



**PURCHASING REFERENCE GUIDE  
FOR  
ENVIROMENTALLY PREFERABLE PURCHASING  
(July, 2012)**

**Procurement and Contracts, Mississippi State University  
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## Introduction

The Environmentally Preferable Purchasing Reference Guide introduces and defines “environmentally preferable purchasing.” The reference guide is designed to help buyers at Mississippi State University make purchasing decisions that are better for our employees and our environment.

The guide’s focus is on selection and use of products after manufacture. The guide does not answer every environmental question, nor address possible social aspects of where and under what conditions products are produced, nor any other related production hazards.

The guide is provided by the Office of Procurement and Contracts. For further assistance please contact the Office at (662) 325-2550 or on the Internet at <http://www.procurement.msstate.edu/>

### How will this purchasing reference guide help me?

It is not always easy finding or deciding which product is better for our employees and environment. Every item we buy has an impact on our health and environment. If you are looking for ways to reduce workplace hazards, use less energy, protect natural resources, or identify environmentally preferable alternatives, then this guide can help.

This purchasing reference guide is a helpful resource for buyers looking to understand what is important when purchasing environmentally preferable products, defining environmental attributes, deciding between products or looking for some information about how to select products. Most of all, it encourages buyers to ask the right questions.

Provided in this guide are the basics of environmentally preferable purchasing for many product groups, and suggested purchasing resources and recommendations. You will find this guide helps you make environmentally preferable buying decisions and support them.

### A few more great reasons for using this reference guide:

- Finding hundreds of commonly used items with recycled content
- Locating resources and products to meet government purchasing requirements
- Accessing free energy engineering resources and energy audits
- Searching for environmentally preferable products and the resources to help you find them
- Earning money for discarded items
- Finding many helpful web links for buying, selling or disposing of items
- Saving money and stretching the budget
- Contacting experts about energy saving products and designs
- Taking advantage of state contracts for the best prices and terms

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# Getting Started

# Environmentally Preferable Purchasing

## What is environmentally preferable purchasing?

*“Environmentally preferable purchasing is choosing products that have a lesser or reduced effect on human health and the environment when compared with other products that serve the same purpose.”*

## How to use environmentally preferable purchasing.

Purchasing environmentally preferable products means considering a product’s environmental attributes along with other traditional buying factors as performance, quality, service and price. When selecting or developing specifications for a product consider those particular environmental attribute that could impact the product. By taking account of environmental attributes during the buying decision will reap many benefits for your organization.

What are some benefits?

Less hazardous products improve worker safety; reduce regulatory liability, and lower disposal costs

Energy-efficient and water-conserving products save natural and financial resources

Buying products that are reusable, more durable, or repairable generates less waste and conserves resources

Recycled products keep recycling programs going by supporting markets for the materials

Environmentally preferable purchasing helps our environment remain healthy

## What are environmental attributes?

Environmental attributes are those features of a product that make it preferable to purchase over other products.

	Some questions to ask when comparing product attributes:
	Is the product less hazardous?
	Will it reduce workplace injuries?
	Does it produce less waste?
	Are there harmful by-products from the product?
	Is it reusable or more durable?
	Is it made from recycled materials? What amount of recycled materials is used?
	Does it conserve energy or water?
	Is it made from plant-based raw materials?
	Is there a third-party certification of environmental attributes?
	What happens at the product’s end of its life?
	Can it be recycled? Will the manufacturer take it back? Does it require special disposal?








## Suggested resources

EPA web site, Environmentally Preferable Purchasing, <http://www.epa.gov/opptintr/epp/>

EPA’s EPP Tool Suite, <http://www.epa.gov/opptintr/epp/tools/index.htm>

## Reference Guide Symbols

In this reference guide symbols are used that will help you quickly identify the most accepted environmental and health issues and attributes related to a particular product. The symbols identify the advantages that an environmentally preferable product offers compared to similar products.

	<b>Less Hazardous</b>	Avoiding products containing hazardous chemicals reduces potential serious health risks to people and damage to the environment. As a general rule, always try to use the least amount of a hazardous product. Avoid products labeled with words such as Caution, Danger, Warning or Poison. Many alternative products are available that are less hazardous.
	<b>Conserves Energy</b>	Reducing energy use is one of the simplest things we can do to curb impacts to the air we breathe and our environment. Energy production can contribute to emissions of carbon dioxide and other pollutants. Hydroelectric dams can degrade habitat and impede fish passage. By buying energy-efficient products, you will keep utility costs down and protect the environment. The federal Energy Star label helps buyers identify energy-efficient products.
	<b>Recycled Content</b>	Buying products made with recycled materials saves energy and resources, and keeps waste out of landfills. Recycled-content products can be made with pre-consumer content, post-consumer content, or a mixture of both. Pre-consumer content utilizes materials from manufacturer's scrap. Post-consumer content uses materials collected from recycling programs.
	<b>Prevents Waste</b>	Preventing waste can conserve natural resources. Our state generates millions of tons of municipal solid waste annually. You can prevent waste when you reduce the amount of material you buy to accomplish any task, buy repairable items, limit packaging and find multiple uses for items.
	<b>Low Volatile Organic Compounds (VOCs)</b>	Select products with low or no VOCs to reduce indoor air quality hazards for employees. VOC's are chemicals that evaporate easily (volatilize) at room temperature, and often have unhealthy and unpleasant vapors. They come from many products such as adhesives, carpeting, upholstery, paints, solvents, pesticides and cleaning products. Some VOCs may cause cancer, especially, when they are concentrated indoors. When VOCs hit sunlight it creates ozone, an air pollutant harmful to both people and plants. Many low-VOCs versions of products are readily available.
	<b>Conserves Water</b>	Choosing products and services that conserve water can save money on water and sewer bills. Less than one percent of the Earth's water is available for human consumption. Dry spells and pollution remind us that our water supply can be limited and can be threatened.
	<b>End of Product Life Management</b>	Consider the product's end-of-life issues when you buy can prevent costly disposal bills. Sometimes saving money up front on a purchase results in spending more in the long term for proper disposal or injuries related to use of a product or disposal. It also encourages manufacturers to reduce their products' environmental burden.

## Writing Specifications

When writing specifications for products or service consider those environmental attributes that would make sense and provide the best outcome. The goal is not to unnecessarily cause the cost of the products or service to increase, but to find ways to encourage bidders to bid environmentally preferable products and services and increase competition. Specifications are what steers purchasing decisions, so decide what is important to your organization and target the specifications to achieve that outcome. Taking some time before purchasing to consider environmental impacts can result in lasting benefit for people and the environment.

**Here are a few strategies:**

Require all products to have a low impact to human health and environment.

Require recycled content in products and products that can be easily recycled.

Require packaging or containers to be refillable, returnable or recyclable.

Specify those environmental attributes that make sense for a product, such as non-toxic, recycled content, mercury-free, biodegradable, energy-efficient, low VOC, Energy Star, or vendor recycling and take-back programs.

Ask vendors to identify environmental attributes that are common to a product and then think about using them when preparing your specifications.

Avoid specifications that would limit the purchase of certain products, e.g., requiring new equipment or virgin materials when refurbished or recycled products would work.

Watch for over-specification; only specify product qualities that are critical to performance and leave other features open to alternatives, e.g., by specifying color of plastic items you might eliminate recycled-content items.

Take into account the life-cycle costs, not just the purchase price of a product; consider long-term savings on maintenance, replacement and disposal costs.

Give an evaluation preference to products that offer the environmental attribute you're looking for, e.g. additional points based on an environmental attribute.

Keep track of what works well and any difficulties you encountered in purchasing these products for future purchases.

Set environmental purchasing goals and track them for your office or department.

Give yourself credit for the steps you've taken to protect workers, building occupants, and the environment from harmful substances or wasteful practices.

Employ other strategies you've learned as you work to use environmental attributes in your purchasing decisions:

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## Buying Less – Preventing Waste

Waste continues to grow in our communities; nearly everything we purchase generates some kind of waste. Waste may be in the packaging, it may be a by-product, or the product itself. Waste can be ordinary garbage, hazardous waste, or water/air emissions. The challenge is to find ways to prevent making more waste and reducing the waste we do make. If we reduce the quantity, change our buying habits, and refigure our ownership cost it can help us decrease our environmental impact. The better we manage the potential waste from the items we buy will go a long ways toward reducing waste, saving money and protecting the environment.

### Actions you can take to prevent waste:

Look for ways to extend product life, buy durable or higher-quality products, especially frequently replaced items.

Buy multiple-use cleaning and maintenance products

Use efficient, low-mercury long life fluorescent lamps

Find multiple uses for an item

Choose repairable, refillable, reusable or refurbished products

Require the most energy-efficient products

Buy products with minimal packaging

Select products in which the manufacturer takes back the waste and reuses it

<p style="text-align: center;"><b>Office Products</b></p> <ul style="list-style-type: none"><li>- Set up a reusable supplies area for staff</li><li>- Buy rebuilt, remanufactured, or refurbished products, such as recycled toner cartridges, refurbished office furniture and rebuilt copy machines</li><li>- Use rechargeable batteries and recycle them when spent</li><li>- Buy refillable pens, pencils, and tape dispensers</li><li>- Reuse file folders, binders and other office supplies</li><li>- Specify copiers and printers capable of making double-sided copies. Encourage employees to use double-sided copies for draft copies</li></ul>	<p style="text-align: center;"><b>Packaging</b></p> <ul style="list-style-type: none"><li>- Purchase products in reusable, refillable, or returnable containers</li><li>- Receive deliveries in reusable trays or totes, which can be sent back with the vendor for reuse</li><li>- Require all packaging materials to be recycled and recyclable</li></ul>
	<p style="text-align: center;"><b>Food Service</b></p> <ul style="list-style-type: none"><li>- Buy reusable cafeteria dishware. Reusable dishes are often cost-effective over the long term compared to disposable</li><li>- Allow variable portions to reduce food waste</li><li>- Consider composting</li></ul>

### Suggested resource

EPA's Waste Wise Program <http://www.epa.gov/wastewise/>



## Identifying Recycled Content Products

Purchasing products with recycled content saves energy and natural resources, helps keep waste out of landfills, and supports markets for recycled content items. "Recycled content" means a product contains some amount of recycled materials.

"Recycled materials" means waste materials and by-products that have been recovered or diverted from solid waste disposal, mainly landfills. These recycled materials can be utilized in place of a raw or virgin material when manufacturing a new product.

Products can be made from materials derived from post-consumer waste, manufacturing waste, industrial scrap, and agricultural wastes. Today there are many products available with recycled content.

### Finding recycled products can be easy.

Many suppliers have products with recycled content – just ask for them. Suppliers can identify the percentage of recycled content for comparison purposes when buying or writing specifications.

The Environmental Protection Agency publishes a helpful guide called Comprehensive Procurement Guidelines. The guidelines designate items that must contain some recycled content when purchased by federal agencies; these guidelines have been adopted by state and local governments.

When preparing your bid, establish the minimum recycled content level that you will accept. These are minimum standards and in many cases you will be able to buy products with higher levels. If you want to encourage higher levels of recycled content, consider adding evaluation points to the supplier with the highest recycled content.

### EPA Comprehensive Procurement Guidelines:

The following product categories have guidelines for the recycled content:

**Construction products:** insulation, carpet, cement, fiberboard, paint, paperboard, blocks

**Landscaping products:** lawn edging, garden soaker hoses, mulch, compost, plastic lumber

**Non-paper office products:** binders, accessories, printer ribbons, toner cartridges

**Paper products:** sanitary tissue, note pads, newsprint, paperboard, writing papers

**Park and recreation products:** park benches, tables, fencing, playground equipment

**Transportation products:** delineators, parking stop, barricades, cones

**Vehicular products:** engine coolants, lubricating oil, retread tires

**Miscellaneous:** bike racks, pallets, plaques, drums, signage, sorbents, strapping





### Suggested resources

EPA Comprehensive Procurement Guidelines <http://www.epa.gov/epaoswer/non-hw/procure/>

EPA Comprehensive Procurement Guidelines fact sheets <http://www.epa.gov/cpg/factshts.htm>

# Purchasing Resources

# Mississippi Office of Purchasing, Travel and Fleet Management

	<b>Recycled Content</b>
	<b>Prevents Waste</b>
	<b>Less Hazardous</b>
	<b>End of Product Life Management</b>

The Office of State Procurement has contracts for thousands of products and services needed by the state government. Many of these contracted products and services are healthier and safer for people and protect our environment. These contracts are for the benefit of state agencies, colleges and universities, local governments, public utility districts, fire districts, and other government organizations.

## Are environmentally preferable products available on state contracts?



Here is a sampling of some of the products currently available. Go to <http://www.dfa.state.ms.us/Purchasing/StateContracts/Competitive.html>: and

<http://www.dfa.state.ms.us/Purchasing/StateContracts/Negotiated.html>

Air Conditioners – window units (contract awarded based upon lowest total cost over 5 years) (contract shows energy efficient ratio EER)

Ammunition – Reload Brass Exchange

Automotive Batteries – Contract requires seller to take old battery in exchange

### Ballasts, Magnetic and Electronic

**Cleaning supplies** - Many environmentally friendly products are available

**Copying paper** – Many recycled products available

Laser Printer Toner Cartridges – Remanufactured cartridges are available

**Lighting** – Energy-saving lighting products,





Office Supplies (binders, boxes, pads, etc – recycled content is shown by \*38%R\* meaning the product is 38% recycled content

**Vehicles** – includes a few flex fuel and hybrid vehicles

The state contracts referenced above include products and services that have some environmentally preferable attributes. Depending on the item purchased, percentages may vary. If you have questions about the actual environmental attributes of a product, contact the vendor on the contract.

# **Buying Products**

## Lighting Products

	<b>Less Hazardous</b>
	<b>Conserves Energy</b>
	<b>Prevents Waste</b>
	<b>End of Product Life Management</b>

Did you know that lighting can easily account for 30 percent to 50 percent of a building's energy use? Any efforts to increase lighting efficiency will result in significantly reduced energy use and expense. Equally important, better lighting improves employee productivity, safety and security, thus creating a better working environment.

### Energy-saving suggestions

- Manage the use of lighting, both the quantity and quality
- Make good use of daylight in workspaces
- Establish a retrofit or lighting replacement program for older fixtures and lamps
- Install newer energy-efficient fixtures and longer-life lamps
- Use the energy savings calculators to estimate savings
- Take advantage of the state contracts for electrical supplies and lamps and ballasts

### Energy-efficient lights

Fluorescent lights are a popular indoor light source because they last longer and cost 50 percent less to operate than incandescent lights. Improving lighting efficiency involves replacing less-efficient lamps; this might initially cost more, but is more efficient in the long run. Consider replacing typical 1.5-inch T12 fluorescent tubes with newer 1-inch T8 tubes. T8s are 25 percent more efficient.

Use high-intensity discharge (HID) lights, such as high-pressure sodium lamps and metal halide lamps; they are extremely energy-efficient and provide high light output over a long life. HID lamps are best suited for gymnasiums, large public areas, warehouses and outdoor activity areas. Smaller HID lamps are available for spaces such as offices with ceilings of 10 feet or less; these smaller HID lamps can be installed for indirect lighting without having to remodel the ceiling.

Replace standard incandescent light bulbs with compact fluorescent lights. Compact fluorescent lights offer five times the lamp life and use a third of the energy of an incandescent bulb for the same amount of light.

### Timers, light and occupancy sensors

Sensors usually pay for themselves through energy savings within two to three years, although the cost varies by the type of sensors used and application. Generally, savings range from 25 percent to 60 percent, depending on location.

Use timers in areas with regularly scheduled uses, such as perimeter lighting, hallways and garages.

Use light sensors in areas that normally receive daylight. Lighting sensors will balance the amount of artificial lighting with natural light.

Use occupancy sensors to turn on the lights when an area is in use. There are three basic types of occupancy sensors: motion (*ultrasonic and microwave*), heat (*infrared*), and sound sensing. They are suited best for spaces used infrequently, such as conference rooms, private offices, classrooms, storage areas and bathrooms.

### De-lamping

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Older buildings were often designed with a higher lighting standard than what is currently needed. Modern offices do not need as much lighting because of the use of computers and personal task lighting. A typical office needs only 40 to 45 foot-candle lighting for adequate light.

To measure the lighting levels in your office use a light meter, and then adjust your lighting accordingly. You will most likely be able to turn off many of the lights and still provide adequate lighting.

### Group re-lamping



Group re-lamping is a program of changing out lamps and bulbs on a regular maintenance schedule.

Advantages are:

Saves money, time and energy by improving overall system efficiency, reducing maintenance costs, and lowering costs through volume purchasing.

Prevents unnecessary ballast degradation from failing or failed lamps.

Fluorescent systems can be re-lamped at 70 percent of rated useful life. After 70 percent, the burnout rate of lamps climbs steeply.

Follows a consistent replacement program to avoid scattered lamp burnouts and maintains more consistent lighting.

Labor savings from re-lamping program will be more than made up when compared to random replacement of lamps in most situations.

Expired lamps should be removed as soon as possible because they can cause a ballast to fail prematurely. A new lamp is a lot less expensive than replacing the ballast.

### What to do with spent lamps and ballasts?



Overall, fluorescent lamps are a good choice, but they have some environmental drawbacks. Fluorescent lamps contain mercury, a heavy metal with toxic properties. Mercury must be contained and properly managed at the end of a lamp's life. Deal safely with mercury by recycling fluorescent lamps and ballasts or sending them to a hazardous waste disposal facility. It is better to recycle even "low mercury" lamps than putting them in a landfill.

### Retrofit



You can improve lighting and reduce energy use by making changes to your current lighting. Here are some simple suggestions and some more involved ones:

Re-configure lighting use to promote the use of task lighting

Replace older fluorescent electromagnetic ballasts with electronic ballasts that improve lighting quality

Install a combination of photo sensors and dimmer switches near windows to use natural lighting

Upgrade to newer energy-efficient fixtures

Install longer-life lamps and save labor cost for maintenance change-outs

Install compact fluorescent adaptors to retrofit incandescent fixtures

Replace the existing EXIT sign lamps with LED's

Day lighting – Allowing natural light to shine in building workspaces reduces dependency on artificial lighting and is proven to help support worker productivity. When remodeling, consider the use of light shelves at windows so natural light is reflected into workspaces. Light shelves will help draw in 20 percent more light into the building.





### Suggested resources



State contracts with lighting energy saving products (Ballasts, Electric lamps:  
<http://www.dfa.state.ms.us/Purchasing/StateContracts/Competitive.html#VWXYZ>

Green Seal, <http://www.greenseal.org/certification/standards/g37.pdf>, is an independent, nonprofit organization. Green Seal has information about sensors at <http://www.greenseal.org/certification/standards/occupancysensors.cfm> and Green Report: <http://www.greenseal.org/resources/reports/CGR=CFLs.pdf>.

## Cleaning Products

	<b>Less Hazardous</b>
	<b>Prevents Waste</b>
	<b>Low Volatile Organic Compounds (VOCs)</b>
	<b>End of Product Life Management</b>

Hazardous cleaning products are used every day in just about every building. Janitors and workers who use these products are exposed to hazards and potential injury on the job. Many cleaners contain chemicals that have harmful fumes, burn skin and eyes on contact, or create long-term health problems.

When cleaning chemicals are washed down the drain, these chemicals run into the local wastewater system where the water is treated and discharged to a water body. Some contaminants may remain in the effluent and contribute to the pollution of our water. Using less hazardous cleaning products helps keep our environment safe for all.

### What can I do?

**Less hazardous:** Using less hazardous cleaning products minimizes potential injury to custodial workers, maintenance staff and building occupants. Reducing the use of hazardous cleaning products can improve indoor air quality, reduce water pollution, and protect aquatic organisms

**Prevents waste:** Buying cleaners in concentrated form reduces packaging waste and is more cost effective

**Low volatile organic compounds (VOCs):** Select products with low VOCs to reduce indoor air contamination and the creation of ozone, which is harmful to life

**End of product life management:** Buying less hazardous cleaners reduces your disposal costs when it comes time to properly discard of any leftover cleaners

### Available cleaning products

Safer and environmentally preferable cleaners are becoming widely available. Ask suppliers for their safest and best environmentally preferable cleaning products.

### Health and safety

People are becoming aware of the risks of chemical use and sensitivity issues in the workplace. Repeated long-term exposure to cleaning products may cause chronic illnesses or allergic reactions.

Employers are beginning to understand the benefit of switching to safer products. The more chemicals there are on-site, the greater the risk of injury from mixing incompatible chemicals or from not using proper personal protection.

Always check the Material Safety Data Sheet (MSDS) for safety and use precautions. You can find the MSDS for the products Central Stores and most manufacturers sell on their web sites.

**Ways to Reduce Chemical Exposure and Risk:**

**Product Use Tips:**



## Environmentally Preferable Purchasing Reference Guide

- Switch to milder products
- Use one general-purpose cleaner for most applications, rather than several different ones
- Wear goggles and gloves regularly
- Change cleaning practices to reduce the need to buy, handle, and store many types of cleaners
- Reduce overall chemical use
- Keep specialized product use to a minimum
- Reduce the variety of chemicals in use at one time
- Use products with refillable containers and containers made from recycled materials
- Allow for proper ventilation
- Select pump spray containers instead of aerosols

### Material Safety Data Sheets

Purchasing safe and environmentally preferable cleaners is the best thing you can do for your workers. When purchasing a cleaning product require a copy of the Material Safety Data Sheet (MSDS) from the supplier. The MSDS contains information about the safe use and handling of the product. Always have your workers review the MSDS before using a cleaning product. Employers are required to keep the MSDS near the work area.

In general, avoid cleaners that:

Have a flashpoint below 200°F (flammable)

Contain SARA 313 Title III chemicals (known hazardous chemicals)

Have a VOC level above 5 percent

Contain chlorine, hypochlorite, or phosphates

Contain petroleum-based components

Contain unnecessary dyes or fragrances that may cause irritation

Use aerosol propellants as they produce a finer mist that is easily inhaled by workers

Product labels and hazardous warning symbols give you important information about the level of danger.

Caution: mild to moderate hazard

Warning: moderate hazard

Danger: extremely flammable, corrosive, or toxic

Poison: highly toxic

When purchasing products look for those with the lowest level of warning and consider products formulated with plant-based ingredients.

### Performance issues

Many of the safer and environmentally preferable cleaning products are as effective as traditional cleaners, but may require different cleaning techniques to be effective.

Take time to adjust to new products and practices

Remember that the worker's safety and health is most important

Require suppliers to provide training on the proper use of their products

Do performance-testing on a variety of surfaces such as floors, furniture, and walls

### Cost considerations

Many less hazardous products are competitively priced with traditional cleaners. If you buy cleaners with less hazardous chemicals, you can reduce the risk from costs associated with using and disposing of hazardous chemicals.

When comparing product pricing, figure the cost-per-application rather than the cost-per-volume. Often, products that appear to be priced higher may actually be less expensive when the full ownership cost of using them is considered.

Some of the full ownership costs of using hazardous products go beyond the package price, such as employee safety training, complying with environmental and workplace regulations, insurance costs, legal liabilities, and disposal costs.

### Specifications development

When requesting bids for cleaning products, ask bidders to address storage requirements, worker safety and any positive environmental attributes of their products. Since improper use can affect how well a cleaning product does its job, have suppliers provide training on the proper use of their products.

For janitorial services, specify cleaners that the janitorial service must use. Bids can specify particular products or equals, or identify environmental attributes.

It can be challenging to evaluate environmental attributes between different products. Some companies use in their marketing publications and product labels phrases such as "environmentally friendly" or "all natural", yet their products contain hazardous chemicals.

### Suggested resources

Green Seal has developed a list of recommended cleaners. "Industrial and Institutional Cleaners," GS-37, is available by contacting Green Seal at 202-872-6400 or on their web page products. Choose Green Report: General Purpose Cleaners <http://www.greenseal.org/certification/standards/g37.pdf>.






### MSU guidelines

Environmentally preferred chemicals

MSU should only purchase the following items if they are Green Seal Rated or carry a similar national rating. The department requesting the purchase should provide documentation supporting this rating (obtained from the vendor) at the time of requisition or the department should maintain such documentation with their Procurement Card records for audit purposes.

- All purpose cleaner
- Degreaser
- Disinfectant
- Floor Cleaner
- Liquid Hand Soap

## *Paint Products*

	<b>Less Hazardous</b>
	<b>Recycled Content</b>
	<b>Prevents Waste</b>
	<b>Low Volatile Organic Compounds (VOCs)</b>
	<b>End of Product Life Management</b>

Millions of gallons of paint are purchased each month in our state. Employees who use or are exposed to paint products are often exposed to chemical hazards and potential injury. Many paints contain chemicals that have harmful fumes, can burn skin and eyes, or create long-term health problems.

When you are selecting paint products, try to choose paints with the least hazardous ingredients, recycled content and low VOCs. By selecting paints that are less hazardous you will help protect workers' health and the environment.

### **What can I do?**

**Less hazardous:** Using safer paints reduces negative impacts to indoor air quality, reduces water pollution and protects aquatic organisms. Less toxic paints perform well in comparison to those that have heavy metals and other toxic chemicals

**Recycled content:** Painting with recycled paint does not mean a lesser quality product

**Prevents waste:** Buying only the amount needed for a job reduces packaging waste and storage costs

**Low volatile organic compounds (VOCs):** Using paints with a low level of VOCs helps reduce off-gassing and paint odors for worker and building occupants

**End of product life management:** Buying less hazardous paints can reduce your disposal costs when it comes time to properly dispose of any leftover paints

### **Availability of recycled paints**

Green Seal, a nonprofit organization, sets standards for environmentally preferable paints; over 70 paint products meet Green Seal's criteria for hideability, wearability, scrub ability, maximum VOCs limits, prohibited heavy metals and toxic organic substances.

### **Less hazardous paint**

It is important to read the label or speak with the manufacturer to determine whether toxic chemicals have been added to water-based paints or petroleum-based paints.

Several heavy metals and other chemicals in paint have been targeted as health risks due to their severe effects. Avoid paint products with toxic chemicals. An increasing number of safer alternative paint choices are available.

EPA: Metals and toxic substances to avoid:

<b>Heavy metals</b>	<b>Toxic organic substances</b>		
Antimony	Acrolein	Formaldehyde	Naphthalene
Cadmium	Acrylonitrile	Isophorone	Phthalate esters

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Hexavalent chromium	Benzene and ethylbenzene	Methyl ethyl ketone	Vinyl chloride
Lead	Butyl benzyl phthalate	Methyl isobutyl ketone	1,1,1-trichloroethane
Mercury	1,2-dichlorobenzene	Methylene chloride	Toluene

Green Seal standards prohibit all of the above ingredients, plus: Di (2-ethylhexyl) phthalate, Di-n-butyl phthalate, Di-n-octyl phthalate, Diethyl phthalate, Dimethyl phthalate.

### Low VOC paint

All oil and many latex-based paints contain solvents to disperse and bind other paint components. Solvents are the major ingredients that contribute to VOCs levels in paints. VOCs are any organic (hydrocarbon) compound that evaporates at normal room temperature. VOCs can cause the formation of ground-level ozone and photochemical smog, which have harmful effects on human health.

Paints that are specifically marketed as "fast drying" contain even higher levels of these solvents.

Allowable VOCs levels (G/L), (federal procurement guidelines):

Paint Type	Interior	Exterior	Anti-corrosive
Flat	50	100	250
Non-Flat	150	200	250

### Types of recycled-content paints

There are two types of recycled-content paint: reprocessed and rebled. Both types of recycled paints originate from leftover latex paint collected through public and private collection programs.

Reprocessed paint is mixed with virgin materials such as resins and colorants and is tested before resale. These paints generally contain a minimum of 20 percent post-consumer content.

Rebled paint is re-mixed, screened and packaged for distribution. Virgin raw materials such as resins and colorants may be added in small quantities. Minimal testing is applied to rebled paint; typically, these paints contains anywhere from 80 percent to 100 percent post-consumer content.

### Performance and quality of recycled paints

High performance, durability and low cost make recycled paint an attractive choice to architects and building owners. Always make sure you are getting the right paint and right amount for your application.

Reprocessed paint is a high-grade recycled paint tested to meet performance and durability specifications. This product is used on various types of surfaces from gypsum wallboard to concrete surfaces. The spreading rate, hide, and durability are as good as virgin paint.

Rebled paint is a good-grade paint often used for graffiti abatement. Color, hide, viscosity and quality vary by batch. Minimal testing is performed. Check with the vendor for information on custom tinting and type of tests performed on recycled paint.

### Cost of recycled paints

Recycled paint costs an average of 30 percent less per gallon than virgin paint of comparable quality.

Aberdeen Proving Ground (APG) tests products for the federal government. In a recent APG study of 565 architectural paints and coatings, 13 percent were identified as low VOC paints with an average cost of \$2 less per gallon. APG-recommended paints from 13 manufacturers include flat, semi-gloss, and gloss finishes for interior and exterior latex paints.

### End of product life management

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Using recycled paint minimizes environmental impacts of paint production because the main raw material is leftover paint. Follow recommended manufacturer disposal guidelines.

### Laws and guidelines



EPA's recommended recovered materials content levels for reprocessed and consolidated latex paints:

Product Reprocessed Latex Paint	Post consumer Content ( percent)	Total Recovered Materials Content ( percent)
White, off-white, pastel colors	20	20
Grey, brown, earth tones and other dark colors	50-99	50-99
Consolidated latex paint	100	100

### Suggested resources

Green Seal, <http://www.greenseal.org/about/index.cfm>

Kelly Moore Paint, [http://www.kellymoore.com/products/groups/e\\_coat](http://www.kellymoore.com/products/groups/e_coat)

Parker Paints, <http://www.parkerpaint.com/Products.html> , look for "Klean Air" paint.

## Integrated Pest Management – Indoors



### Less Hazardous

Integrated Pest Management (IPM) is a coordinated decision-making and action process that uses the most appropriate pest control methods and strategies in an environmentally and economically sound manner.

Quick chemical solutions to pest problems provide only a temporary solution, which can create potential health and environmental risks. Instead of hiring someone to simply spray chemicals, consider working with an Integrated Pest Management contractor.

Contractors that practice IPM focus on preventing and controlling pests. They consider the following:

Use and practice non-pesticide methods to prevent pest problems

Apply pesticides only "as needed"; this helps reduce the use of toxic chemicals

Select the least hazardous pesticides effective for control of targeted pests

Protect critical areas from pesticides where there are sensitive populations (children, infirm and elderly) and employees

The key to the IPM service is regular inspection of buildings and grounds for conditions that might attract pests and recommending ways to deter them. If pest problems persist, the contractor will usually use the least hazardous pesticide that will effectively control or reduce the pests. IPM suppliers typically use pesticides as a last option.

### IPM performance

Practicing IPM is an environmentally sound and effective approach to pest management. Control strategies in an IPM program extend beyond the application of pesticides to include structural and procedural modifications that reduce the food, water, harborage and access used by pests.

Success of using IPM depends on building occupants and building management. Individuals must take responsibility for keeping buildings, grounds, lunchrooms and lab rooms clean. Steps must be taken to seal cracks in foundations and find ways to prevent pests from obtaining water, food and shelter.

If contractor recommendations are not carried out, pests will continue to be a problem. Arrange for the pest control company to train employees and maintenance personnel about common pests and best pest management practices. Contractor should provide a list of easy maintenance steps that will minimize the number of pests in the building.

### Components of an IPM program

An IPM contractor should conduct the following activities:

Monitor regularly for pests

Keep a formal records system for pest levels, dates, locations, weather and other conditions that may give rise to pests

Determine what level of pests is acceptable and when control measures are needed

Integrate control strategies that are effective against the pest, least disruptive to natural pest controls, and least hazardous to human health and the environment

Designate a staff member to work with the pest control vendor and building maintenance personnel to be sure IPM recommendations are followed

Maintain an evaluation system to determine the effectiveness of various control measures

### **IPM specifications**

Carefully framed specifications help prevent selection of firms that are unable or unwilling to provide an effective IPM program. Below is a basic checklist of bid requirements:

Resumes of service technicians or relevant subcontractors who will be on site to service the account or supply technical support

A description of experience in the design or implementation of IPM programs (including specifics about the types of equipment and products used to control pests)

A list of clients receiving IPM service from the company





A description of training provided to clients

A summary of all regulatory inspections and violations in the past three to five years and the company's response to any violations

### **IPM cost**

IPM programs can further reduce costs by eliminating the practice of spraying chemicals on a regular basis. Buildings and grounds can be developed with the aim to keep pests under control. Buildings with significant problems may require start-up costs to institute an IPM program. Start-up costs may include training employees, conducting regular inspections for pests, and investing in building and landscaping improvements. Once these initial improvements have been made, an IPM program will likely reduce the overall cost of pest control.

## Vehicles

	<b>Conserves Energy</b>
	<b>Less Hazardous</b>
	<b>Prevents Waste</b>
	<b>End of Product Life Management</b>

Most people are aware that there are significant environmental impacts related to our vehicle use, but not everyone knows that vehicle emissions are the major source of air pollution today.

Changing our driving habits is tough, but there are some things that can be done to reduce the impacts. We can purchase vehicles with better gas mileage and lower emissions and use alternative fuels. Keep vehicles properly tuned and maintained. Use alternative means of transportation when feasible.

Other impacts of transportation include extracting and processing oil and natural resources, manufacturing vehicles, and impacts on our neighborhoods and water ways from roadway runoff.

### What are some of the new types of vehicles and fuels readily available today?

**Electric and flexible-fuel vehicles:** Powered by an electric motor or uses a multiple fuel types

**Hybrid electric vehicles:** Combines the use of gas and electric power motors

**Ultra-low sulfur diesel and biodiesel:** Equal performance but less impact on health and the environment

### Vehicles for Sale

The Mississippi Office of Purchasing, Travel and Fleet Management has available on state contract several different manufacturers and models of alternative fuel, flexible-fuel vehicle (FFV) and hybrid vehicles. Visit <http://www.dfa.state.ms.us/Purchasing/StateContracts/Competitive.html>.

### Flexible-fuel vehicles, electric, bi-fuel and hybrid vehicles

A flexible-fuel vehicle (FFV) has a single fuel tank, fuel system, and engine. A FFV is designed to run on regular unleaded gasoline and an alcohol fuel (either ethanol or methanol) in any mixture – for example, 100 percent gasoline, E85 (85 percent ethanol, 15 percent gasoline), or M85 (85 percent methanol, 15 percent gasoline) or any combination of these fuels.

Electric vehicles produce the lowest tailpipe emissions and have lower operating costs than gasoline-powered vehicles. However, electric vehicles have a higher purchase cost and have a limited driving range of about 40 to 100 miles. Although there are few, if any, public charging stations in Mississippi, electric vehicles are primarily charged at home charging stations.

Bi-fuel vehicles have two separate fuel systems, with the capability to switch between fuels; both systems can fully power the vehicle. One fuel system is usually designed to run on gasoline or diesel. Currently, the other fuel system is usually compressed natural gas (CNG) or propane (LPG).

The newest type of vehicle is a hybrid electric, a combination of a gas-powered engine and an electric motor. They do not have the limited range issues of a standard electric vehicle. They are designed to reduce emissions and are rated for high miles per gallon. Super-low-emission vehicles like the Toyota Prius hybrid is rated at 60 mpg, and produce at least 31 times fewer hydrocarbon emissions, half the carbon monoxide, and eight times less nitrogen oxide than traditional gasoline-powered cars.

### What are the alternatives to diesel?

Two diesel fuel alternatives exist that will reduce emissions in various degrees are low-sulfur diesel and



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biodiesel. Heavy-duty engines are available which use alternative fuels, such as natural gas, propane and ethanol. Before using these alternative fuels, check with the vehicle manufacturer for any guidelines.

### Low-sulfur diesels

Low-sulfur diesel is an improvement over existing diesel technology, but it is still more polluting than alternative-fuel technologies. Sulfur contributes to the ill effects of soot emissions and can destroy emission-control devices. Low-sulfur diesel has not been proven to sufficiently reduce the cancer risk associated with diesel emissions, nor has it been certified by any government agency.

### Biodiesel

Biodiesel is a domestically produced, renewable fuel that can be used in unmodified diesel engines. Biodiesel is derived from plant or animal fat.

Performance, storage requirements, and maintenance for biodiesel blend fuels are similar to petroleum diesel. Biodiesel contains no aromatics or sulfur, is a good lubricant, and fleets can earn Energy Policy Act (EPA) credits for using biodiesel. It can be used in a blend with petroleum-based diesel or alone.

Use of biodiesel results in substantial reduction of unburned hydrocarbons, carbon monoxide, and particulate matter compared to emissions from diesel fuel. The exhaust does not contain sulfur oxides and sulfates (major components of acid rain). Use of biodiesel reduces net CO<sub>2</sub> emissions by 78 percent compared to petroleum diesel. The only increase is in nitrogen oxide emissions, which are major contributors to smog. Because of its low sulfur content, biodiesel can be blended with diesel to reduce the fuel's overall sulfur content, or can be used with ultra-low sulfur diesel to provide necessary lubricity.

Biodiesel has been thoroughly tested, and is found to perform similarly to petroleum diesel. The use of biodiesel does not void vehicle warranties. There is an ASTM standard for biodiesel, found at <http://www.astm.org>. The approval of this biodiesel standard has provided both the engine community and customers with the information needed to ensure trouble-free operation with biodiesel blends.

### Regulations

Federal Energy Policy Act of 1992 (EPA)

Congress passed EPA in 1992 with the goals of enhancing our nation's energy security and improving environmental quality. The Department of Energy's overall mission is to replace 30 percent of petroleum-based motor fuels by the year 2010. EPA mandates federal and state fleets to purchase alternative fuel vehicles. For the model year 2003, EPA requires 75 percent of new light-duty vehicles purchased by covered state fleets to be alternative fuel vehicles.

### Suggested resources






U.S. Dept. Of Energy – Fuel Economy <http://www.fueleconomy.gov/feg/hybridtech.shtml>

U.S. Environmental Protection Agency – Green Vehicle Guide

<http://www.epa.gov/autoemissions/>

The National Biodiesel Board (NBB) maintains a list of registered fuel marketers on the biodiesel web site at [www.biodiesel.org](http://www.biodiesel.org) or by calling the NBB at (800) 841-5849.

## Re-refined Oil Products

	<b>Less Hazardous</b>
	<b>Conserves Energy</b>
	<b>Recycled Content</b>
	<b>Prevents Waste</b>
	<b>End of Product Life Management</b>

Customers wanted products that are environmentally safer without sacrificing performance or costing more. Re-refined oils, greases and fluids perform better and are lower or equal in price to standard products.

Currently, only 10-15 percent of used oil collected is re-refined – the rest is burned as fuel. Many state and local agencies are aware that the federal government strongly encourages the use of products made with re-refined base oils.

### Benefits of using re-refined oil products:

Usable in cars, trucks, tractors, forklifts, chain saws and most equipment, these oils will perform as well in the same applications as their conventional oil counterparts

Works well in heavy-duty equipment, gas engines, and heavy-duty diesel engines converted to compressed natural gas (CNG)

Reduces the amount of crude oil that must be found and processed

Encourages the market to make more re-refined oil available

Extends the life of the petroleum resources indefinitely if not contaminated

Proven technology backed by a written warranty

### Information

Virgin and Re-refined Lubricants. Some products cost less per gallon and others cost only a couple of cents more per gallon than virgin products.

**Caution:** Re-refined oil products are made with an amount of re-refined oil content that the formulation requirements allow. Some re-refined oil products are manufactured with 100 percent re-refined base oil and others are made with as little re-refined oil as can be used and still be classified as re-refined oil product, so to get the maximum benefit check the percentage of re-refined oil used.

### Re-refined lubricants

Most engine oil that is down-cycled is burned for energy recovery, but some is re-refined to work as engine lubricant again. Re-refined oil is just as good as virgin oil. Laboratory testing and field studies have concluded that re-refined oil is equivalent to virgin oil and passes all prescribed tests.

The re-refining process is more complex than just spinning out the water and filtering, which is referred to as recycling or reclaiming. Used oil is collected from service stations, lube & oil change facilities and commercial and industrial locations. This oil is tested for any contaminants that would impact the finished product, and then transported to a refinery designed to re-refine the oil. Re-refined oils are processed in much the same way as conventional petroleum products.

Re-refined oils have physical and chemical properties equivalent to virgin base oils and respond to additive packages in a consistent manner.

Auto manufacturers must honor warranties if oil (re-refined) has the American Petroleum Institute (API) symbol is on a product. API certification is the basis for warranty requirements of motor vehicle manufacturers, and thus is

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used in specifications of motor oil buyers.

### Suggested Resources

Conoco-Phillips, 76 Lubricants Company <http://www.76lubricants.com/>, 1 800-435-7761

American Petroleum Institute, <http://www.api.org/>

Automaker Endorsement Letters (for using re-refined), <http://www.ac-rerefined.com/html/endorsements.html>






EPA's Comprehensive Procurement Guidelines: Re-Refined Lubricating Oil <http://www.epa.gov/epaoswer/non-hw/procure/products/lubricat.htm>

Motor oil, re-refined: <http://www.metrokc.gov/procure/green/oil.htm>

America's Choice: <http://www.ac-rerefined.com/html/endorsements.html>



## Car and Truck Products

	<b>Less Hazardous</b>
	<b>Conserves Energy</b>
	<b>Recycled Content</b>
	<b>Prevents Waste</b>
	<b>End of Product Life Management</b>

Buying recycled products for your vehicles can take you a long way down the road toward protecting the environment and saving resources. Whether you are a fleet manager or responsible for only one vehicle, there are recycled products that work.

Studies and experience show that these products can meet or exceed your quality standards. What's more, buying recycled can cut your expenses while reducing solid waste and providing markets for recyclable materials collected nationwide.

### Retread availability

There are currently two state contracts with retread tires.

Michelin <http://www.dfa.state.ms.us/Purchasing/StateContracts/Tires/MichelinNorth863.pdf>

R & R <http://www.dfa.state.ms.us/Purchasing/StateContracts/Tires/RRTire863.pdf>

### Retreading is recycling

Every time you buy and use a retread tire, you help to conserve our valuable natural resources. Retread tires are always less expensive than comparable new tires, so you will save money while helping the environment.

For most fleets, tires represent the third largest item in their operating budget, right after labor and fuel costs. The lowest possible cost-per-mile is achieved with a good tire-management program that includes the use of quality retreads.

Retreads are not only cost-effective, but they are also dependable, reliable and safe. Retreads are widely used by trucking companies, small package delivery companies, commercial and military jets, and school bus operators. Retreads are the replacement tire of choice for most truckers. Of the nearly 33.8 million replacement tires purchased by fleets in 2000, over 18 million were retread or about 54 percent of the tires purchased.

Retreads help to conserve natural resources. It takes 22 gallons of oil to manufacture one new truck tire, compared with only 7 gallons of oil to produce a retread.

When the time comes to replace tires, evaluate high-mileage and retread tires to see if they meet your need. Purchasing retread tires "closes the loop" on recycling.

### Is it safe to use retreads?

Retread tires must meet standards developed by the U.S. Department of Transportation (DOT). Properly maintained tires, whether new or re-treaded, do not cause accidents. Statistics compiled by DOT show that nearly all tires involved in any tire-related accidents are under-inflated or bald.

According to the [Tire Retread Information Bureau](#), there is no significant difference in quality between retread tires and new tires.

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### Why is it environmentally sound to use retreads?

- Keeps tires out of landfill, incinerators or tire piles
- Less energy and resource are used to retread tires
- Each year, retread tires save more than 400 million gallons of oil in North America
- Many tires can be repeatedly retreaded, avoiding the disposal costs of the tires

### Why is it financially sound to buy retreads?

- Retreads can cost 30 to 50 percent less than the cost of purchasing new tires
- They make the most sense for use on trucks and heavy equipment
- Over 30 million tires are retread each year, representing sales of over \$2 billion and savings of millions

### Laws and guidance

EPA recommends that procuring agencies specify that retread tires must meet the requirements of Federal Specification ZZ-T-381, "Tires, Pneumatic, Vehicular (Highway) (New and Re-treaded)," and be listed on General Service Administrations' Qualified Products List QPL-ZZ-T-381.

### Engine coolants – recycled antifreeze

Recycled coolant can cost less than new coolant, if you select the right recycling process for your shop. When you buy new coolant, compare its cost and disposal costs with the cost of onsite or offsite recycling of coolant.

Testing shows recycled coolant meets nationally recognized performance specifications for new coolant, such as those established by the American Society for Testing and Materials (ASTM) and the Society of Automotive Engineers.

Coolant recyclers have worked with automotive and truck engine original equipment manufacturers (OEMs) to get their approval on coolant recycling processes. Check with your recycler for a list of OEM approvals.

### Benefits of recycling antifreeze

Antifreeze contains the toxic chemical ethylene glycol, so it cannot be drained on the ground, septic, or into a sewer but must be collected. If it is properly recycled, then it is exempt from the hazardous waste management rules.

If used antifreeze is recycled, it doesn't need to be counted or manifested as a hazardous waste. If used antifreeze is otherwise disposed, it is subject to full regulation unless the generator can document that the antifreeze is not hazardous. Keep records of the recycling activity. Never dispose of used coolant to the drain or sewer.

### Extended-life antifreeze



Extended-life antifreeze lasts longer than conventional antifreeze. The service life of antifreeze is limited by the protection ability of the corrosion inhibitors. Extended-life coolants have been shown to retain over 95 percent of their corrosion inhibitors after five years/150,000 miles in automobiles. Most extended-life coolants do not contain silicates and phosphates, common in conventional antifreeze, which tend to be abrasive to water pump seals. Some shops are switching their fleets to extended-life antifreeze, which greatly reduces the need to purchase new antifreeze and recycled used antifreeze. Many newer vehicles, including cars, light trucks, and heavy-duty diesel trucks, are now factory-filled with extended-life antifreeze.

### Recycled antifreeze recommendations



The EPA does not recommend one type of engine coolant over another, but recommends engine coolant containing only one base chemical, typically ethylene glycol or propylene glycol, to prevent the commingling of incompatible types of engine coolant.

General Motors (GM) endorses several coolant-recycling systems and states that the engine warranty will not be affected if engine coolant recycling is performed as described by the manufacturer and with GM-approved recycling equipment.

Ford Motors expressly authorizes the use of certain engine-coolant recycling processes and chemicals that meet its specifications. Chrysler allows any coolant to be used as long as it meets Chrysler's and ASTM's specifications. Check with your vehicle manufacturer or dealer to see which coolant-recycling equipment or process is best to use.

### Recycled antifreeze availability



You can help the environment and save natural resources by requesting recycled or extended-life antifreeze when servicing. If you service your own fleet, purchase and use recycled or extended life antifreeze, or reclaim and reuse on site. Recycled coolant might cost less than new if you select the right recycling process for your shop.

### Suggested resources



EPA's Comprehensive Procurement Guidelines: Retread Tires:

<http://www.epa.gov/epaoswer/non-hw/procure/products/retread.htm>

EPA's 2004 Buy Recycled Series – Vehicular Products

<http://www.epa.gov/cpg/pdf/vehicle.pdf>

EPA's Comprehensive Procurement Guidelines – Engine Coolant: <http://www.epa.gov/cpg/products/engine.htm>

Automotive Service Equipment – Antifreeze recycler: <http://www.asedeals.com/ARU2.html>

Recyclers World – Advanced Antifreeze Recycling: <http://www.recycle.net/trade/aa027901.html>

## Additional MSU Guidelines

### Energy Efficient Equipment



MSU should only purchase the following items if they are Energy Star rated. The department requesting the purchase should provide documentation supporting this rating (obtained from the vendor) at the time of requisition or the department should maintain such documentation with their Procurement Card records for audit purposes.

- Copiers
- Printers
- Computers
- Computer Monitors
- Air Conditioners
- Stoves
- Refrigerators
- Freezers

### Environmentally Preferred Furniture



#### Environmentally preferred furniture

MSU should only purchase the following items if they carry a nationally recognized rating as being environmentally preferred. The department requesting the purchase should provide documentation supporting this rating (obtained from the vendor) at the time of requisition or the department should maintain such documentation with their Procurement Card records for audit purposes.

- Desks
- Chairs
- Credenzas
- Residence Hall Furniture

### Paper and Envelopes



MSU should purchase copier paper and envelopes with recycled content. These items are available on the state contract. The department should maintain a copy of the state contract page with their Procurement Card records for audit purposes.

For all other paper purchases, the department shall seek to procure recycled content product if available at a reasonable price.