subject). These and the other titles on the list are available through your local library, either in their collection or through their interlibrary loan service.
A couple of particularly good titles are:
For items on straw bale building specifically, see [http://worldcat.org/search?q=straw+bale+building&Search&=owc_search](http://worldcat.org/search?q=straw+bale+building&Search&=owc_search).
If you're looking for information on the Internet, try:
A Sourcebook for Green and Sustainable Building
Building With Awareness
Sells books and DVDs about straw bale house construction
Was this answer helpful to you? [Yes] [No] | Permalink

Question submitted on 10/12/07
What are the simple steps for making a 10 person professional office green? We would like to be a carbon neutral office by October of next year but how do we get started? We operate a small business in the Northeast.
View Answer
One of the easiest ways to reduce your carbon footprint is to decrease your energy use. Some ways to do that include replacing incandescent light bulbs with compact fluorescents, turning off lights when leaving a room, and shutting computers down at night. For other ideas, see:
Greening Your Office
[http://www.techsoup.org/learningcenter/training/page5078.cfm](http://www.techsoup.org/learningcenter/training/page5078.cfm)
Your Green Office: How to start greening your office
[http://www.epgeneration.co.uk/centr/modules/green_office/12_gaeting_started.asp](http://www.epgeneration.co.uk/centr/modules/green_office/12_gaeting_started.asp)
Guidelines for Greening Offices
[http://www.entlink.net/education/resources/greenoffice.cfm](http://www.entlink.net/education/resources/greenoffice.cfm)
Geared toward doctors, but includes good general information.
Greening the Office Online Audit
From Friends of the Earth Scotland
How to Green Your Work (Treehugger Green Guide)
http://www.treehugger.com/files/2006/12/how_to_green_your_work.php

Plastics used in patternmaking and information on chemically bonded sands
Question submitted on 12/12/07

I have two questions. 1. What kinds of plastics, urethanes etc., have been popular in patternmaking in the last 40 years? 2. Do you have any information available on chemically bonded sand?

View Answer

1 of 1 people found this answer helpful.

Your first question is outside the scope of my expertise and the resources I have available. I suggest you try this one with your school's library.

As for your second question, the resources below have some general information. If you're looking for something more specific, please let me know.

Foundry Sand
http://www.thrc.gov/hhr20/recycle/waste/s1.htm

Chemically Bonded Sand: Use and Reclamation
http://www.envirowise.gov.uk/EG004

You need to register (it's free) to read the document

Thermal Reclamation of Chemically Bonded Foundry Sand
http://www.p2peas.org/ref/10/09524.htm

Electric Resistance Indirect Radiant-Heated Sand Reclaimer Economic Answer to Sand Reclamation
http://www.p2peas.org/ref/10/09022.pdf

Article on reclaiming used chemically-bonded sands

Putting sand reclamation to the test at General Motors

Was this answer helpful to you? Yes No Permalink

asbestos
Question submitted on 10/10/07

Is there a list of art supplies that contained asbestos?

View Answer

I have been unable to find such a list. According to "Are Art Supplies Toxic?" (http://www.coopamerica.org/jobs/realmoney/articles/toxicart.cfm):

"In 2000, ACMI's [Art and Creative Materials Institute] safety protocols came under fire when the Seattle Post-Intelligencer [http://seattlepi.nwsource.com/national/craw23.shtml] broke the news that carcinogenic asbestos had been found in Crayola, Prang, and Rose Art crayons, all of which bear the nontoxic AP label. While asbestos was not an actual ingredient in any of the three brands, it is a common contaminant of talc, which has long been used as a strengthener in crayons. (Later that year, all three manufacturers agreed to stop using talc in crayons.)

Fanning says ACMI responded immediately, conducting its own testing, and the CPSC tested the three brands as well. None found asbestos.

"What we and the CPSC did find were talc fibers and cleavage fragments, which are too short to be asbestos but are often misinterpreted by some labs as asbestos," says Fanning. "Had we found asbestos in the three brands as well, none found asbestos.

"For further information, see:

Guidelines for the Safe Use of Art and Craft Materials (updated May 2007)
http://www.oehha.ca.gov/education/art/artguide.html

Better Art Supplies for Budding Artists
http://www.thegreenguide.com/doc/116/artsupplies

Guide to Using Art and Craft Materials Safely
http://www.thegreenguide.com/article/arts/supplies

What: s on the Label: Art and Hobby Supplies
http://www.chemnet.org/health/house/education/articles-detail.asp?Main_ID=622

Was this answer helpful to you? Yes No Permalink

Starting a campus recycling program
Question submitted on 9/4/07

How do I start a recycling program at my university?

View Answer

Freehealplanet.org has an online publication entitled "On-Campus Recycling Campaign Guide" (http://www.freehealplanet.org/resources/recycling_guide.pdf) It has excellent suggestions for starting recycling programs on college campuses.

The National Wildlife Federation’s Campus Ecology program has lots of information about environmental projects in the university environment. They also have case studies from campuses across the country. See http://www.nwf.org/campus ecology/ for more information.
Finally, the Grassroots Recycling Network has a Campus Action campaign that includes links to successful campus recycling programs. See http://www.grrn.org/campus/campus_recycling.html.

Environmental Opportunity Assessments of Company Cafeterias
Question submitted on 8/29/07

We would like to hire external consultants to come in and do a detailed review of our current cafeteria operations, to evaluate opportunities to reduce energy, water and waste usage, to increase recycling rates, and to evaluate procurement opportunities. We would also like total cost accounting to be considered when recommendations are made. We want to bring people in who have expertise in the food service industry, as opposed to environmental consultants who are typically process engineers and have much experience in manufacturing settings. Any suggestions as to organizations I could contact to locate these subject matter experts?

View Answer

I did a Google search on "food service" consultant and found the Foodservice Consultants Society International (http://www.fcsi.org/). I searched their membership directory (http://www.fcsi.org/directory/tab) for "Energy & Environment" and Illinois and found Harry Schilkraut of S3 Consulting, located in Hawthorn Woods, IL. The firm is on the web at http://www.s3consultants.net/.

Was this answer helpful to you? Yes No | Permalink

Reuse of reverse osmosis reject water for site irrigation
Question submitted on 7/9/07

I am trying to find case studies of businesses reusing their reverse osmosis reject water for site irrigation/watering. I have been unable to track down any case studies.

View Answer

I searched several online databases and found one relevant citation in Water Resources Abstracts. I’ve included it below. If you wish to obtain copy of the paper, you can do so through your local or company library’s interlibrary loan service.

Here’s the citation for the paper I found:


Abstract: Reuse of a combination of domestic wastewater effluent and reverse osmosis reject (concentrate) water by spray irrigation is detail in this paper. A case history is provided, including economics, water quality parameters, flows and environmental regulatory requirements, for spray irrigation reuse of wastewater streams at a planned unit development in southwest Florida. Costs associated with effluent and concentrate disposal as well as the recycle program are estimated. Advantages (such as lower costs to develop the wellfield, lower capital and operation/maintenance costs to produce potable water) and disadvantages (water quality) of the reuse system are highlighted.

I also located some documents by searching Google for "reverse osmosis reject water" reuse irrigation. Some of these don’t match your exact criteria, but may give you some ideas for places to contact for more information.

Water Conservation for Building Managers — Lessons Learned
http://www.uos.harvard.edu/ehs/envhp/water_conservation.pdf

Archived message on the SAFETY e-mail list regarding RORW (including contact e-mails)
http://list.uvm.edu/cgi-bin/wa72a2=ind9909a&L=safety&P=7915
One of the engineers mentions using RORW for golf course irrigation.

MIT Facilities Water Reuse
http://web.mit.edu/facilities/environmental/conserve-facts.html
They’re using RORW as non-potable water in their laboratories. Might be worth contacting to see if they are using it for irrigation too. Contact information is included on the web site.

Conserving the Earth’s Water (Motorola)
http://www.motorola.com/ehs/environment/leadership/water.html
The Hong Kong, China site uses reverse osmosis reject water for outdoor irrigation and recycles 94% of wastewater for reuse in manufacturing. The contact person for press releases dealing with Motorola’s environmental issues appears to be Tama McWhinney, ph. (847) 538-1865, e-mail: tama.mcwhinney@motorola.com.

Duke University’s Fitzpatrick Center
http://www.pratt.duke.edu/about/fitzpatrick_leed.php
Click on Water Efficiency. They’re using RORW to irrigate. Contact information is at the bottom right of the page.

If these results aren’t satisfactory, please let me know. I’ll be happy to post your question to the P2Tech e-mail list. The pollution prevention professionals there may be able to offer more suggestions.

Was this answer helpful to you? Yes No | Permalink

Biodiesel tax incentives
Question submitted on 1/31/07

I have heard about a $1/gallon government incentive for biodiesel. I would like some information about who provides the incentive and who gets it.

View Answer

This incentive is also known as the Biodiesel and Ethanol (VEETC) Tax Credit. According to the U.S. Department of Energy, the American Jobs Creation Act of 2004 (Public Law 108-357) created tax incentives for biodiesel fuels and extended the tax credit for fuel ethanol. The biodiesel credit is available to blenders/retailers beginning in January 2005. It also established the Volumetric Ethanol Excise Tax Credit (VEETC), which provides ethanol blenders/retailers with $.51 per pure gallon of ethanol blended or $.0051 per percentage point of ethanol blended (i.e., E10 is eligible for $.051/gal; E85 is eligible for $.4335/gal). The incentive is available until 2010.

Section 1344 of the Energy Policy Act of 2005 extended the tax credit for biodiesel producers through 2008. The credits are $.51 per gallon of ethanol at 190 proof or greater, $1.00 per gallon of agri-biodiesel, and $.50 per gallon of waste-grease biodiesel. If the fuel is used in a mixtu
the credit amounts to $.0051 per percentage point ethanol or $.01 per percentage point of agri-biodiesel used or $.005 per percentage point waste-grease biodiesel (i.e. E100 is eligible for $.51 per gallon) (Source: http://www.eere.energy.gov/afdc/props/view/?loc=afdc)

For more details on this program and other incentives for using alternative fuel sources, see:

Getting bucks back for your biodiesel production

State & Federal Incentives & Laws
http://www.eere.energy.gov/afdc/laws/incen_laws.html

This database captures state and federal laws and incentives related to alternative fuels and vehicles, air quality, fuel efficiency, and other transportation-related topics. State-level information is updated annually after each state’s legislative session ends. Federal information is updated after enacted legislation is signed into law.

Was this answer helpful to you?  Yes  No  | Permalink

Sanitary sewer cleaning
Question submitted on 12/1/06

I just read an article in Trenchless Technology (Nov 2006) about Northeast Ohio Regional Sewer District, Cleveland comprehensive sewer inspection. I just assumed that specs. were available for review. Does the procurement department have these available via their website?

View Answer

You’ll need to contact them directly to ask. They’re on the web at http://www.neorsd.org/Internet/do/viewhome.do. Contact information is at http://www.neorsd.org/Internet/do/viewContactUs.do.

Was this answer helpful to you?  Yes  No  | Permalink

Long term effects of spraying
Question submitted on 10/1/06

I am trying to get information on the long term effects of spraying Budd Lake in Harrison for the invasive weed infestation. Do have or know of any sources?

View Answer

I assume you mean Budd Lake in Michigan. Without knowing what they’re spraying, I can’t give you specific information. If you do know what being sprayed, you should be able to find information for that specific chemical in the Agency for Toxic Substances and Disease Registry’s ToxFAQs. See http://www.atsdr.cdc.gov/toxFAQ.html.

If you don’t know what is being sprayed, I suggest contacting whoever is doing the spraying to find out. If you don’t know who that is, then try contacting the Inland Lakes and Streams program at the Michigan Department of Environmental Quality (e-mail: hassj@michigan.gov or phor (517) 241-3139). They may be able to help you or put you in contact with someone who can.

Was this answer helpful to you?  Yes  No  | Permalink

Wisconsin Diesel Truck Idling Reduction Grant Program
Question submitted on 8/13/06

Where do I get information regarding requirements and an application form? This site doesn’t work: commerce.wi.gov/BD/BD-CA-Diesel-Grant.html

View Answer

The link (http://commerce.wi.gov/BD/BD-CA-Diesel-Grant-Program.html) worked for me just now. There is also a factsheet in PDF available at http://commerce.wi.gov/BD/docs/BD-CA-DTRGPFactsheet.pdf.

If neither of these work for you, you can contact the program staff at Jean.Beckwith@Wisconsin.gov. You can also phone Jean Beckwith at (608) 261-2517.

Was this answer helpful to you?  Yes  No  | Permalink

Rainbarrels
Question submitted on 6/30/06

How can I get one of the city’s rainbarrels discussed in the latest issue of the City of Chicago’s Dept. of Water Management’s newsletter?

View Answer

Take a look at http://tinyurl.com/v47xs for information about getting a rain barrel from the city. It looks like the rain barrels are gone now but you can put your name on a notification list and they will contact you if more become available.

The Chicago Center for Green Technology has sponsored workshops on making your own rain barrel in the past. You can contact them at (312) 746-9642 or email greentech@cityofchicago.org to see if they still offer them.

For more information on rain barrels, see:

How to Make Your Own Rain Barrel (Chicago Center for Green Technology)
http://tinyurl.com/p4kv8e

How to Install and Maintain a Rain Barrel (Chicago Center for Green Technology)
http://tinyurl.com/h55yh

Rain Barrel Guide
http://rainbarrelguide.com/

Was this answer helpful to you?  Yes  No  | Permalink

EPA Source Reduction Assistance Grant Program
Question submitted on 6/6/06
We are interested in writing a grant proposal for this grant for Region 5 under the "greening the government" category. I was hoping that you might provide me with a list of P2 work that has already been accomplished in your fields of interest.

I'm not quite sure I understand your question. GLRPR is a regional membership organization of pollution prevention technical assistance providers. To get an idea of current regional projects, I suggest visiting the web sites of some of the organizations listed in the GLRPRR Contact database (http://www.glrprr.org/contacts/). You may also want to take a look at past grant recipients' projects, listed at http://www.epa.gov/region5/p2/grants.htm.

If you're looking for information about other greening government projects outside the region, see:

Greening the Supply Chain
http://www.epa.gov/dfs/tools/greening.htm

Environmentally Preferable Purchasing: Government Procurement
http://www.epa.gov/transportation/efp/efp.htm

Greening Government (Canada)
http://www.greeninggovernment.gc.ca/default.asp?lang=En&n=9697C298-1

Greening Florida Government
http://www.florida.gov/waste/categories/recyclings/pages/GreenGovMain.htm

Greening Colorado Government
http://www.colorado.gov/greeninggovernment/

Office of the Federal Environmental Executive
http://www.ofe.gov/

Closing the Circle Awards: http://www.ofe.gov/ctc_winners.html

Publications: http://www.ofe.gov/pubs/other/pubs.htm

Was this answer helpful to you? [Yes] [No] | Permalink

Great Lakes Food Processing Industry Facilities
Question submitted on 6/6/06

The Multimedia Environmental Compliance Guide for Food Processors (US EPA, 1999) uses a 1994 Department of Commerce map (Table 1-1) that shows the distribution of food processing (SIC 20) facilities throughout the US. Is there an updated version of this information, or information on the number of facilities in the Great Lakes states?

You can get this information from the U.S. Census Bureau's County Business Patterns Database (http://www.census.gov/epcd/cbp/view/cbpview.html). In my experience, you have to pull the data out and dump/paste it into a spreadsheet table, where you can manipulate it to your heart's content.

In order to get this data:

- Select United States from the drop down menu in the County Business Patterns section of the page (at the top). Click the Go button.
- Click the Detail button next to Manufacturing (31-).
- Click the Compare button next to Food Manufacturing (311)

You'll see a table of all 50 states with statistics for food manufacturing in each. Just select the numbers you want and paste them into your favorite spreadsheet program (or Word table).

Was this answer helpful to you? [Yes] [No] | Permalink

C & D LANDFILL
Question submitted on 5/29/06

Could you tell me where to find a list of active C&D landfills in Pennsylvania?

There is a landfill list for Pennsylvania on the PA Department of Environmental Protection web site at http://www.desweb.state.pa.us/landrecwaste/cwp/view.asp?A=1216&A=463564. If this isn't quite what you're looking for, I suggest contacting the DEP Bureau of Waste Management. There is a list of contacts at http://www.desweb.state.pa.us/landrecwaste/cwp/view.asp?A=1216&A=4639864.

Was this answer helpful to you? [Yes] [No] | Permalink

Water standards and information about chemicals to clean heat exchangers
Question submitted on 5/19/06

I am a metallurgist. My client wants me to recommend a new material for heat exchanger tubing used at a waste water plant because of corrosion problems. He has given me tables of water data. I don't know how to interpret them. I need to find out what the "worst" stuff is. Please provide me with water information. Parameters he has given me are: Alkalinity, Ammonia, Fecal Coli., CBOD5, KN, soluble, Nitrate-N, Total suspension, Volatile suspension, Sulfate... and more (usually g/ml). He also wants me to recommend any testing he might need to do for other water parameters. I don't think typical things like Fe, Ca, are an issue.

You should be able to find the answers to your questions in Water Treatment: Principles and Design (New York: Wiley, 2005). The ISBN is 0-471-11018-3. You can view the table of contents at http://www.wiley.com/WileyCDA/WileyTitle/productCd-0471110183.html. It has fairly detailed information on contaminants normally encountered in wastewater treatment plants and should have enough information to help you decipher the data your client gave you and make some recommendations.

You may also find the following web sources helpful:
**U.S. EPA Drinking Water Standards**
[http://www.epa.gov/safewater/standards.html](http://www.epa.gov/safewater/standards.html)

**Interpreting Drinking Water Analysis: What Do the Numbers Mean?**

**Was this answer helpful to you? [Yes] [No] | Permalink**

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**Ozone generators and mold**

*Question submitted on 5/4/06*

*Do ozone generators kill mold?*

**View Answer**

U.S. EPA has a fact sheet addressing this issue. It also includes a substantive bibliography and links to other resources:

**Ozone Generators That Are Sold As Air Cleaners**
[http://www.epa.gov/iiaq/pubs/ozonegen.html](http://www.epa.gov/iiaq/pubs/ozonegen.html)

The purpose of this fact sheet is to provide accurate information regarding the use of ozone-generating devices in indoor occupied spaces. This information is based on the most credible scientific evidence currently available. Whether in its pure form or mixed with other chemicals, ozone can be harmful to health. Some studies show that ozone concentrations produced by ozone generators can exceed health standards even when one follows manufacturer's instructions. Available scientific evidence shows that, at concentrations that do not exceed public health standards, ozone is generally ineffective in controlling indoor air pollution. The public is advised to use proven methods of controlling indoor air pollution.

**See also:**

- Mold/Moisture
  [http://www.epa.gov/mold](http://www.epa.gov/mold)


**Was this answer helpful to you? [Yes] [No] | Permalink**

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**Ethanol plants and the environment**

*Question submitted on 5/4/06*

*Do you have any information about the environmental impact of ethanol plants, particularly their water use?*

**View Answer**

You probably have some of this general information, but just in case, you might want to look at:

- Wikipedia: Ethanol fuel

Brief discussion of criticisms of ethanol. Includes some environmental considerations.

As for water use, it depends on the size of the plant. According to *Environmental Issues and Ethanol Production: Water Issues* ([http://environet.uk.ca/issues/ethanol/eqissues.html](http://environet.uk.ca/issues/ethanol/eqissues.html)),

> The quantity of water needed depends on the design of the production plant and whether or not it is built in conjunction with a feedlot. Modern technology and design can substantially reduce the amount of fresh water needed by a stand-alone ethanol plant. There are “zero discharge” plants in operation that recycle virtually all of the water used in production, limiting the need for large supplies.

The Illinois Environmental Protection Agency and Illinois Department of Commerce and Economic Opportunity have just released a new guidebook called *Building an Ethanol Plant in Illinois: A Guide to Permit Requirements, Funding Opportunities, and Other Considerations*. It’s available on the web at [http://www.epa.state.il.us/agriculture/building-an-ethanol-plant.pdf](http://www.epa.state.il.us/agriculture/building-an-ethanol-plant.pdf). See also a press release about a related workshop held in January 2006 ([http://www.epa.state.il.us/news/html/1-25-06.html](http://www.epa.state.il.us/news/html/1-25-06.html)). It includes contact information that might be helpful.


For more information, you may also want to look at the National Corn to Ethanol Research Center ([http://www.ethanolresearch.com/](http://www.ethanolresearch.com/)), located on the SIU-Edwardsville campus. There’s a contact form at [http://www.ethanolresearch.com/contact.php](http://www.ethanolresearch.com/contact.php).

**Was this answer helpful to you? [Yes] [No] | Permalink**

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**Most polluted Great Lake**

*Question submitted on 3/7/06*

*What is the most polluted Great Lake?*

**View Answer**

I was unable to locate a definitive answer to your question. I would suggest taking a look at the following web sites for some data that can help you:

- Great Lakes Environmental Atlas
  [http://www.epa.gov/lhpo/atlas/intro.html](http://www.epa.gov/lhpo/atlas/intro.html)

- Great Lakes Areas of Concern
  [http://www.epa.gov/lhpo/aoc/](http://www.epa.gov/lhpo/aoc/)

- Great Lakes
  [http://www.epa.gov/lhpo/lakes.html](http://www.epa.gov/lhpo/lakes.html)

In addition, you might want to contact the U.S. Environmental Protection Agency’s Great Lakes National Program Office ([http://www.epa.gov/lhpo/](http://www.epa.gov/lhpo/)). They have a link to a comments form at the bottom of the main page of their site.

**Was this answer helpful to you? [Yes] [No] | Permalink**

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P2 for funeral homes/mortuaries/the funeral industry

Question submitted on 1/26/05

Have any of you ever worked on tech assistance for funeral homes/mortuaries? I found one 1995 study on Formaldehyde Use Reduction, do you know of any other good ones out there?

View Answer

There was a discussion on P2Tech about four years ago about environmental issues associated with crematoria, which are slightly different from funeral homes, but certainly related. At the time, I did a search for one of our staff people on the issue too. Here's what I found:

A search of the P2Tech archives (http://www.great-lakes.net/lists/p2tech) turned up the following (in response to a message originally posted by John Marlin):

- Subject: Re: crematoria
- From: Robert B. Pojasek
- Date: Tue, 29 Dec 1998 15:42:47 -0800 - List-Name: P2Tech

The problem that I understand is that the fillings in the deceased teeth are heated causing some mercury to be volatilized. Crematoria typically do not have air pollution control devices. I understand that in California the morticians have to pull the teeth prior to the baking. This is pollution prevention at work. I do not know what other types of emissions are released from the naked point source (often in close proximity to a neighborhood). Sort of conjures up scenes from ghostbusters!

- Subject: RE: crematoria
- From: John Calcagni
- Date: Tue, 29 Dec 1998 11:16:06 -0500
- List-Name: P2Tech

I would expect some of the same issues associated with medical waste incineration, EPA has published air standards for medical waste incineration. The background documents for this standard are at http://www.epa.gov/tnn/atw/129/hmwi/hmwi.html. EPA also included crematoria in their Mercury point source inventory in their report to Congress. There may be some unique mercury related issues. Also we have a number of articles related to medical waste at our Website http://wrcc.p2ews.org. Go to search databases and then to RLIBY. We can send you any articles you find relevant.

- Subject: RE: crematoria and medical waste
- From: John Calcagni
- Date: Tue, 29 Dec 1998 16:34:25 -0500
- List-Name: P2Tech

Follow up to my previous message: I spoke to Rick Copeland at EPA who headed up the effort on the medical waste incineration standards for air, regarding medical waste incinerators (MWI) and he indicated that the issues are not transferable to crematoria. In fact, crematoria are specifically exempt from the MWI standards. MWI burn a lot of plastics and contaminated supplies which contribute substantial chlorine to the formation of HCl and possibly dioxins and heavy metals. These constituents pose the greater air risk. Tissue matter which is 96% water does not pose these kinds of problems. The EPA air program is looking into crematoria as part of other waste disposal such as combustion of chice carcasses. He expects mercury from fillings being a problem unique to crematoria since it volatilizes at low combustion temperatures and is not easily removed. Ironcally the chlorine levels in MWI result in the formation of HgCl2 which can be removed from the air more easily but ends in the water.

- Subject: Re: crematoria
- From: Kirsten Sinclair Rosselot
- Date: Tue, 29 Dec 1998 21:17:02 -0800
- List-Name: P2Tech

According to the L & E document for dioxins and furans ("Locating and Estimating Air Emissions from Sources of Dioxins and Furans (Draft)," U EPA, May 1996), crematories are a source of dioxin and furan emissions. Incomplete combustion, don't you know.... I've wondered if maybe it wasn't the materials burned with the bodies (clothing, containers, etc.) that caused the dioxin and furan emissions, or perhaps things like artificial hips made of plastic. Emissions could depend on factors such as bc composition, too, I suspect.

The quantities of dioxins and furans emitted are tiny -- on the order of ten to the minus 13 kilograms per pound of body. However, even tiny amounts of these compounds can be cause for concern.

- Subject: Crematoria
- From: Jeff Cantin
- Date: Wed, 06 Jan 1999 13:51:10 -0500
- List-Name: P2Tech

I also did some searching on the web and found the following sites:

Environmental Effects Main Crematorium Concern

Dioxinlike Components in Incinerator Fly Ash: A Comparison between Chemical Analysis Data and Results from a Cell Culture Bioassay (article abstract)

Inventory of Sources of Dioxin in the United States (see section 3.4 beginning on page 3-37 for information on crematoria. A look at the References section at the end may also yield relevant journal articles)
http://www.epa.gov/nea/ced/pdfs/dioxin/dioxin.pdf

Emission Tests Provide Positive Result for Cremation Industry

EPA Publishes New Mercury Data for Crematories

Making Funeral Pyres Eco-Friendly (India)
http://www.hindu.com/2005/05/15/stories/2005051504721000.htm

Florida DEP Division of Air Resource Management: Human Crematories
http://www.dep.state.fl.us/air/permitting/humancrematory.htm
There are also green products available for the industry:

EcoCasket
http://www.environmentalcaskets.com/index.html

Yes, this is what it sounds like.

Environmental Protection Coffin
http://gatt.uspto.gov/netaco/nph-Parse?Sec1=PFTO&Sec2=PTOF&P=PAL&v=1&n=jen.html
archnum.htm&n=14&n=GR15=50&cl=66420001.WKU.2005.PN=66420001&RS=PN=66420001

An environment protection coffin is constructed to include a coffin body made by folding up a patterned sheet material into shape, which patterned sheet material is formed of an outer shell, an inner shell, and at least one intermediate lining sheet sandwiched in between the outer shell and the inner shell.

ECOCEMETERY OFFERS NATURAL BURIAL IN WOODLAND PRESERVE
Conventional burial in the United States bears a resemblance to toxic waste disposal. The Environmental Protection Agency has raised concerns about discharge of embalming fluids from funeral homes into septic and sewage systems. Caskets and vaults may contaminate soil and groundwater by leaching varnishes, preservatives, sealants and metals. Most cemeteries are kept verdant by regular applications of herbicides and pesticides and are “beautified” with turf and invasive exotic species. But Westminster, South Carolina, Billy and Kimberly Campbell have founded Memorial Ecosystems, the first contemporary cemetery in the nation dedicated to ecosystem preservation. At their company’s “ecocemetery,” unembalmed bodies are buried in biodegradable cardboard cremation boxes or simple pine coffins in a native woodland. Plots are sited close to the trail to avoid visitors’ trampling the woodland vegetation. Where topsoil must be removed, it is replaced after burial. Grave markers are simple inscriptions stones mostly found on the property. The Campbells will allow an average of 30 graves per acre, compared to 1,000 or more per acre in some contemporary cemeteries. While burial requirements differ from state to state, they are less constraining than one might expect. In South Carolina, for example, not even a box is legally required. More: http://www.memorialecosystems.com (http://www.memorialecosystems.com). Landscape Architecture, Oct 2002, p 74, by J. William Thompson. [Source: GreenClips.com]

I also found a list of funeral related association web sites at http://healthweb.org/browse.cfm?subjectid=55. Some of these groups may have environmental information posted there.

Was this answer helpful to you? [Yes] [No] | Permalink

Water-based adhesives
Question submitted on 1/25/06

We are studying about water base adhesive market situation. I read PPCR's water based adhesive technology review, released September 1998. Do you have any up data about the market situation or recommend some studies?

View Answer

I did a literature search of Google, Compendex (Engineering Index), and the WMRC Library's in-house article database for studies completed since 2000. I've also forwarded your e-mail to PPCR in case they have anything to add.

You may also want to take a look at the current issue of Adhesives & Sealants Industry. One of the featured articles is a 2006 industry outlook. (http://www.adhesivesmag.com/CDA/Archives/21756d41bc8010VpVCM100000932a8c0)

You can also locate more information about the latest developments in adhesives by contacting one of the trade organizations that represent adhesive manufacturers. There is a list at http://www Giấy.com/trade-associations.html

Please note that we will not provide copies of articles from our database or Compendex. You should be able to obtain them through your local library's interlibrary loan service.

Here are the search results:

WEB SEARCH

Two-Part Water-Based Adhesive Technology Offers Performance and Versatility
http://www.adhesivesmag.com/CDA/Archives/ac78c9c7e5ac8010VpVCM100000932a8c0

Water Based Adhesives Forecast to Match Industry Growth
http://www.adhesivesmag.com/CDA/Archives/5579f5646a8010VpVCM100000932a8c0

Rohm and Haas Advances Water Based Technology
http://www.aiimical.org/industry/story.asp?RECORD_KEY=10&DID=278

Athletic Shoe Manufacturer Eliminates Solvent Emissions and Reduces Drying Time

Ricking the Right Pallet Adhesive
http://screenprinters.net/read_article.php?article_filenames=pallet_adhesive.html

Water, Water Everywhere
http://www.rohmenhaas.com/AdhesivesSealants/PW_e_magazine_nov05/articles/PointOfView.html

Solventless Lamination Reduces Flexible Packaging VOCs
http://www.flexo.org/flexo/article.cfm?ID=42

Water Based Adhesives
http://www.flexo.org/flexo/0202/022002a.cfm?ID=42

Alternative Adhesives Technologies: Foam Furniture and Bedding Industries (A Cleaner Technologies Substitutes Assessment)
http://eerc.utk.edu/ccpc/tap1.html

WMRC ARTICLE CITATION DATABASE

CHEMICAL ENGINEERING

14654. "Bacteria from a Cow's Stomach May be Future Source for Wood Adhesive. Ondrey, G. Chemical Engineering, 111(8), 15-16 (2004). [Location: WMRC Library] Abstract: Scientists from the US Dairy Forage Research Center have discovered an all-natural adhesive that has the potential to replace up to 45% of the petroleum-based, phenol-formaldehyde (PF) resin currently used to bond multiple layers of wood together.

CHEMICAL WEEK
Abstract: "Better," "faster" and "cleaner" may sound like the selling points of a new car, but many adhesives industry members are using these words to describe radiation curing. Simply put, these are the primary advantages over competitive bonding chemistries. More and more end users are reportedly seeing the light as the technology expands into many applications, from food packaging to electronic equipment. Ultraviolet (UV) and electron beam (EB) are the two most publicized forms of radiation curing for adhesives. What is reportedly turning more end users to these technologies is radiation-cured products utilizing hot melt, water-based solutions. These products utilize either UV light or EB energy, with no heat, water or solvents. And because an adhesive is not cured until exposure to UV or EB, users can work with it, place it where they want and have no fear of drying.

Abstract: Adhesives makers say tougher clean-air regulations are forcing them to develop environmentally friendlier products. If that isn't hard enough, then consider marketers must convince fickle customers that the latest green adhesives perform just as well as existing formulations. This is proving to be easier said than done, industry members say, because many end users are reluctant to deviate from products with which they're familiar.

CLEAN TECHNOLOGIES AND ENVIRONMENTAL POLICY

14572. "Adhesive designed by nature (and tested at Redstone Arsenal)." Combie, J.; Steel, A.; Sweetzer, R. Clean Technologies and Environmental Policy, 6, 258-262 (2004). [Location: File]
Abstract: Many adhesives are not particularly environmentally friendly. Montan Biotech has been working on an affordable, water-based adhesive produced from a renewable resource. The high molecular weight polysaccharide is non-toxic, biodegradable and has a melting point of 225°C. This "green" adhesive has good tensile strength approximately 6.2 mbar on bare aluminum and is especially useful on epoxy glass and manufactured woods. Cured adhesive maintained full strength in an environmental chamber during a week-long 85% humidity, temperature-cycling program.

ENVIRONMENTAL HEALTH PERSPECTIVES

Abstract: The electronics industry has relied on lead-tin solder to attach electronic components to printed wiring boards. However, new European regulations stipulated that by July 2006 lead in electronic equipment must be replaced by other substances. Researchers are now exploring two promising substitutes. One is the use of alternative alloys, the most popular being a formulation of tin, silver, and copper. The other is the use of electrically conductive adhesives, polymers such as silicone or polyamide that contain tiny flakes of metals. Both innovation have potential environmental ramifications, however, and their developers are still refining them.

FACT SHEET/ OHIO EPA; NO. 78

Abstract: Lear Corporation's Wauseon Facility is recognized for: implementing process and material improvements to the manufacturing process to minimize waste of any adhesive material used in producing interior door panels; reducing air emissions by 87 percent and the amount of hazardous waste disposed by 95 percent; eliminating employees' exposure to methyl ethyl ketone, toluene, hexane and other potentially harmful solvents; and saving more than $100,000 in raw material expenses alone.

POLLUTION PREVENTION REVIEW

11914. "Alternative Adhesive Use in Furniture-related Industries: " Evaluation of Performance, Cost, and Risk." Wold, Katy; Swanson, Mary; Morris, Mike; Gebig, Jack; Sparks, John; Hanson, Bill. Pollution Prevention Review, 12(1), 1-20 (2002). [Location: WMRC Library]
Abstract: This paper investigates alternatives to traditional adhesives.

Abstract: Curing is required for many industrial production processes and materials, including coatings, adhesives, and composites. Many of these materials can cure on their own after application and exposure to air at room temperature without any outside help. However, the demand for production speeds usually require that curing occur at the maximum rate. Curing is typically speeded up by exposure to heat source of some form, such as an oven. Electric ovens tend to be expensive to operate and gas-fired ovens may be somewhat cheaper to operate, but they emit additional pollution for their products of combustion and may result in lower quality cures. There are alternatives to conventional ovens and thermal curing that can save energy, improve product quality, and offer additional benefits. These four technologies that use electricity as an energy source are in a group that the author calls "applied technologies": infrared, microwave, radio frequency, and ultraviolet. These are examined in this article.

COMPOINDEX

Comparative study on the adhesive properties of different epoxy resins
Prolongo, Silvia G. (Dpt. Ciencia e Ingenieria de Materiales, Universidad Rey Juan Carlos); Del Rosario, Giliberto; Urena, Alejandro Source: International Journal of Adhesion and Adhesives, v 26, n 3, June, 2006, p 125-132
ISSN: 0143-7496 CODEN: IJAADK
Publisher: Elsevier Ltd.
Abstract: Adhesive properties of different epoxy resins have been evaluated in terms of the lap shear strength using aluminium adherends. Its durability in various humid environments has also been analysed. The fracture mechanisms were determined by ESEM observations. Despite fact that fracture seems macroscopically adhesive, it was found that there is an important participation of cohesive fracture mechanisms. Also has been demonstrated that the extension of these micro-cohesive mechanisms is directly correlated with the adhesive strength. Studied epoxy formulations are based on the two different crosslinking mechanisms, addition or liquid systems that are used. The thermal cure reaction selection is initiated by imidazole. The results indicate that epoxy/amine systems present a higher adhesive strength than homopolymerised resins. Nevertheless, the hydrothermal ageing causes more damage to epoxy/amine networks. This observation has been associated with the lower water uptake tendency of homopolymerised resins due to its lower hydroxyl group concentration. A new epoxy formulation based on the use of polyamines/oxane as a hardener has been analysed. This system presents relatively good adhesive resistance, high value of $T_g$ and low water absorption compared with other aliphatic amine/epoxy resins. © 2005 Elsevier Ltd. All rights reserved. (23 refs.)

Biocomposite hardboard from renewable biomass bonded with soybean-based adhesive
Ye, X. (Department of Agricultural and Biosystems Engineering, South Dakota State University); Julson, J.; Kuo, M.; Myers, D. Source: Transactions of the American Society of Agricultural Engineers, v 48, n 4, July/August, 2005, p 1659-1665
ISSN: 0001-2351 CODEN: TAAEAJ
Publisher: American Society of Agricultural Engineers
Abstract: The goal of this study was two-fold. The first was to determine the comparative properties of dry-formed hardboard made from renewable biomass (wheat and soybean straw) and from conventional soft wood fiber. The second was to compare the adhesion properties of soybean-based adhesive with a conventional urea-formaldehyde resin. The hardboard properties evaluated were thickness swell, modulus of rupture, modulus of elasticity, and internal bond strength. The soybean-based adhesive resulted in significantly better mechanical properties
and better water resistance than the urea-formaldehyde resin. Wheat straw and soybean straw were comparable in their mechanical and water resistance properties for hardboard production. However, hardboard made from wheat straw fiber and soy straw fiber had comparable mechanical properties but inferior water resistance to hardboard made from wood fiber. Wheat straw fiber and soy straw fiber can be used as co-fibers without treatment to be competitive with pure wood fiber for both mechanical and water resistance properties. A 50/50% agrifiber/wood fiber composition provided comparable mechanical and water resistance properties to pure wood fiber for hardboard production. The thickness swell of hardboard increased with increasing agrifiber composition. Fiber, rather than adhesive, was the major contributor to thickness swell. Wheat straw fiber and soy straw fiber should be physically or chemically treated to increase their water resistance. © 2005 American Society of Agricultural Engineers. (10 refs.)

Studies on the adhesion behavior of water-based adhesives blended with asan gum
ISSN: 0169-4243 CODEN: JATEEB
Publisher: VSP BV
Abstract: The influence of asan gum, a locally available waste material obtained from the Terminalia alata tree, in blends with waterborne natural rubber adhesive and poly(vinyl acetate), on the lap shear strength and the peel strength has been investigated. Both the strength values increase, even with a small quantity of the gum. At a higher gum content, both these parameters, however, decrease. Fourier Transforms Infrared studies reveal that there is no covalent bonding between the gum and the adhesives, although some hydrogen bonding exists in the poly(vinyl acetate) blend. Morphological studies reveal mechanical interlocking of the adhesive in the substrates. The pseudoplutonic nature of the gum-modified waterborne adhesives has been confirmed from rheological studies using a Brookfield viscometer. The higher lap shear and peel strength values of the gum-modified adhesives compared to the control adhesives are attributed to the higher shear modulus of the form. The 100% modulus and tensile strength of the adhesives blended with the gum are also higher, compared to their controls. VSP 2005. (23 refs)

Characterization of waterborne polyurethane adhesives containing different amounts of ionic groups
Perez-Limina, M. Angeles (Adhesion and Adhesives Laboratory, University of Alicante); Aran-Als, Francisca; Torro-Palau, Ana M.; Organillos-Barcelo, A. Cesar; Martin-Martinez, Jose Miguel Source: International Journal of Adhesion and Adhesives, v 25, n 6, December, 2005, p 507-513
ISSN: 0143-7496 CODEN: IJAADK
Publisher: Elsevier Ltd
Abstract: Waterborne polyurethane adhesives are an interesting alternative to the current solvent-based polyurethane adhesives used in footwear industry. In this study, different aqueous polyurethane dispersions were prepared by using the prepolymer mixing process. The ionic groups content in the polyurethane ionomer structure was varied by changing the amount (5 and 8 wt%) with respect to the prepolymer weight) of the internal emulsifier - dimethylolpropionic acid (DMPA). The decrease in the DMA content slightly increased the particle size in number due to the decrease in both the hydrophilicity of the polyurethane ionomer and the electrolytic stability of the aqueous polyurethane dispersion. Furthermore, the lower the hard segment content in the ionomer and the higher the crystallinity of its polyurethane; however, the resistance to flow under temperature (i.e. thermoplasticity) was reduced. The resistance to thermal degradation of the polyurethane ionomer increased by decreasing the DMPA content due to the lower hard segment content. Finally, high initial adhesive strength was obtained and the adhesion to PVC increased as the DMPA content in the polyurethane ionomer decreased. © 2005 Elsevier Ltd. r reserved. (31 refs.)

Thin-disc test for adhesion-bond strength in solvent environments
Weaver, S. (Chemical and Materials Engineering, University of Kentucky); Gruke, Erik A. Source: Journal of Adhesion, v 81, n 2, February, 2005, p 143-162
ISSN: 0021-8649 CODEN: JADNAJ
Publisher: Taylor and Francis Inc.
Abstract: A number of the popular tests for adhesive strength are difficult to apply to the study of adhesion under solvent environments. Complex applications, in which two different substrate materials need to be bonded and for which the substrates are thin sections, can be particularly difficult to study. The thin-disc test described here uses a thin annular disk of adhesive to bond two dissimilar materials while exposing the bond line to a circulating solvent. The new test was evaluated for a typical inkjet print-head application using surrogates for inkjet water-based inks. The joint is an epoxy adhesive joining a silicon wafer to a thermoplastic part (Rynite [registered trademark]), in which the silicon substrate, the thermoplastic, or the various adhesive interfaces might fail. A conventional lap-shear test was compared with the thin-disc test for samples exposed to four different solvent systems plus water at two different temperatures. Lap-shear test failures occurred mostly in the thermoplastic part, with the exception of two samples exposed to high temperature. By contrast, thin-disc test failures occurred either in the silicon substrate or in the thermoplastic-adhesive interface. The thin-disc failure strengths at the thermoplastic-adhesive interface correlated with the equilibrium solvent swelling that could occur in the adhesive under the test conditions. The method could be adapted to other mixed-substrate bonding systems and would be particularly appropriate for thin section solids and thin adhesive layers. Copyright © Taylor and Francis Inc. (13 refs)

The lowdown on peelable coatings specs and usage
Joseph, Ron Source: Metal Finishing, v 102, n 12, December, 2004, p 45-46
ISSN: 0026-0576 CODEN: MEFFA7
Publisher: Elsevier USA
Abstract: The use of peelable coating for capturing and removing overspray from spray booth walls and ceilings was discussed. Peelable coat are formulated to have a low adhesive strength so that they can be peeled off at the appropriate time. Some water-based peelable coatings are very safe, but the customer is always reminded to review the MSDS for potentially harmful ingredients. Using a simple photoelectric cell, it is easy to measure the difference in booth brightness between a spray booth made of galvanized steel sheeting with and without the application a white peelable coating. (Edited abstract)

Formaldehyde-free environmentally friendly composites based on agricultural waste. I. Novel adhesive system
Basta, Atif H. (Cellulose and Paper Department, National Research Centre); EI-Saied, Housni; Gobran, Riad H. Source: Polymer - Plastics Technology and Engineering, v 43, n 3, May, 2004, p 745-777
ISSN: 0360-2559
Publisher: Marcel Dekker Inc.
Abstract: A novel formaldehyde-free system based on carboxymethyl cellulose was investigated as an adhesive for the production of composites from agricultural waste products such as bagasse. The system was characterized by spectroscopy, thermal analysis, and antimicrobial action. The mechanical and physical properties of the bagasse composites produced were determined. Factors such as water content during board formation, pretreatment of bagasse by water steam, amount of adhesive used, and pressure and temperature of pressing stage were studied arrive at the optimum conditions for improving composite properties. The results obtained show that the novel formaldehyde-free adhesive system has higher antimicrobial action and was found to degrade rapidly with a relatively high amount of residual char in comparison with commercial adhesives. Bagasse composites made with the new adhesive show improvement in mechanical properties, as well as fire retardancy compared with commercial adhesives. Nonisothermal analysis was used to study thermal stability, fire retardancy, and to determine activation energies of degradation. © 2004 by Marcel Dekker, Inc. (24 refs.)

Pozzolanas as additives for grouts: An investigation of their working properties and performance characteristics
Griffin, Isobel (The National Trust for Scotland, South Regional Office) Source: Studies in Conservation, v 49, n 1, 2004, p 23-34
ISSN: 0039-3630 CODEN: SCONAH
Publisher: Int. Inst. for Conservation of Historic and Artistic Works
Abstract: Grouting aims to address a lack of adhesion occurring within the render layers and support of a wall painting through the addition of
an adhesive material with bulking properties. It is often desirable that a grout should set in the absence of air, and one way of achieving this is by using a lime-based grout with the addition of a pozzolana, which will react with the calcium hydroxide to form stable insoluble compounds possessing cementing properties. This paper characterizes a number of pozzolanas currently used for grouting wall paintings on calcareous render, and assesses the working properties and performance characteristics of grouts made with the pozzolanas. The significance of the method of sample preparation on the properties of the grout is discussed. (6 refs.)

Soy-based adhesives with 1, 3-dichloro-2-propanol as a curing agent
Rogers, James (Dept. of Wood Science and Eng., Oregon State University); Geng, Xinglan; Li, Kaichang Source: Wood and Fiber Science, v 31 n 2, April, 2004, p 186-194
ISSN: 0735-6161 CODEN: WFSCE4
Publisher: Society of Wood Science and Technology
Abstract: Increasing concern over the impact of formaldehyde on human health has prompted a need for a formaldehyde-free wood adhesive. In this study, we investigated a new formaldehyde-free wood adhesive system consisting of soy protein (SP) and 1, 3-dichloro-2-propanol (DCP). DCP served as a crosslinking agent for SP The shear strength of wood composites bonded with a SP/DCP adhesive depended on the SP/DCP weight ratio and the reaction conditions such as a reaction time and reaction temperature under which the SP/DCP adhesive was prepared. For a given SP/DCP weight ratio, the higher the reaction shear strength. Under the same reaction conditions, increasing the SP/DCP weight ratio, i.e., decreasing the relative amount of DCP in the adhesive, resulted in a decrease in the shear strength and water resistance of the resulting wood composites. Of all the SP/DCP weight ratios studied, 6:1 SP/DCP weight ratio at 85°C for 1.0 h gave the highest shear strength in the resulting wood composites. In terms of the shear strength, the 8:1 and 10:1 SP/DCP weight ratios were comparable to each other. Further increasing the SP/DCP ratio to 12:1 or 15 greatly decreased the shear strength. The shear strength slightly increased with pressing temperature in the range of 100°C to 160°C at a press time of 5 min. Press times in the range of 1 min to 9 min had insignificant effects on the shear strength at a press temperature of 140°C. Storage of SP-DCP adhesive at room temperature for one or two days did not significantly affect the shear strength. However, a significant reduction of the shear strength was observed after the adhesive was stored at room temperature for 5 days. Wood composites bonded with a SP-DCP adhesive did not delaminate after they underwent a water-soaking-and-drying test and a boiling-water test. The crosslinking reaction between SP and DCP are discussed in detail. (11 refs.)

Investigation of formaldehyde-free wood adhesives from kraft lignin and a polyaminamide-epichlorohydrin resin
Li, Kaichang (Dept. of Wood Sci. and Engineering, Oregon State University); Geng, Xinglan Source: Journal of Adhesion Science and Technology, v 18, n 4, 2004, p 427-439
ISSN: 0169-4243 CODEN: JATEEB
Publisher: VSP BV
Abstract: A formaldehyde-free wood adhesive system consisting of kraft lignin and a polyaminamide-epichlorohydin (RAE) resin (a paper we strength agent) has been investigated in detail. The lignin-RAE adhesives were prepared by mixing an alkaline kraft lignin solution and a PAE solution. Mixing times longer than 20 min had little impact on the shear strength of the wood composites bonded with the lignin-RAE adhesive. The shear strength of the wood composites bonded with the lignin-RAE adhesives increased and then flattened out when the press time and press temperature increased. The shear strength and water resistance of the wood composites bonded with the lignin-RAE adhesives depend strongly on the lignin/PAE weight ratio. Of the weight ratios studied, the 3:1 lignin/PAE weight ratio resulted in the highest shear strength and the highest water resistance of the resulting wood composites. The wood composites bonded with the lignin-RAE adhesives did not delaminate and retained very high strengths even after they underwent a boiling-water test. The lignin-RAE adhesives could be stored at room temperature for two days without losing their adhesion ability. PAE was the crosslinking agent in this lignin-RAE adhesive. Possible reactions between lignin and PAE are discussed in detail. (16 refs.)

Bonding strength of some adhesives in wood materials impregnated with Imerosol-Aqua
Ols, Yalcin (Faculty of Technical Education, Gazli University); Atar, Musa; Keskin, Hakan Source: International Journal of Adhesion and Adhesives, v 24, n 4, August, 2004, p 287-294
ISSN: 0143-7496 CODEN: IJAAE4
Publisher: Elsevier Ltd
Abstract: This study has been conducted to determine the effects of wood pre-treatment on bonding strength of wood materials. To this end, the test samples prepared from Oriental beech (Fagus orientalis lipsky), oak (Quercus petrea liebl), scotch pine (Pinus sylvestris lipsky) and Toros cedar (Cedrus libani A. Rich.) woods materials (based on BS EN 204) were impregnated with Imerosol-Aqua (I-A) by short-term, middle-term and long-term dipping methods according to the procedure of ASTM D-1413-76 standards and directions of the manufacturer. After impregnation, shear strength tests (based on BS EN 205) were applied on both sanded and non-sanded connection surfaces joined by poly(vinyl acetate), Klebit 303 (K303), Kleberit 305.0, Super- Rackleim 308 (SL308) and polyurethane (PU) (diphenylethyn-4, 4 prime disocyanates). For the samples not sanded after impregnation, the highest shear strength was obtained in beech impregnated by short-term dipping method and bonded with K303 (11.99 N/mm²), whereas the lowest was in pine impregnated by long-term dipping and bonded with K303 (8.078N/mm²). As for sanded samples after impregnation, the highest shear strength was obtained in beech (12.69 N/mm²), impregnated by short-term dipping and bonded with PU, whereas the lowest was in cedar (8.038) impregnated by long-term dipping with SL3. Accordingly, impregnation affected adhesion bonding strength negatively, whilst bonding surface sanding after impregnation affected adhesion bonding strength positively. To bond after the sanding process of impregnated surfaces is highly recommended to obtain high bonding strength in I-A-impregnated solid wood furniture and solid wood furniture elements. @ 2003 Elsevier Ltd. All rights reserved. (21 refs.)

Water-soluble/dispersible cationic pressure-sensitive adhesives. II. Adhesives from emulsion polymerization
Yan, Zegui (School of Chemical Engineering, Georgia Institute of Technology); Luo, Yingwu; Deng, Yulin; Schork, Joseph Source: Journal of Applied Polymer Science, v 91, n 1, Jan 5, 2004, p 347-353
ISSN: 0021-8995 CODEN: JAPNEA
Publisher: John Wiley and Sons Inc.
Abstract: In our previous work, we reported that cationic water-soluble pressure-sensitive adhesives (PSAs) could be synthesized in ethanol o methanol. These cationic water-soluble adhesives would not cause a stickies problem during paper recycling and can be easily removed from papermaking system by adsorbing on wood fibers. In this study we reported the synthesis and application of water-based cationic PSAs using miniemulsion polymerization. A redox initiator system of cumene hydroperoxide/tetraethylenepentamine was used to force interfacial polymerization. The end-use properties of the PSAs were evaluated, and the repulpability of the PSAs in paper recycling was studied. It was found that the cationic PSA from miniemulsion polymerization itself was insoluble and nondispersible in water during the paper recycling process. However, if this water-insoluble cationic PSA from miniemulsion was modified with a water-soluble cationic PSA made from ethanol the solubility or dispersibility of the former PSA in water was improved. The molecular weight and degree of crosslinking of the PSA polymer have significant effects on the properties and dispersibility of PSA. (19 refs.)

Development of Screenable Pressure Sensitive Adhesives
Abstract: Several approaches were examined for meeting the project objective of developing pressure sensitive adhesive (PSA) products that are engineered for enhanced removal during the processing of recycled fiber, also known as environmentally benign PSAs. These included the development of environmentally benign PSA films, (2) development of paper face stock with high screening removal efficiencies that retain attached PSA films and (3) modification of face stock surface properties to enhance the removal of PSA films. All three approaches yielded promising laboratory results that were confirmed at the pilot scale and appear to be commercially viable. Most of this study focused on hot-m
formulations, which compose a smaller portion of the PSA label market than water-based formulations. However, hot-melt formulations are considerably less complex and allow great flexibility for property modifications. The results of this research have direct application to the study of water-based PSAs, which will be the focus of future work.

Polyurethane adhesive system from biomaterial-based polyol for bonding wood
Publisher: Elsevier Ltd
Abstract: Polyester polyols for use in the preparation of polyurethane (PU) adhesives were synthesized from potato starch and natural oils by transesterification reaction. These polyester polyols were combined with an aromatic adduct based on toluene 2,4-diisocyanate to form a PU adhesive. Both the polyols and the PU adhesives were characterised.
The U.S. Department of Energy has excellent resources on geothermal heat systems. See http://www.eere.energy.gov/consumer/your_home/space_heating_cooling/index.cfm?mytopic=12640 for an overview. Be sure to look at the links on the Learn More part of the page.

For links to financial incentives in Minnesota, see http://www.dsi.umn.edu/library/includes/map2.cfm?CurrentPageID=1&State=MN.

The Geothermal Heat Pump Consortium has case studies at http://www.geoxchange.org/residential/case.htm. They also have a list of local industry contacts at http://www.geoxchange.org/local/lic.htm.

The International Ground Source Heat Pump Association maintains a directory of accredited GHP installers and certified GeoExchange design at http://www.ighpa.okstate.edu/directory/directory.asp. The directory is searchable by state.

Was this answer helpful to you?  Yes  No  | Permalink

Ice arenas
Question submitted on 3/7/05

Is there a way to make an ice arena more energy efficient?

View Answer

I searched the Web using Google and found some case studies that might be helpful to you.

BSGU develops sunny idea to make skating ice for arena
http://www.greenenergybio.org/page.cfm?pageId=56
Solar powered ice arena at Bowling Green State University.

Fire & Ice: Solar Panels Energize Arena
http://www.greenenergybio.org/page.cfm?pageId=57
Another article about the BSGU arena

Cost Effective Energy Efficient Improvements for Minnesota’s Public Ice Arenas: Overview of 20 Options
Pub date is 1998. The contact at the Minnesota Center for Energy and Environment is Russ Landry (rlandry@mncee.org or phone: 612-335-5863 according to their web site).

Selkirk Hockey Arena
http://www.g-fors.com/archive/news347_e.html

Eleven Municipalities Receive $10.4 Million to Help Improve Energy Efficiency
The Village of Hines Creek is using the money to install an integrated control system in their ice arena

Cutting Energy Waste in Large Refrigeration Systems
http://www.irc.wisc.edu/file.php?id=33
Includes a bibliography of related publications

Energy Saving Measures at Ice Rink

Racker Arena, Austin, MN
http://www.bonestroo.com/rec.packerarena.asp

Fixed and Floating Head Pressure Comparison for Madison Ice Arena
This paper reports on a study that investigated the energy and cost savings resulting from changing the control strategy for the condenser fan. The study was conducted on the refrigeration system at the Madison Ice Arena.

Allowing for the Unexpected
Commentary tells how unexpected results from an ECW-sponsored research project led to dramatic savings at a local ice arena.

Investigation of the Field Performance for Industrial Refrigeration Systems
http://www.ecw.org/productdetail.php?productid=50
This UW-Madison graduate student thesis explores ways to improve efficiency of industrial refrigeration, such as through controls, system configurations, and monitoring equipment. You may order a copy of this thesis from the UW-Madison: http://proton.wils.wisc.edu/end/.

Ice Arena Technology
Click on the Ice Arena Technology link on the table of contents on the left side of the screen (in Acrobat Reader, not the PDF). The article is on p. 2. There is also contact information for an ice arena management expert located in Ann Arbor.

Technical Help (Question about energy efficiency at ice arenas)
http://www.wapa.gov/techhelp/powerline/99yn.htm

Was this answer helpful to you?  Yes  No  | Permalink

Great Lakes pollution
Question submitted on 12/29/04

Where can I find information about pollution in the Great Lakes?

View Answer

U.S. EPA's Great Lakes National Program Office is a very good place to start when looking for information about the Great Lakes. They have many resources, including information about each lake. In particular, the Great Lakes Atlas provides comprehensive information about the history, ecosystem, environmental concerns, and joint management of the Lakes.

Another good book resource is the Great Lakes Center for Environmental Education. They're on the web at http://www.greatlakesed.org/.

A good book on the topic is Kehoe, Terence. Cleaning up the Great Lakes: From Cooperation to Confrontation. DeKalb, IL: Northern Illinois University Press, 1997. You should be able to borrow a copy through your local library.
Question submitted on 12/29/04

I've been asked to develop a fact sheet discussing the pros and cons of using polystyrene for things such as beverage or food containment. I'm looking for research based information on the environmental and economic aspects of polystyrene use.

View Answer

As an authoritative source for questions like this, I highly recommend the book The Consumer's Guide to Effective Environmental Choices, wh you should be able to obtain through your local library. There is a discussion of styrofoam (polystyrene) on p. 16. For more information about the book, see http://www.amazon.com/exec/obidos/ASIN/059602821X/ref=sb_red_dp/104-0579898-7891101.

Some web resources of interest include:

Polystyrene and the Environment (Polystyrene Packaging Council)
http://www.polystyrene.org/environment/environment.html

Expanded Polystyrene (Australia)

Arguments Against Polystyrene Foam Products
http://www.verdant.net/nofoam.htm

Some more scientifically oriented papers include:

Endocrinically Active Chemicals in the Environment
http://www.epa.gov/endocrine/pubs/uba3_96.pdf

Plastic Pelets in the Environment: Sources and Recommendations
http://www.epa.gov/owow/OCED/PLASTIC/plasticpelets.pdf

Technical Factsheet on Styrene
http://www.epa.gov/OGWDW/dwht/1-voc/styrene.html

Some journal articles of relevance include the following. You should be able to obtain copies of these through your local library:


Abstract: In the present study, the application of life cycle assessment (LCA) for the comparison of two egg packages, from polystyrene and recycled paper, is presented. The input and output streams of mass and energy are examined and the environmental impacts associated with the two systems are analyzed. The application of LCA by using Ecolindicator 95 has made possible the comparison of the environmental impact of two egg packages. The results of this LCA study are discussed and reveal that the PS packages contribute more to acidification potential, winter and summer smog, while recycled paper egg packages contribute more to heavy metal and carcinogenic substances impact. Nevertheless, it seems that paper eggcups have less environmental impact than the polystyrene ones with the assumption that the accuracy of the results is confined by the credibility of European databases used for primary data.

Ohno, K; Azuma, Y; Nakano, S; Kobayashi, T; Hirano, S; Nobuhara, Y; Yamada, T. (2001) "Assessment of styrene oligomers eluted from polystyrene-made food containers for estrogenic effects in vitro assays." Food and Chemical Toxicology 39(12), 1233-1241.

Abstract: Recently, several substances from among the huge numbers of chemicals used by mankind have been implicated as instigators of disrupted endocrine function and related human health problems. Polystyrene (PS) is one of the most frequently used resins in the world, and the styrene oligomer dissolved out from PS has been designated as a potential trigger of estrogen-like activity in the Wingspread Declaration and the Japan Environment Agency's SPEED98 [JEA (Japan Environment Agency) Strategic Problem on Environmental Endocrine Disruptors '98 (SPEED) '98]. http://www.env.go.jp/en/chemi/es/speed98/sp98.html. In order to assess the endocrine disrupting effect of styrene oligomers we tested one styrene monomer (SM), three styrene dimers (SDs) and seven styrene trimers (STs), newly isolated from optical isomers, known to dissolve in small amounts from cup noodle containers made of polystyrene by the estrogen receptor binding assay, luciferase reporter gene assay, and human breast cancer cell MCF-7 proliferation assay. In all three tests, none of the SM, SDs and STs showed any significant activity. Accordingly, we concluded that these substances have no estrogenic activity.


Abstract: In Japan there is growing concern about the possible adverse effects of consumption of food from styrene containers (mainly those made from polystyrene paper) due to the alleged oestrogenic activity of styrene oligomers (dimers and trimers), which may migrate into the food. To examine the possible oestrogenic activity of styrene dimers and trimers, extracts were made from 'general purpose polystyrene (GPPS) and administered orally to immature female rats over a 4 day period. Increase of uterus weight (wet and blotted) was used for assessment of possible oestrogenic activity. To establish the sensitivity of the test method, immature rats were treated with diethylstilbestrol (DES), a well-known oestrogenic compound. It was found that treatment of rats with levels of up to 60 mg of styrene dimers and 930 mg of styrene trimers per kilogram body weight per day did not give any statistically significant increase of the uterus weight (wet or blotted), whereas DES caused statistically significant, dose-related increases in uterus weight at levels as low as 0.89 mg kg body weight day-1 super(-1) body weight day super(-1). was concluded that, compared with the estimated maximum human daily intake of styrene trimers of 1 mg kg body weight day super(-1) from polystyrene food containers, the risk of adverse human health effects with respect to oestrogenicity may be considered negligible.

Was this answer helpful to you?  Yes  No  | Permalink

Gasoline Prices

Question submitted on 11/1/04

Where can I find sources to document the increase in local gas prices?

View Answer

The Champaign-Urbana News-Gazette ran several news stories on this in 2000, when prices first spiked.

See:

Gas prices set based on competition, retailers say
http://www.newsgazette.com/story.cfm?Number=6840
Local gas prices fall following suspension of state gas tax
http://www.news-gazette.com/story.cfm?Number=7453

Gasoline prices soar for summer season
http://www.news-gazette.com/story.cfm?Number=7230

The Energy Information Administration has current and historical statistics on gas prices by region and for certain large metropolitan areas like Chicago. See:

Gasoline and Diesel Fuel Update
http://tonto.eia.doe.gov/oog/info/gdu/gasdiesel.asp
Has some nice graphs illustrating national price changes over the last two years.

Retail Gasoline Historical Prices
http://www.eia.doe.gov/oil_gas/petroleum/data_publications/wrgp/mogas_history.html

Weekly U.S. Retail Gasoline Prices
http://www.eia.doe.gov/oil_gas/petroleum/data_publications/wrgp/mogas_home_page.html

For information on gas prices and how they’re set, see:

A Primer on Gasoline Prices

How Gas Prices Work
http://www.howstuffworks.com/gas-price.htm

Gasoline Prices (Fueleconomy.gov)

Gas Prices: How Are They Really Set?
http://www.senate.gov/~gov_affairs/0429/02gasreport.htm
Report from the Permanent Subcommittee on Investigations regarding the production, marketing, and pricing of gasoline in the United States

Was this answer helpful to you?  Yes  No  |  Permalink

definitions

Do you have commonly accepted definitions for the following words?

- Eco-efficiency
- Product Stewardship
- Dismaterialize
- Sustainable Development
- Sustainability
- Eco-effectiveness
- Life-Cycle Design
- Cradle-to-Grade
- Material Taxes
- Mandatory Recycling Targets
- "Take-Back" Requirements
- LEED
- Renewable Resources
- Environmental Cost Accounting
- Sustainability Index
- Triple Bottom Line
- Natural Capitalism
- Global Climate Change
- Socially Responsible Investing
- Natural Step
- Environmental Labeling
- Biomimicry

View Answer

Several of these terms have been coined by Janine Benyus who has been studying biomimicry. Her book is called Biomimicry: Innovation Inspired by Nature.

Amory & Hunter Lovins at the Rocky Mountain Institute have coined a number of these terms as well related to natural capitalism. Visit their web site at http://www.natcap.org/ or reference their books. The titles dealing with this topic are Natural Capitalism: Creating the Next Industrial Revolution, The Natural Advantage Of Nations: Business Opportunities, Innovation And Governance In The 21st Century, and A Road Map For Natural Capitalism, an e-book available through Amazon.com.

Gil Friend, who is active in the NPR, may also be of assistance. See http://www.natlogic.com/. He also has a weblog at http://radio.weblogs.com/0109157/.

You might also want to check out The Dictionary of Sustainable Management at http://www.sustainabilitydictionary.com/, a project of the Presidio School of Management.

If these sources don’t help you determine definitions for some of the terms, try using Google’s DEFINE search (search syntax is define:word or term). As a test, I used the search string define:\"environmental labeling\". Google didn’t come up with a definition, but did ask if I wanted to search the web. The first result in the web search was to EPA’s About Environmental Labeling page, which explains how they define it.

A search for define:bionimicry produced no definitions, but clicking on the "search" link provided a link to http://www.biomimicry.org/intro.html, which has a definition at the top of the page.

If you type the above terms into Google's search box (with or without define: at the beginning), you'll find that a page at or near the top of results list will give you a generally accepted definition or explanation of the term.

Was this answer helpful to you?  Yes  No  |  Permalink

Pollution Prevention Case Study
Question submitted on 3/23/04

Can you direct me to some pollution prevention case studies dealing with foundries?

View Answer

1 of 1 people found this answer helpful.

In the GLRRPR sector resources Die Casting and Foundries (http://www.glrrpr.org/contacts/glrrprpub.cfm?sectorid=15), there are references to the following:

Atlas Foundry Company Case Study
http://www.ecn.purdue.edu/CMIT/Technology_Transfer/atlas

Oily Waste Reduction and Recycling Pilot Test

You might also want to take a look at the following:

Pollution Prevention for the Primary Metals Industry
http://www.wmrc.uiuc.edu/main_sections/info_services/library_docs/manuals/primmetals/intro1.htm

It includes case study summaries and annotated bibliographies for all aspects of the primary metals industry.

Low Energy Recycling of Foundry Sand

Need for Energy Efficiency and Promotion of Cleaner Production in the Foundry Sector in India
http://www.serdi.ac.tn/sm2/sm2/roadmap/Pub_DC/Pub5.pdf

The Reengineering Process Approach for Energy Efficiency and Pollution Free Environment in Foundries

Computational Energy Management of the Charging Process in a Foundry

Filipino Pipe and Foundry Corporation
http://www.mozoom.com/user/usaeg/ffccov.html

Cleaner Production Demonstration Project Austcast

Cleaner Production - Optimisation of Binder and Catalyst Addition - Steel Castings Pty Ltd

Cleaner Production - Artificial Reed Beds for Treatment of Industrial Wastewater-OneSteel Whyalla Steelworks

Michigan Auto Project Case Studies Directory (MAPCS)
http://www.deo.state.mi.us/mapcs/index.jsp

Guides to Pollution Prevention: Metal Casting and Heat Treating Industries
http://www.anaepays.org/ref/01/00733.pdf

Includes a section with case studies

Energy efficiency publications for the foundry industry

Includes case studies

Was this answer helpful to you?  Yes  No  |  Permalink

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