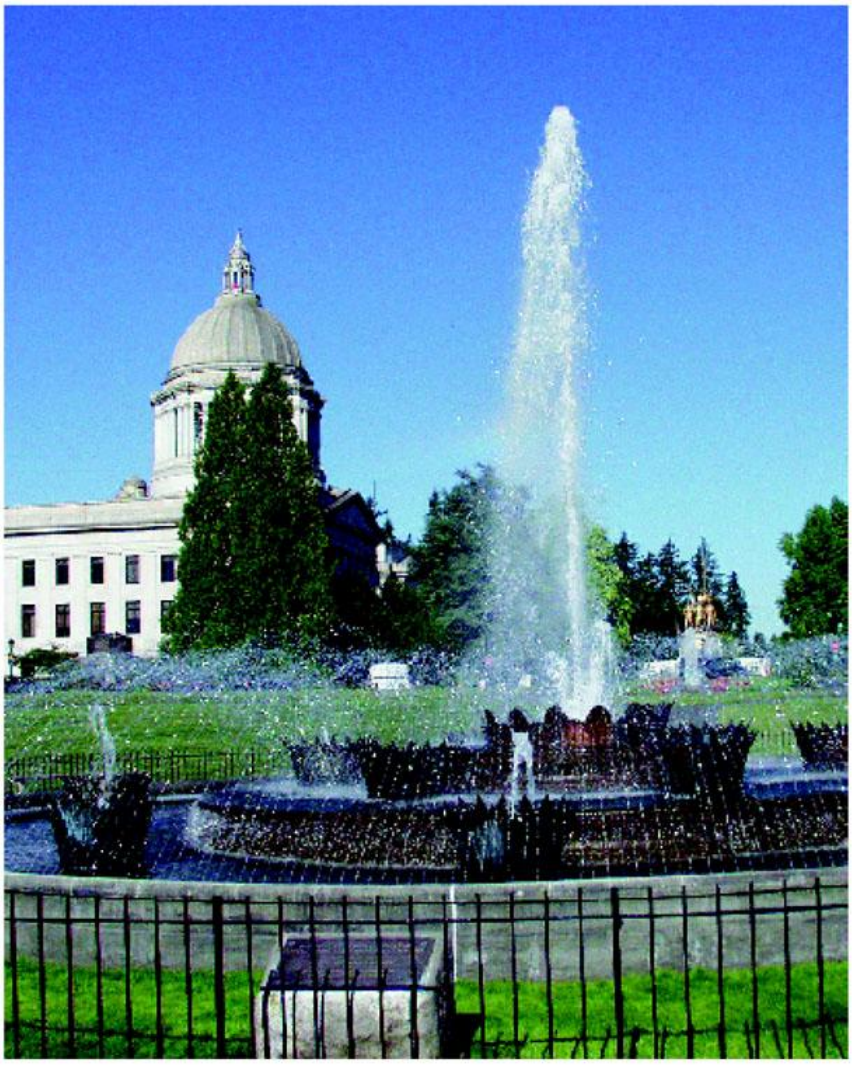
# PURCHASING REFERENCE GUIDE

*FOR*

# Environmentally Preferable Purchasing



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General Administration
STATE OF WASHINGTON

DEPARTMENT OF
ECOLOGY
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# Introduction

The purchasing and use of products and services can have a profound impact on people and the environment. This guide was create to meet the growing interest among governmental purchasers to find ways for their organizations to make buying decisions that are better for people and the environment. It has been well proven that the products and services organizations use can have lasting environmental impacts. The guide's focus is to help purchasers with the selection and use of products and services that are considered environmentally preferable. The goal is to educate and change buying habits for the good. The guide is meant to be an excellent starting point for research and discussions.

This reference guide was put together to help buyers at state agencies, colleges and universities, and political subdivisions. 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, but does provide help making and choosing products and services that are environmentally preferable.

The guide has been prepared by the State of Washington, Department of General Administration, Office of State Procurement, and the Department of Ecology.

## How will this purchasing reference guide help me?

Every product and service we use has a potential positive or negative impact on our health and environment. If you are looking for ways to reduce workplace hazards, conserve energy and water, protect natural resources, reduce waste and identify some environmentally preferable alternatives, then this guide can help.

It is not always easy finding or deciding which products or services are better for our employees and environment. This purchasing reference guide can be a helpful resource for buyers looking to understand what is important when purchasing environmentally preferable products, defining environmental attributes, deciding between products, and looking for some information about how to select products. Most of all, this guide encourages buyers to start to ask the right questions.

Found in this guide are the basics of environmentally preferable purchasing for many product groups with suggested purchasing resources and recommendations. Buyers will find this guide helps them make environmentally preferable buying decisions and support those choices.

For further assistance about environmentally preferable purchasing, please contact the Office of State Procurement at (360) 902-7400 or on the Internet at http://www.ga.wa.gov/Sustainability/index.html or the Department of Ecology at (360) 407-6000, http://www.ecy.wa.gov/beyondwaste/epp.html

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

- Find hundreds of products with recycled content
- Sources for products and services to meet government environmental purchasing requirements
- Tools and tips for searching for environmentally preferable products and services
- Write specifications and award clauses for environmental purchasing results
- Earn money from discarded items
- Access many helpful web links for buying, selling or disposing of used products
- Contacts for experts on energy saving products
- Benefiting from state contracts for the best prices and service
- Complying with Governor Executive Orders, state laws and your organization's sustainability goals
- Saving money while saving the environment and protecting people

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# Getting Started

# Environmentally Preferable Purchasing

## What is environmentally preferable purchasing?

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

## How can I purchase environmentally preferable products?

Along with traditional buying considerations such as performance, price, quality, availability, and service consider the environmental attributes of a product or service. Environmental attributes are those features of a product or service that can make it preferable to purchase when compared to others. The best time to consider environmental attributes is when you are developing specifications and the award language. The key is to focus on those particular environmental attributes that are verifiable and measurable. Your organization will reap many lasting benefits by taking into account positive environmental attributes when making buying decisions.

## What are some benefits of environmentally preferable purchasing?

* Less toxic products improve worker safety, reduce regulatory liability, and lower disposal costs
* Energy-efficient and water-conserving products save natural and financial resources
* Products that are reusable, more durable, or repairable generates less waste and conserves resources
* Recycled products save natural resources and keep recycling programs going by supporting markets for the recycled materials
* Safer products and services keep people and our environment healthy

## Here are some questions to ask when comparing environmental attributes:

Is the product less hazardous?

Does it reduce greenhouse gas emissions?

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 percentage of recycled materials is used? Is it pre- or post- consumer waste? Can it be recycled?

Does it conserve energy or water?

Is it made from plant-based raw materials?

Is there an independent third-party certification of the environmental attributes?

What happens at the product's end of life? Does it require special or costly disposal?

Will the manufacturer take it back to disposal of it?

What is the total cost of ownership?

## Suggested resources

EPA Environmentally Preferable Purchasing, http://www.epa.gov/opptintr/epp/

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

Department of Ecology, http://www.ecy.wa.gov/beyondwaste/epp.html

# Reference Guide Symbols

Found in this reference guide are symbols that will help you quickly identify the most accepted environmental and health issues and some of the environmental attributes related to a particular class of products. These symbols identify the advantages that an environmentally preferable product offers compared to similar products.

| | |
|---|---|
| **Less Hazardous** | Avoid products containing hazardous chemicals reduces potential serious health risks to people and damage to the environment. As a rule, always try to use the least amount of a hazardous product. Avoid products labeled with words such as Caution, Danger, Warning or Poison. Read the Material Safety and Data Sheets before choosing a product. |
| **Conserves Energy** | Reducing energy use is one of the simplest things we can do to curb impact to the air we breathe and our environment. Energy production can contribute to emissions of carbon dioxide and other pollutants. By buying energy-efficient products, you will keep utility costs down and protect the environment. |
| **Conserves Water** | Choose products and services that conserve water to 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. |
| **Recycled Content** | Buy 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. |
| **Low Volatile Organic Compounds (VOCs)** | Select products with low or no VOCs to reduce indoor air quality hazards. VOCs are chemicals that evaporate easily (volatilize) at room temperature, and often have unhealthy and unpleasant vapors. They come from products such as adhesives, carpeting, upholstery, furniture, paints, solvents, pesticides and cleaning products. Some VOCs may cause cancer, especially when concentrated indoors. When VOCs hit sunlight it creates ozone, an air pollutant harmful to both people and plants. |
| **Prevents Waste** | Waste prevention conserves 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. |
| **End of Life Product Management** | Consider the product's end-of-life issues to prevent costly disposal bills and pollution liability risk. 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. Considering the disposal cost encourages manufacturers to reduce their products' environmental burden. |

# Writing Specifications

When developing specifications consider the environmental attributes of the product or service you are buying. Specifications can have a real impact on supporting positive environmental results. Environmental attributes can be such factors as energy or water use, reduced or no toxics, natural resource conservation, waste reduction, recycled content, end-of-life disposal, etc. Ask yourself, "How does this product or service impact the environment and people?"

Specifications steers purchasing actions, so decide what environmental attributes are important to your organization and write the specifications to achieve that outcome. Remember to choose attributes that are measurable, verifiable and not overly restrictive. The goal is to encourage vendors to bid environmentally preferable products and services while increasing competition and keeping down cost to achieve best value. Taking a little extra time before purchasing to consider environmental attributes can result in lasting benefits for people and the environment.

## Below are a few strategies for writing your bids:

**Specification Strategy:**

Ask vendors to identify environmental attributes that are common to a product or service, and then strategize how to use 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.

Require a percentage of recycled content in products and specify those products that can be easily recycled.

Require packaging to be non-toxic, refillable, returnable, recyclable or biodegradable.

Specify such attributes as non-toxic, mercury-free, biodegradable, energy-efficient, low VOC, Energy Star or vendor recycling and take-back programs.

Watch for over-specifying. 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.

Require vendors to meet independent third party verification of environmental claims, e.g., Green Seal.

Encourage the reduction or elimination of hazardous chemicals by being open to alternative safer chemicals.

**Award Strategies:**

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

Consider life-cycle cost in your evaluation process to better capture the true ownership cost. 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.

Award contracts using a good, better and best ranking and then let the customer choose, this allows for pricing differences for environmentally preferable products.

Set environmental purchasing goals and track them for your office, department and agency, and then promote your accomplishments.

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

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

Share with others the strategies you have learned to reach your environmental purchasing goals:

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# Buying Less – Preventing Waste

Nearly everything we purchase generates some kind of waste. Every day waste continues to grow and has become an important issue for most communities in our state. Waste can be an expensive to manage, but with some planning and it can be minimized or avoided all together. Most waste ends up in a landfill, some will be managed as hazardous waste, while some become water/air emissions.

Waste can be found in the manufacturing process, packaging, use of the product, it may be a by-product, or the product itself. When making purchasing choices the challenge is to find ways to avoid creating more waste and reduce 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 way towards reducing waste, saving money and protecting the environment.

Consider putting in place a composting program at your work place. The savings in garbage and landfill cost can be significant. Recently, there is a growing list of bottles, plastic cups and utensils that are compostable.

## What actions can you take to prevent waste?

- Look for ways to extend product life. Buy durable or higher-quality products, especially for frequently replaced items. Find multiple uses for a product
- Choose repairable, refillable, reusable or refurbished products
- Buy multiple-use cleaning and maintenance products; avoid specialized cleaners when possible
- Buy in bulk or concentrated form if it reduces packaging or shipping impact
- Select products in which the manufacturer takes back the product and responsibly reuses or recycles it

**Office Products**

- Set up a reusable supplies area for staff
- Buy rebuilt, remanufactured, or refurbished products, such as recycled toner cartridges, refurbished office furniture and rebuilt copy machines
- Use rechargeable batteries and recycle them when spent
- Buy refillable pens, pencils, and tape dispensers
- Reuse file folders, binders and other office supplies
- Specify copiers and printers capable of making double-sided copies and set copiers to duplex printing. Encourage employees to use double-sided copies
- Require the most energy-efficient products

**Packaging**

- Purchase products in reusable, refillable, or returnable containers
- Receive deliveries in reusable trays or totes, which can be sent back with the vendor for reuse
- Require recycled content packaging materials and recyclable
- Require non-toxic packaging materials
- Buy products with minimal packaging or packaging that is biodegradable

**Food Service**

- Buy reusable cafeteria dishware. Reusable dishes are often cost-effective over the long term compared to disposable
- Allow variable portions to reduce food waste
- Start a food scrap composting program
- Consider local and organic grown foods

**Meetings**

- Hold teleconferences and webinars to reduce travel
- Make sure that a recycling program is set-up for cans, plastic, glass, cardboard, and paper
- Print documents on double-sided 100% post consumer recycled paper
- Provide durable cups, glasses, dishware and utensils or compostable items
- Serve water in pitchers
- Provide sugar, salt, pepper, cream and other condiments in bulk servers, not individual packaging
- Plan food choices to minimize waste and compost leftovers

## What are some of the benefits of Buying Less?

A key to preventing waste is to buy less in the first place. When purchasing, consider ways you can buy less, whether it is less product or less packaging. Work with your suppliers to discuss ways to prevent waste. Most suppliers are willing to explore ways to reduce the cost of delivering their products. It might be the purchasing in larger quantities to reduce the number of containers and shipping cost, requiring use of less packaging materials, or specifying the use of reusable shipping containers to cut down on waste and cost.

Some of the benefits include:

- Savings in ordering cost and time
- Savings in handling and storage cost
- Reduction in transportation cost and less greenhouse emissions
- Fewer natural resources used
- Reduced waste materials and cost
- Reduced pollution risk from hazardous materials

## Suggested resources

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

Ecology links: Managing Food Scraps at Institutions and Agencies - A Guide for Washington State

http://www.ecy.wa.gov/pubs/0607033.pdf & Focus on Green Meetings http://www.ecy.wa.gov/pubs/0807044.pdf

# Identifying Recycled Content Products

Purchasing products with recycled content saves energy and natural resources, helps keeps 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 raw or virgin materials when manufacturing a new product.

Products can be made from materials derived from 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.

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.

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.

State of Washington law (RCW 43.19A) requires the use of recycled content products. The law’s goal is to substantially increase the procurement of recycled-content products by all local and state government agencies and public schools. The law provides a model to encourage a comparable commitment by Washington citizens and businesses in their purchasing practices. The law provides for a 10% purchasing preference for bid evaluation purposes.

## EPA Comprehensive Procurement Guidelines

The following product categories have purchasing requirements for the recycled content:

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

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

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

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

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

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

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

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

## Suggested resource

EPA Comprehensive Procurement Guidelines http://www.epa.gov/epawaste/conserve/tools/cpg/index.htm

# Purchasing Resources

# Office of State Procurement

**Recycled Content**

**Prevents Waste**

**Less Hazardous**

**End of Life Product Management**

The Office of State Procurement has contracts for thousands of products and services needed by government. Many of these contracted products and services are healthier and safer for people and protect our environment. These contracts are available for use by state agencies, colleges and universities, local governments, public utility districts, fire districts, and qualifying nonprofit organizations. State contracts leverage the purchasing activity of many entities for the best pricing while supporting the purchase of environmental preferred products and services.

## What are some environmentally preferable products and services available on state contracts?

The state contracts referenced below include products and services that have some environmentally preferable attributes. If you have questions about the actual environmental attributes of a product or service contact the vendor on the particular state contract or the Office of State Procurement.

Here is a sampling of some of the products and services currently available with their state contract number:

| Product/Service | State Contract | Environmental Attribute |
|---|---|---|
| **Appliances** | #04405 | Energy saving refrigerators, washer/dryers and ranges |
| **Boxes and shipping tubes** | #06705, #02308, #06106 | 25 percent post-consumer recycled content |
| **Cleaning supplies** | #00307, #03106 | Less toxic general cleaning and degreaser |
| **Copying paper and toner** | #09205 | 30 percent and 100 percent post-consumer recycled content |
| **Fertilizers** | #02605 | Organic Fertilizers |
| **Flooring** | #00710 | NSF 140 Gold carpet, carpet recycling, linoleum, Green Label |
| **Fuel** | #07705 | Biodiesel and Ethanol |
| **Industrial supplies and equipment** | #11305 | Recycled, low toxic, low VOC |
| **Lighting** | #02908, #00802 | Energy-saving lighting products |
| **Lubricants, re-refined motor oils** | #09005 | 60-100 percent re-refined base oils |
| **Office furniture** | #14393, #04308 | Remanufactured and re-upholstered |
| **Office supplies** | #09205 | Green Book, thousands of typical office supplies |
| **Paint and supplies** | #15504, #00207 | Post-consumer recycled paint, reprocessed and low VOCs paint |
| **Park & Playground equipment** | #14803, #06707 | Recycled steel, aluminum, wood, rubber, refurbishing |
| **Plants** | #11804 | Native Plants |
| **Recycling Services** | #09108 | Recycles electronics and spent Lighting |
| **Scrap Metal** | #01509 | Recycles scrap metal |
| **Vehicles** | #04809, #05510, #06209 | Hybrid vehicles using gas and electricity to operate |

To view these state contracts go to http://www.ga.wa.gov/Purchase/contracts.htm and then enter the contract number. On this same web page, check out the Other Contract Resources, it has a links to a list of “green or recycled content” contracts and a search feature for green and recycled items. Contract numbers change occasionally, so if you do not find the contract, contact the Office of State Procurement for the current contract number.

# State Surplus

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|---|
| **Recycled Content** |
| **Prevents Waste** |
| **End of Life Product Management** |

State Surplus sells government surplus property to state agencies, government entities, nonprofit organizations and the public. State Surplus is an excellent source for many used items and a great way to stretch your budget and prevent waste. State Surplus manages the redistribution of surplus items from both state and federal agencies to schools, governmental entities and private non-profit organizations.

## What does State Surplus have for sale?

- ✓ Vehicles, all types
- ✓ Heavy equipment
- ✓ Office furniture and equipment
- ✓ Electronics and computers
- ✓ Kitchen equipment
- ✓ Medical equipment
- ✓ Chainsaws
- ✓ Audio Visual Equipment
- ✓ Tables
- ✓ Cameras
- ✓ And much more …

Looking for something special? Contact Surplus at surplusMail@ga.wa.gov or call the warehouse at (360) 753-3508 and they will watch for the item.

## Will State Surplus take our surplus?

State Surplus offers services to handle your surplus items, whether it is helping you to sell surplus at your location, providing allowances for trade-ins, or simply taking your surplus away. State Surplus uses a form for agencies to request authority to dispose of property, Property Disposal Request 267-A.

## How do we transfer surplus or donate property?

Surplus property can be transferred from one state agency to another state agency without charge if each individual item transferred has a fair market value of less than $500. There are three methods for donating state surplus property: rehabilitative workshops, homeless shelters or Computers 4 Kids. For further details on donations refer to RCW 43.19.1919 and WAC 236-48-190.

## What about federal surplus personal property and law enforcement excess property?

Federal surplus items are available to state and public agencies, including school districts and nonprofit organizations that provide services in the following areas: health care, education and homeless/impoverished families and individuals. The Law Enforcement Support Program (1033 Program) transfers excess military assets to state and local law enforcement agencies. Both programs are available through State Surplus.

## Where is the State Surplus store?

Location:
7511 New Market St, Tumwater, WA 98512, telephone (360) 753-3508
Visit their web site at: http://www.ga.wa.gov/surplus/index.html

# Materials Exchanges

**Prevents Waste**

**End of Life Product Management**

Materials Exchanges keep usable materials out of landfills, incinerators or piling up at your facilities. Exchanges promote the reuse of materials that might otherwise be thrown away. Exchanges help connect sellers and buyers for discarded items. Reusing discarded items helps conserve energy, resources and landfill space.

## What are the benefits of using a materials exchange service?

Materials Exchanges can both save you money and earn you money. Exchanges find markets for your industrial by-products, surplus materials and waste. These services help match up available resources with people in need of them. When you find items through an exchange they are often very low-cost or even free.

Exchanges help you recycle waste materials back into the manufacturing process, thus saving resources that would otherwise be spent on virgin raw materials.

## Who can use a materials exchange?

Businesses, schools, community organizations, governments and the public can use Materials Exchanges to find users for materials they no longer want or to locate inexpensive sources of items they need.

Some of the materials you will find at an Exchange include used office furniture, flooring, building materials, pallets, textiles, industrial chemicals, paint and coatings. Check with a Materials Exchange for a complete listing of the items they promote and currently have available.

## Materials Exchanges

Below is a list of some Materials Exchanges, many more are available through an internet search.

**IMEX (Industrial Materials Exchange)**
Seattle, WA
http://www.govlink.org/hazwaste/business/imex/

**King County Solid Waste Division**
Seattle, WA
http://your.kingcounty.gov/solidwaste/exchange/building.asp

**NW Materials Mart**
http://www.nwmaterialsmart.org/find_exchange.html

**2Good2Toss**
http://www.2good2toss.com/

**Southern Idaho Waste Exchange**
http://www.sisw.org/wastexchange/exlists.htm

**California Integrated Waste Management Board**
http://www.ciwmb.ca.gov/Reuse/Links/Exchange.htm

# Buying Products & Services

# Lighting Products

| | |
|---|---|
| | **Conserves Energy** |
| | **Less Hazardous** |
| | **Prevents Waste** |
| | **End of Life Product Management** |

Did you know that lighting can easily account for 30% to 50% of a building's energy use? Any efforts to increase lighting efficiency will result in significantly reducing energy use and expense. Less energy used means of course less needs to be generated, which saves our natural resources and the need to build more power infrastructure. Energy efficiency does not mean giving up lighting levels or quality, it often improves. Many new lighting products and techniques enhance the working environment, it has been proved that better lighting improves employee productivity, safety and security. Modern lighting efficiency creates a healthier working environment while saving you money.

## Energy-saving suggestions

- Manage the use of lighting - the quantity, quality and type
- 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 energy efficient lamps and ballasts, and energy saving devices

## Energy-efficient lighting tips

To cut energy costs consider upgrading your fluorescent lamps and ballasts. Fluorescent lights are a standard commercial indoor light source because they last longer and cost 50% less to operate than incandescent lights. Improving lighting efficiency involves replacing less-efficient lamps and ballasts; this might initially cost more, but in the long run it is more efficient.

Most facilities have the older T12 type fluorescent lamps and electromagnetic ballasts, both items use more energy than the newer products. Consider replacing standard T12 (1.5”) fluorescent lamps (tubes) with newer T8s (1”) or T5s (5/8”); T8s are 25% more efficient than T12s and newest lamps T5s are even more efficient. Savings in energy costs can produce a typical payback in three years or less depending on the application. Since newer fluorescent lighting uses less energy it produces less heat, which helps lower building cooling costs, another side benefit of updating your lighting.

The newer fluorescent lamps have better color rendition for replicating natural lighting, creating an improved work environment and reducing the quantity of lighting in the workspace. Fluorescent lighting is rated by color rendering index (CRI) and color temperature. Select CRI of 80 or higher, the highest score for color accuracy is 100%, for the best color. Color accuracy helps you distinguish the true colors of items. Color temperature measures the color of the light and is measured in degrees of Kelvin. The color scale runs from warm yellow hue (1500°) to bright blue (6500°), with higher temperatures closer to daylight. Typical office environments are in the range of 3000° to 4100°. Lighting that more closely resembles natural light reduces the need for more lighting output and energy use.

Teaming the high-efficient T8s lamps with new electronic ballast will result in lower power consumption and lower life-cycle cost while improving the light quality. Lighting ballast is used to provide the right voltage and electrical current for a fluorescent lamp to operate at its best. The two types of ballasts are electromagnetic and electronic. Electronic ballasts use high frequency, solid-state circuitry instead of heavy copper windings as in the electromagnetic ballasts. Electronic ballasts produce more light for each watt, run cooler and last longer than the electromagnetic ballasts. The new electronic ballasts produce little or no light flicker and run quiet; both features will be appreciated by your staff.

Electronic ballasts will save you operating cost, especially if you have work areas requiring continuous lighting that uses cool-white T12 lamps with electromagnetic ballasts, by just changing out the ballasts will save energy. Under standard office conditions, instant-start electronic ballasts with T8 lamps can produce the greatest savings, but the ballast may slightly reduce the lamp life. For intermittent lighting, try a rapid-start ballast, it consumes slightly more power, but can be used to maintain lamp life.

When planning an upgrade, consult with the vendor on the state lamps and ballast contract for the latest energy savings technology and analysis, contract no. **00802.** Because fluorescent lighting and some other lighting bulbs have mercury, the state has a contract for the proper disposal of fluorescent lamps and bulbs, contract no. **09108.**

## Lighting alternatives

### Compact fluorescent lights (CFL)

CFLs can easily replace standard incandescent light bulbs in most situations and reduces energy use. CFLs offer ten times the lamp life and use a third of the energy of an incandescent bulb for the same amount of light. When purchasing CFL bulbs, look for those with an Energy Star rating, as these bulbs meet a stringent quality standard. A CFL operating for 2,500 hours or more per year can pay for itself within a year, and with more hours of operation sooner the payback period. The variety of new CFLs is increasing each year, most likely there is a CFL for your applications.

### High-intensity discharge (HID)

HID lights, such as high-pressure sodium lamps and metal halide lamps, 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.

### Light Emitting Diodes (LED)

LED lighting has begun showing up in many useful applications from exit signs, streetlights, traffic signals, to many creative lighting uses. LED is a semiconductor chip that emits light when conducting current. LED's are extremely efficient lighting products that can create energy cost savings for any organization, using less than half the energy of CFLs. The newer LEDs are designed for a standard light socket for ease of installing and can be used in recessed ceiling lighting and replace fluorescent lamps in display units. LEDs have a longer lifespan than most other lighting fixtures and create little heat, thus keeping cooling costs down. Ask for LEDs that meet the RoHS standards for no hazardous materials.

## Light sensors

Sensors can play a significant role in helping reduce your energy use while still providing for a safe well-lit working environment. 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 to 60 percent, depending on location.

Consider using timers in areas with regularly scheduled use, such as perimeter lighting, hallways and garages. Timers will turn the lighting on and off automatically, saving the labor cost of sending someone to do it.

Use light sensors in areas that normally receive daylight. Lighting sensors will balance the amount of artificial lighting with natural light and reduce the energy use for lighting. Some sensors monitor the daylight and adjust the lighting levels, other sensor systems monitor both the daylight and the room lighting levels and then adjusts the room lighting accordingly. Light sensors work well in lobbies and other public areas that have a considerable amount of natural light, and along window offices and workspaces.

Replacing older light fixtures with energy efficient lighting that adapts to daylight will improve the light quality and quantity of energy used per square foot. Use dimmers and light sensor in areas that do not need constant lighting.

Occupancy sensors are used 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. Occupancy sensors are best suited for spaces used infrequently, such as conference rooms, private offices, classrooms, storage areas and bathrooms. Occupancy sensors can be used in office cubicle workstations to reduce the energy use when your staff is away from their workstation, turning off such items as task lighting, fans, heaters and monitors.

## De-lamping

An inexpensive way to reduce energy use is to take out some of the existing fluorescent lamps, this process is called delamping. Delamping could involve simply removing some existing lamps, cutting off the power to a light fixture or completely removing the light fixture. When deciding how best to delamp have an electrician determine whether the ballasts are wired in series or parallel, and the type of ballasts.

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. Industry standards are available for the amount of lighting required for common applications; 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. Remember to always consider safety first when adjusting light levels. Most likely you will be able to turn off many of the lights and still provide adequate lighting.

## Group re-lamping

Group re-lamping is a program for replacing all the fluorescent lamps in an area on a regularly scheduled maintenance basis based on the projected lamp life. Group re-lamping should be a part of a facility maintenance program as it saves resources and maximizes the lighting system.

Fluorescent systems should be considered for group re-lamped when a majority of the lamps are at 70% of rated useful lamp life. After 70% the burnout rate of lamps climbs steeply and there is a decrease in the light output per energy input. To maintain consistent lighting in workspaces, all the lamps should be changed at the same time in workspace. Labor savings from a re-lamping program will be more than made up when compared to random replacement of lamps; the job could be done once and not over and over. When you are choosing replacement lamps select the low mercury lamps and a longer lamp life to get the full benefits of new technology.

Some advantages to re-lamping are:

- Saves money, time and energy by improving overall system efficiency, reduces maintenance costs, and lowers costs through volume purchasing
- Prevents unnecessary ballast degradation from failing or failed lamps. Expired or failing lamps can cause a ballast to fail prematurely; a new lamp is a lot less expensive than replacing a ballast
- Stops scattered lamp burnouts and less disruption in the work areas, and maintains more consistent lighting levels and quality

## Daylighting

You can improve lighting and reduce energy use by making changes to your current lighting system to allow for better use of daylight. Daylighting is allowing natural light to shine into the building workspaces. Consider re-configuring lighting and workspaces to promote the use of daylight.

Daylighting reduces dependency on artificial lighting and is proven to help support worker productivity. Reconfiguring workspaces to take advantage of daylight can have a positive effect on workers and reduce the need for energy for lighting.

When remodeling, consider installing light shelves at windows so natural light is reflected into workspaces. Light shelves can draw 20% more light into the building, reducing the need for artificial lighting. By using light shelves that direct the natural light to the ceiling will diffuse the light further into the area. More costly, but you might consider adding a window or windows on multiple sides of a rooms to allow more light into the workspace. Look for ways to allow more natural lighting into the workspace and the effort will payback.

## What to do with spent lamps and ballasts?

Overall, fluorescent lamps and bulbs 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 with a recycler that will properly manage the toxic materials by sending them to a hazardous waste disposal facility.

Many older types of electromagnetic ballast have PCB (polychlorinated biphenyls) oils; these ballasts have to be managed as a hazardous waste until the oil is removed. Ballasts will have a label on the outside of the casing identifying whether the ballast has PBC oil. Some ballasts have a potting compound in them that will require handling the ballast as hazardous waste. Most electronic ballasts can be recycled as metal scrap. Check with your recycler to identify the best disposal plan for the type of ballast you have.

Governor's Directive No.04-01 directs state agencies and institutions to recycle all fluorescent lamps and bulbs at the end of the useful life to assure proper management.

Generators of spent lamps and ballasts should be familiar with Ecology's Fact Sheet on the Universal Waste Rule for lamps. As a rule, generators must either recycle lamps or manage them as hazardous waste.

The Office of State Procurement has contracts for Hazardous Waste Disposal #03505 and Recycling Services-Electronics and Spent Lighting, # 09108.

## Suggested Resources

Contact suppliers on state contracts for energy-saving lighting options, and available energy efficiency training, energy saving calculators and lighting audits. These resources will help you identify opportunities for increased efficiency, improved workspace lighting aesthetics and decreased energy costs.

Check with your local electric utilities, they may have incentive programs or cash rebates for installing efficient lighting, occupancy sensors and other energy control technologies.

State contracts with lighting energy saving products: #02908, Electrical Supplies, #00802, Lamps and Ballasts, and #11305, Industrial Supplies and Equipment-Grainger or visit the Office of State Procurement at http://www.ga.wa.gov/purchase/.

Energy conservation experts at the Washington State Department of General Administration (GA) invite you to team up with GA's Facilities Engineering Services (FES) group through their Performance Contracting program. Contact FES at (360) 902-7194. Many of their services are free. http://www.ga.wa.gov/eas/epc/ESPC.htm. Contact Facility Engineering Services for consultation on energy efficiency and energy saving calculations.

Washington State Department of Ecology's Fluorescent and High Intensity Discharge Lamps web page provides more information on proper lamp disposal.

Green Seal, provides environmental certification standards, Energy Efficient Lighting - Compact Fluorescent Lamps (GS-5) Standard.

Washington State University maintains the Energy Ideas Clearinghouse (EIC); it has provided commercial and industrial sector energy information and assistance in the Pacific Northwest since 1990. Check out websites: http://www.energyideas.org/ and http://energyexperts.org/ or call for technical assistance from Engineers or Energy Specialists at 800-872-3568.

Energy Star for CFLs: http://www.energystar.gov/index.cfm?c=cfls.pr_cfls_why

# Cleaning Products

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|---|---|
| | **Less Hazardous** |
| | **Prevents Waste** |
| | **Low Volatile Organic Compounds (VOCs)** |
| | **End of Life Product Management** |

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. Cleaning products and practices can have a negative impact of building tenants, causing health issues. Safe chemical use includes minimizing exposure to chemicals, proper training, understanding chemical hazards, proper labeling, proper storage and segregation, and proper transport. Buying less hazardous cleaning products helps keeps our environment safe for all.

## What can I do?

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

**Prevents waste:** Buying cleaners in concentrated forms reduces packaging waste and can be more cost effective. Choose cleaners with portion dispenser systems, it will reduce product overuse and keep chemical handling by workers to a minimum.

**Low VOCs products:** Select products with low or no VOCs to reduce indoor air contamination and the creation of ozone, which is harmful to life.

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

## Health and safety

Employers are becoming aware of the risks of chemical use and related sensitivity issues in the workplace as more chemical reaction cases are being reported by staff. Repeated long-term exposure to cleaning products may cause chronic illnesses or allergic reactions. The benefits of switching to safer products and practices will reap short-term and long-term benefits in the workplace.

Many chemicals have not been thoroughly tested for their environmental impacts. Cleaners often contain chemicals that have harmful fumes, burn skin and eyes on contact, create long-term health problems or have storage and disposal issues. 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. The discharged waters can carry contaminants contributing to the pollution of our water.

With more chemicals on-site increases the risk of injury from mixing incompatible chemicals, off gassing, spills or not using proper personal protection. Start with doing a survey of all the chemicals stored on-site and used in your facility. By preparing a list of the chemicals, their purposes and associated dangers, this will help you put together a safety plan to prevent harm and identify cleaning chemicals to eliminate. Often a facility will have cleaning chemicals sitting around that are rarely used or never used. Work with your organization's Safety and Environmental staff for the proper disposal of unused or rarely used cleaning chemicals. Keep in mind what was once thought safe is today often regarded as dangerous, if any questions check with the Department of Ecology.

Always check the Material Safety Data Sheet (MSDS) for safety and use precautions. Do not underestimate the risk of exposure to chemicals - even for substances of no known significant hazard. You can find the MSDS for the products at most product manufacturer's web site, if not, contact the supplier for the information.

| Ways to Reduce Chemical Exposure and Risk: | Product Use Tips: |
|---|---|
| Review MSDS and product warnings before use | 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 |
| Switch to milder products or natural products | Use the least amount of chemical to do the job |
| Reduce overall chemical use and exposure | Keep specialized product use to a minimum |
| Reduce the variety of chemicals in use at one time | Select pump spray containers instead of aerosols and clearly label contents |
| Allow for proper ventilation and safe use | Provide product use and safety training to staff |
| Post product warning labels in prominent location for workers to see | |

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

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| ***In general, avoid cleaners that:*** | *Have a flashpoint below 200°F (flammable)*<br>*Contain SARA 313 Title III chemicals (known hazardous chemicals)*<br>*Have a VOC level above 5 percent*<br>*Contain chlorine, hypochlorite, or phosphates*<br>*Contain petroleum-based components*<br>*Contain unnecessary dyes or fragrances that may cause irritation*<br>*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, take them seriously. Even in small doses, it may have a lasting affect on your health and the environment.*

**Caution**: mild to moderate hazard
**Warning**: moderate hazard
**Danger**: extremely flammable, corrosive or toxic
**Poison**: highly toxic

## 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 and storage 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 fewer hazardous chemicals, you can reduce the risk from costs associated with using, storing and disposing of hazardous chemicals. Storage cost alone can be significant for some chemicals, often requiring costly specialty cabinets. Some chemicals change as they age, potentially creating highly dangerous disposal issues, when purchasing cleaning chemical make sure you understand the shelf-life and disposal cost.

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, paperwork, insurance costs, legal liabilities, and disposal costs.

## Specifications development

When requesting bids for cleaning products require bidders to address worker safety, storage requirements, and disposal in their bid response, and in addition, to highlight 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 when cleaning your building. Bids can specify particular products or equals, or identify a specific environmental attribute such as low VOCs. Companies can provide you a list of products that they intend to use. Do not accept janitorial service without first having the list of products. Review their cleaning practices and intended use of chemicals.

It can be challenging to evaluate environmental attributes between different products. Some companies use in their marketing publications and product labels phases such as "environmentally friendly" or “all natural", yet their products contain hazardous chemicals. If you are unable to sort out a manufacturer’s claims, contact the Department of Ecology, which has resources available to help you.

Helpful are some of the third-party certification organizations such as Green Seal, EcoLogo or manufacturers recognized by EPA’s Design for the Environment (DfE). Products must meet strict environment and safety standards in order to be considered safe and receive certification. Some companies certify some of their products but not all products, so when buying cleaning products make sure the supplier identifies those products certified.

## Available cleaning products

Safer and environmentally preferable cleaners are widely available today. Ask suppliers for their safest and best environmentally preferable cleaning products. Most environmental preferable cleaners have independent third party certification to verify the manufacturer’s claims. It is advisable to only accept those products that have been tested for safety to people and the environment.

The Office of State Procurement has environmentally preferable cleaning products available on state contracts, contract #11305 and #00307.

## Laws and guidelines

State of Washington’s laws address waste reduction, management of hazardous materials and purchase of environmentally preferable products:

RCW 70.95 Waste Reduction, Department of Ecology is charged with preventing and reducing waste to the air, land and water, including toxicity of waste.

RCW 43.19 includes goals for environmentally preferable products.

RCW 43.19A requires the state to be consistent with EPA recycled content standards.

## Suggested Resources

Office of State Procurement state contracts #11305 and #00307 have EPP cleaning products.

Janitorial Products: Pollution Prevention Project. Find fact sheets, purchasing specifications, and other outreach materials to advise users on the health, safety, and environmental consequences of janitorial products. Lafayette, CA, 925-283-8121, http://www.wrppn.org/Janitorial/jp4.cfm.

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. Choose Green Report: General Purpose Cleaners http://www.greenseal.org/certification/environmental.cfm#3.

EPA DfE, Design for the Environment http://www.epa.gov/dfe/pubs/about/index.htm. Environmental Protection Agency has a chemical assessment tools and expertise to help identify safer chemical substitutions.

EcoLogo, third-party certification of cleaning products, http://www.terrachoice-certified.com/en/

# Paint Products

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| **Less Hazardous** |
| **Low Volatile Organic Compounds (VOCs)** |
| **Recycled Content** |
| **Prevents Waste** |
| **End of Life Product Management** |

Millions of gallons of paint products are purchased each year in our state and depending on what goes into the paint products it can have lasting negative impacts on people and the environment.

Many paints contain additives to enhance the paint qualities. Typical paints contain chemicals such as preservatives, disinfectants, mildewcides, antimicrobials or solvents. These additive chemicals often have harmful fumes, can burn skin and eyes and can create long-term health problems. By selecting paint products that are less hazardous you will help protect workers' health and the environment.

Employees who use or are around paint products are often exposed to chemical hazards and potential injury. Even after the paint has dried, indoor air quality can be affected by paints and finishes releasing low level toxic emissions long after the application and even from the fumes absorbed by furniture and carpets.

Paint products can include interior and exterior paints, stains, and finishes. When you are selecting paint products, try to choose products with the least hazardous ingredients, recycled content and low VOCs. Along with coverage and hideability consider the paint's durability, better durability means less maintenance and more time in between re-paintings saving time and resources, and reduces exposure to harmful chemicals.

## What can I do?

**Less hazardous:** Using safer paints reduce negative impacts to indoor air quality, reduce water pollution and protect aquatic organisms. Less toxic paints perform well in comparison to those that have heavy metals and other toxic chemicals. Water-based latex paints have greatly improved and can often meet your paint needs.

**Recycled content:** Certified recycled paint is as durable as new paint and does not mean a lesser quality product.

**Prevents waste:** Buying only the amount needed for a job will reduce shipping, packaging waste and storage costs. Keep just enough for touch-ups and recycle your extra paint this allows someone else to put the paint to good use and saves you storage space.

**Low volatile organic compounds (VOCs):** Select interior paints with low levels of VOCs to help reduce off-gassing and paint odors for workers and building occupants.

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

## Types of recycled-content paints

Two general types of recycled-content paint exist: reprocessed and reblended. 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 to meet industry standards before resale. These paints generally contain a minimum of 20% post-consumer content.

Reblended paint is consolidated from leftover paints and is re-mixed, screened and re-packaged for distribution. Virgin raw materials such as color pigments and mildewcides may be added in small quantities. Typically, these reblended paints contains from 80% to 100% post-consumer content.

Using recycled paint minimizes environmental impacts of paint production because the main raw material is leftover paint.

## Performance of recycled paints

High performance, durability and low cost make recycled paint an attractive choice for architects and building owners. A growing number of recycled paints are certified to meet industry standards and environment standards. Recycled paints are available for both interior and exterior applications.

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

Reblended paint is used for graffiti abatement and is especially well suited to the exterior of schools/office as the color palette is similar to many school/office exteriors. Color, hide, viscosity and quality vary by batch, so check with the vendor for information about tinting and type of tests performed on recycled paint.

Recycled paints are generally 50% less than the price of virgin paints. Schools and other institutions cannot go wrong purchasing this high quality recycled product. Check the state contracts for available products.

## Availability of recycled paints

The Office of State Procurement has paint contracts that have recycled content, low VOCs and less hazardous ingredients. Ask the suppliers on the state contract for these paint products, state contract #15504, Paint and Related Items and #00207, Recycled Paint, Latex, Interior and Exterior.

## Less hazardous paints

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

It is important to read the label or speak with the vendor 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, products that have an EPA, OHSA or DOT registration number these contains some toxic ingredients. An increasing number of alternative safe paint choices are available.

According to EPA, heavy metals and toxic substances to avoid:

| Heavy metals | Toxic organic substances | | |
|---|---|---|---|
| Antimony | Acrolein | Formaldehyde | Naphthalene |
| Cadmium | Acrylonitrile | Isophorone | Phthalate esters |
| 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

There are two general groups of low VOCs paints, low VOC and zero VOC. Low VOC products generally use water base verses petroleum base solvents, and may contain very low levels of heavy metals and formaldehyde. Zero VOC products have a very low level of VOCs from additives.

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, especially those with allergies and chemical sensitivities. Paints that are specifically marketed as "fast drying" contain even higher levels of these solvents.

Allowable VOCs G/L levels (grams/liter) (based on the federal procurement guidelines):

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

The low VOCs and zero VOCs paints are widely available and meet or exceed the old high-VOC products in performance and cost-effectiveness while having significantly less impact on human and environmental health.

## Paint Strippers

Most paint strippers are caustic as they melt the paint. Newer safer paint strippers are water-soluble, noncaustic and nontoxic. The newer paint strippers use an organic solvent that changes the paint so it softens for removal. Follow the caution warnings and be aware that some of the paints you want to remove may be hazardous such as lead base paints. Performance varies among these less hazardous paint strippers, depending on the type of paint needing to be removed and the surfaces, so always do a test strip to check the performance.

## Alternative Paint Products

The marketplace has recently been experimenting with paints made to be less hazardous, and with the use of natural ingredients in place of petroleum or synthetic chemicals.

Natural paints are using natural raw ingredients such as plant oils and resins, plant dyes, and natural minerals such as clay, chalk and talcum. These natural paints have been successful in many applications.

Some the paints are made from renewable and biodegradable ingredients. Even the solvents are derived from plants. Pigments from minerals or plants are used, and some paints use milk (casein powder) and lime as the base. These new natural based products may work well on some of your paintable surfaces, but like any type of paint spend some time understanding performance and environmental issues before use.

## End of product life management

Always follow the recommended manufacturer disposal guidelines. The state has paint recycling available on contract no. 03505, Hazardous Waste Handling and Disposal Services that handles both latex and petroleum based paints. Most communities have a paint recycling center for the reuse of leftover paint or the recycling of paints, check with your local government on recycling options.

## Laws and guidelines

Washington State law, RCW 43.19A, follows EPA's recycled product procurement guidelines.

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

| Product<br>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

Office of State Procurement paint contract #00207 & #15504, http://www.ga.wa.gov/purchase/

Office of State Procurement hazardous waste disposal contract #03505

Green Seal, GS-43, Recycle Paints, http://www.greenseal.org/certification/environmental.cfm#3

Kelly Moore Paint, http://www.kellymoore.com/products/groups/e_coat

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

Sherwin-Williams Paints, http://www.sherwin-williams.com/, ask for Reprocessed Paint, Visions Recycles

Metro Paints, http://www.oregonmetro.gov/index.cfm/go/by.web/id=521

National Paint and Coatings Association, http://www.paint.org/issues/post_consumer.cfm for disposal

# 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. Pests can include all types of insects and rodents that are attracted to the building and grounds of offices and schools.

The definition of IPM from the National IPM Network is, “IPM is a sustainable approach to managing pests by combining biological, cultural, physical and chemical tools in a way that minimizes economic, health and environmental risks." Quick chemical solutions to pest problems provide only a temporary solution, but can create potential health and environmental risks and never stop the problem. Instead of hiring someone to simply spray chemicals, consider working with an Integrated Pest Management contractor.

## IPM performance

Practicing IPM is an environmentally sound and effective approach to pest management. Non-pesticide control strategies are the key to an IPM program. IPM program includes cultural issues, buildings and grounds designs and uses, and understanding of biological and ecological factors when putting together an IPM solution.

IPM starts with understanding the problem and focusing on prevention using the least hazardous approach to dealing with pests. IPM may involve structural and procedural modifications that reduce food, water, harborage and access used by pests. Recommendations are made to prevent pests from obtaining water, food and shelter. IPM often involves better management of sanitation, garbage and food storage, fixing leaks, installing screens, caulking cracks, changing out plants or improving ventilation to keep areas dryer. Success of using an IPM approach depends on the building occupants and building management taking responsibility for keeping buildings and grounds from being attractive to pest.

If pest problems persist, the IPM contractor will use the least hazardous approach that will effectively control or reduce the pest problem. Techniques include the use of traps, sticky barriers, repellants, and non-hazardous substances in targeted spots. IPM contractor uses pesticides as a last option.

Arrange for the pest control company to train staff and maintenance personnel about common pests and best pest management practices. The IPM contractor should provide a list of easy maintenance steps that will minimize the number of pests. The success of IPM service is the regular inspection of buildings and grounds for conditions that might attract pests and then recommending actions to deter them.

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” and as the last option, 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

## Components of an IPM program

An IPM contractor should conduct the following activities:

- Regularly monitoring for pests
- Keep records of 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 confirm 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 service availability

While Washington does not provide special certification for contractors trained in IPM practices, state law does require any person applying pesticides to be licensed as a commercial pesticide applicator. Pesticide applicators are required to receive training that includes topics related to IPM. As a result, most pest control contractors are familiar with the concept of IPM.

Some pest management companies advertise IPM, or "ecological" pest management. Pest control operators can be located using the Yellow Pages or by contacting the Washington State Department of Agriculture that can verify licensing and certification of operators in the state.

## IPM cost

IPM programs can reduce costs by eliminating the practice of spraying chemicals on a regular basis. Buildings and grounds can be managed 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 in most cases reduce the overall cost of pest control.

## State laws and regulations

RCW 17.15 Integrated Pest Management It is the policy of the State of Washington requiring all state agencies that have pest control responsibilities to follow the principles of Integrated Pest Management.

School Pesticide Use – Parental Notification. Public schools and licensed daycares are required to establish a system for notifying parents and employees of pesticides used at a school and daycare.

## Suggested Resources

For general questions about IPM, contact your local county extension office; call 800-367-5363 for a directory of phone numbers for county outreach educators.

Contact the Washington State Department of Ecology's IPM Coordinator for information on the agency's policy: (360) 407-6089. Department of Ecology's Publications List: Integrated Pest Management in Schools.

Washington State Department of Agriculture, 1-877-301-4555, http://agr.wa.gov/default.htm

# Vehicles

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| | **Conserves Energy** |
| | **Less Hazardous** |
| | **Prevents Waste** |
| | **End of Life Product Management** |

Most people are aware that there are significant environmental impacts related to our use of vehicles. Vehicles impact our environment through the vast consumption of natural resources and creation of pollution. Emissions are the major source of air pollution today, especially in large cities.

In Washington State, the use of motor vehicles accounts for an estimated 57% of our air pollution. Vehicle emissions are related to many health issues for people and can affect historical structure's exterior surfaces. The runoff from streets and parking lots pollute waterways, and negatively affecting fish and other marine life.

Vehicles use a majority of the oil consumed in the United States. Typical passenger cars today average only 24 miles per gallon, and most light trucks and SUVs less than 20 miles per gallon. By increasing the miles per gallon, billions of gallons of oil would be saved each year along with savings from the cost of production and distribution.

Better vehicle fuel efficiencies and lower emissions would help both people and the environmental remain healthy.

Changing our driving habits is tough. Here are few things that can be done to reduce vehicle impacts:

- We can purchase vehicles with better gas mileage and lower emissions
- Keep our vehicles properly tuned and maintained, with tires properly inflated
- Use alternative means of transportation or arrange work for less travel
- Use alternative fuels that pollute less or do not pollute

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

- Flexible-fuel vehicles: Powered by multiple fuel types
- Hybrid electric vehicles: Combines the use of gas and electric power motors
- All Electric vehicles: Powered by batteries

Washington State was the first state government in the nation to contract for hybrid-electric vehicles when it awarded a contract for hybrid vehicles in June 2000. Since then, it has added many more hybrid vehicles on state contracts. Many manufacturers are now offering hybrid vehicles from passenger, vans, SUVs, trucks and buses that should meet the needs of your organization. In the next couple of years all-electric vehicles will be readily available in many types of passenger vehicles. Currently, Washington State has an all-electric passenger vehicle the Nissan Leaf on a state contract. Many manufacturers now offer all-electric motorcycles that have the look and use of a standard motorcycle.

Government agencies have been required to purchase alternative fuel vehicles since a 1992 federal law. The Energy Policy Act (http://www.eere.energy.gov/vehiclesandfuels/epact/) required agencies to include alternative fuel vehicles in their fleet purchases. There are some Federal tax incentives for Hybrids, diesels and Alternative Fuel Vehicles (AFVs) that use alternative fuels.

Office of State Procurement has available on state contract many different manufacturers and models of alternative fuel, flexible-fuel vehicle (FFV), electric and hybrid electric vehicles. Visit http://www.ga.wa.gov/vehreq/vehacq.html for a list of the current selection. The state contracts identify those vehicles that are mercury-free and meet the federal Emission Certification Tier level requirements.

## Hybrids, bi-fuel and electric vehicles

A very successful type of vehicle has been the hybrid electric/gas vehicle. These vehicles use a combination of a gas-powered engine and an electric motor to operate. The driving range is same as a standard gas powered vehicle. The vehicles are designed to reduce emissions and increase miles per gallon. Super-low-emission vehicles such as the Toyota Prius hybrid are rated at 50 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.

Bi-fuel vehicles have two separate fuel systems, with the capability to switch between fuels and both systems can fully power the vehicle. Usually one fuel system is designed to run on gasoline or diesel with other powered by compressed natural gas (CNG) or propane (LPG). Both propane, and to a limited degree, compressed natural gas fuels are available in the state at fueling stations.

Electric vehicles produce no tailpipe emissions and have lower operating costs than gasoline-powered vehicles. However, electric vehicles have a higher purchase cost and a limited driving range of about 40 to 100 miles. Currently, there are a few public charging stations in Washington, although the state is pursuing options to expand the number of charging stations along the freeways. Generally, most electric vehicles are charged at home/office charging stations. Batteries are the key to electric vehicles. Batteries must have the ability to quickly store and dispense energy for typical driving situations. Some strides are being made in technology for electric double-layer capacitors that may prove to increase the driving range and safety of electric vehicles.

## Vehicle Fuel Options

Some of the alternative vehicle fuel options available are Biodiesel, Ethanol (E85), Natural Gas, and Propane; these fuel types are currently powering vehicles and are available in varying degrees in our state. Hydrogen powered vehicle using fuel cell technology is in the development stage. These alternative fuel types produce less greenhouse gas emissions and pollutants than conventional fuels. Heavy-duty engines are available which use alternative fuels, such as natural gas, propane and ethanol. Some flex fuel vehicles can use E85. Before using these alternative fuels, check with the vehicle manufacturer for any guidelines or restrictions. Starting in 2010, diesel vehicles are required by federal law to use Urea. Urea is injected into the exhaust and helps reduce nitrogen oxide emissions.

Three diesel fuel options exist in our state, low-sulfur diesel, ultra-low sulfur diesel and biodiesel; they all reduce emissions to various degrees. Biodiesel and Ultra-low sulfur diesel are both available from the Office of State Procurement on state contract #07705 the suppliers provide bulk deliveries or keep full service.

Sulfur contributes to the ill effects of soot emissions and can destroy emission-control devices. Low-sulfur diesel is an improvement over standard diesel fuel. Ultra-low sulfur diesel and biodiesel provide equal performance as standard diesel, but have less negative impacts on health and the environment. In our state, vehicles are to only use Ultra-low sulfur diesel per state law.

The Washington State legislature in 2003 passed House Bill 1242. The bill states: “All state agencies are encouraged to use a fuel blend of twenty percent biodiesel and eighty percent petroleum diesel for use in diesel-powered vehicles and equipment, and biodiesel use in state-owned diesel-powered vehicles provides a means for the state to comply with the alternative fuel vehicle purchase requirements of the energy policy act of 1992, P.L. 102-486.”

A number of Washington state agencies, cities, universities, and school districts are using biodiesel. Biodiesel can be used in unmodified diesel engines, although there are some initial start-up maintenance cost as the engine adjusts to the biodiesel. The use of biodiesel does not void vehicle warranties, but it is always prudent to check with the vehicle manufacture for any restrictions before use. Biodiesel has been thoroughly tested, and is found to perform similarly to petroleum diesel. 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.

Biodiesel is a blend of petroleum and usually oils from plants. Biodiesel is domestically produced, even right here in the state, and is considered a renewable fuel source. Biodiesel is measured by quantity of plant oils to petroleum and uses a designation of B1 to B100, as an example, a B10 blend is 10% plant oil to 90% petroleum.

Performance, storage requirements, and maintenance for biodiesel blend fuels are similar to petroleum diesel, but have a shorter shelf life and may be affected by cold weather. Biodiesel contains no aromatics or sulfur, is a good lubricant, and fleets can earn Energy Policy Act (EPAct) credits for using biodiesel.

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 $CO_2$ emissions by 78% 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.

Zero Diesel Emissions is the goal of EPA regulations on new diesel vehicles. As of 2010, EPA standards require the use of an exhaust system that reduces the emissions significantly on all new vehicle diesel engines. Engine manufacturers are using two types of systems, Selective Catalytic Reduction (SCR) or Exhaust Gas Recirculation (EGR) technology to meet the EPA requirements. The two exhaust systems work with the low-sulfur diesel fuel to eliminate sulfur emissions. The new systems clean up the exhaust emissions, reducing the pollutants and odor from diesel exhaust.

## Regulations

### Federal Energy Policy Acts

Congress passed EPAct of 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% of petroleum-based motor fuels by the year 2010. EPAct mandates federal and state fleets to purchase alternative fuel vehicles. EPAct requires 75% of new light-duty vehicles purchased by covered state fleets to be alternative fuel vehicles after 2000. Energy Policy Act of 2005 requires federal fleets to use alternative fuels in dual-fuel vehicles when feasible, and funded research and grants for alternative fuels and vehicles.

### WA State clean fuel vehicle purchase requirements

State law RCW 43.19.637, sets out the purchasing requirements for Clean-fuel vehicles. At least 30% of all new vehicles purchased by Washington state agencies shall be clean-fuel vehicles, and this percentage shall increase at the rate of 5% each year. It is preferable that dedicated clean-fuel vehicles be purchased; in the event that dedicated clean-fuel vehicles are not available or would not meet operation requirements, conventionally powered vehicles may be converted to clean-fuel or dual fuel use. The state has adopted the 2005 Federal Clean Car Act requiring certain vehicles to meet tougher emissions standards starting with the 2009 models. The Governor Executive Order no. 05-01, calls for agencies to take all reasonable actions to achieve a target of a 20% reduction in petroleum use by state vehicles by September 2009.

### Emission-control inspections

Vehicles fueled by electric, propane, compressed natural gas (CNG) or liquid petroleum gas (LPG) are exempt from emission-control inspections. Effective June 13, 2002, hybrid motor vehicles that obtain a rating by the U.S. Environmental Protection Agency of at least 50 miles per gallon of gas during city driving will also be exempt from these inspections. See Vehicle Licenses RCW 46.16.015.

## Suggested Resources

Alternative and flexible-fuel vehicles available on state contracts: http://www.ga.wa.gov/vehreq/vehacq.html

Washington State Energy Office – Renewable Resources Program http://www.energy.wsu.edu/renewables/

U.S. Department of Energy – Fuel Economy http://www.fueleconomy.gov/feg/hybridtech.shtml

U.S. Environmental Protection Agency – Green Vehicle Guide http://www.epa.gov/autoemissions/

# Re-refined Oil Products

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| **Recycled Content** |
| **Prevents Waste** |
| **Conserves Energy** |
| **Less Hazardous** |
| **End of Life Product Management** |

In United States over a billion gallons of used lubricate oil is generated annually. Currently, only about 10-15 percent of the collected used oil is re-refined for use again as a lubricate oil – the rest is burned as fuel or used in asphalt. Lubricate oils are used in all types of machinery and re-refined oils can be used for many applications. Purchasing re-refined oil products save natural resources and encourage continued development of more products.

Many state and local agencies are aware that the federal government strongly encourages the use of products made with re-refined base oils. Customers want products that have environmental attributes without sacrificing performance or costing more - re-refined oils meet these requirements.

## Re-refined Oil Products

Oil does not wear out and can be reused if re-refined. Oil either gets contaminated in use or the oil additives wear out, in either case the used oil can be re-refined back into usable oil products.

Re-refined oil is made from used oil that is collected from service stations, oil change facilities, mechanic shops and other commercial locations. The collected used oil is first tested for any contaminants that would impact the finished product, and if it passes, it is then transported to a refinery designed to re-refine used oil. Contaminated oil may include heavy metals and other harmful chemicals, and if this case, the used oil needs to be handled as a hazardous waste and disposed of properly. Companies that collect used oil have a chemical test they run when the used oil is collected and often keep samples for their records in case the oil is found later to be contaminated.

The re-refining process is more complex than just spinning out the water and filtering the physical contaminants that simplified process is referred to as recycling or reclaiming of the oil. Rather, re-refined oils are processed in much the same way as conventional petroleum products; the used oil is cleaned, distilled and combined with a new additive package to bring it up to industry performance standards.

Re-refined oils have physical and chemical properties equivalent to virgin base oils and respond to additive packages in a consistent manner. Often re-refined oils, greases and fluids perform as good, if not better than conventional products. Products include hydraulic oils, gear oils, diesel engine oils, motor oils, transmission fluid and grease.

Engine manufacturers will honor their warranties when re-refined oil in used. Automobile manufacturers will honor their warranties if re-refined oil has the American Petroleum Institute (API) symbol on the product. API certification is the basis for warranty requirements of motor vehicle manufacturers. Re-refined oil products meet API and SAE performance specifications. When you purchase re-refined oil products ask for a copy of the warranty and proof of the API certification for the application.

Re-refined oil products are made from varying degrees of re-refined content oil depending on the formulation requirements allowed for the application. Some re-refined oil products are manufactured with 100% re-refined base oil and others are made from lesser amounts of re-refined oil base, so to get the maximum benefit check the percentage of re-refined oil used.

## What are some of the benefits of using re-refined oil products?

* It is usable in cars, trucks, tractors, forklifts, chain saws and most engines
* Performs as well in the same applications as their conventional virgin 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
* Saves money and encourages the market to make more re-refined oil products available
* Extends the life of the petroleum resources indefinitely if not contaminated
* Proven technology backed by a written warranty and certification by API
* Uses less energy to produce re-refined oil than conventional oil base stock
* Available in quart size containers to bulk quantity

## What products are available on state contract?

Re-refined lubricants are available on state contract #09005 - Virgin and Re-refined Lubricants. Motor oils, hydraulic oil and low ash natural gas engine oils are some of the types of re-refined oils available on state contract. Contract the vendor for a complete list of re-refined oil products available for your application.

## Laws and guidance

RCW 43.19A requires the state be consistent with U.S. EPA recycled content standards established in EPA's Comprehensive Procurement Guidelines. The state law includes a 10 percent bidding preference for recycled content, WAC 236-48-096. EPA recommends that agencies set their minimum re-refined oil content standard at the highest level they can, but no lower than 25 percent of re-refined lubricating oil.

If you maintain your own fleet, make sure that you follow state and local regulations for the proper handling and recycling of used motor oil and other vehicular fluid products. The Department of Ecology has an on-line database to help you find the closest location to properly dispose of your oil. Waste vehicle petroleum products can be recycled on state contract no. 03505, Hazardous Waste Handling and Disposal Service.

## Suggested Resources

Office of State Procurement, State Contract #09005 – Virgin and Re-refined Lubricants

Department of Ecology's Recycling list, https://fortress.wa.gov/ecy/recycle/ , http://1800recycle.wa.gov/info.html, 1-800-732-9253.

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 standards
http://www.epa.gov/epawaste/conserve/tools/cpg/products/index.htm

# Car and Truck Products

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| | **Less Hazardous** |
| | **Conserves Energy** |
| | **Recycled Content** |
| | **Prevents Waste** |
| | **End of Life Product Management** |

Whether you are a large fleet manager or responsible for only one vehicle, there are many car and truck parts with recycled contents that work and can save you money. Whether it is retread tires, antifreeze, or vehicle parts, studies and experience show that these recycled products can meet or exceed your quality standards. Many of these recycled products meet nationally recognized performance specifications and are backed by manufacturer guarantees. Buying recycled products conserves energy, reduces solid waste and prevents hazardous materials from getting into the environment.

Buying recycled and recycled-content products for your vehicles opens the door towards providing viable markets for recyclable materials collected nationwide.

## Retread tires

**Retreading is recycling.** Every time you buy and use a retread tire you help to conserve our valuable natural resources and save money. Worn tires can be re-manufactured by buffing away the worn tread and applying a new tread on the casing. Tires can be retreaded multiple times, extending the useful service life of the original tire.

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 cost 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 usually will be 30 to 50% less than the cost of a new tire.

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 buses. Retreads are the replacement tire of choice for most truckers. In 2006 over 18 million retread tires were sold in North America.

Retreads help to conserve natural resources. It takes approximately 22 gallons of oil to manufacture one new truck tire, compared with only 7 gallons of oil to produce a retread. Retreading saves millions of gallons of oil in North America annually.

When the time comes to replace tires, evaluate retread tires to see if they meet your need. Purchasing retread tires “closes the loop” on recycling. The Office of State Procurement has retread tires on contract; they are available from the suppliers on the state tire contracts: #00108 and #02806.

## Is it is 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 were under-inflated or bald.

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

**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
- Retread tires save millions of gallons of oil
- 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 new
- They make the most sense for use on trucks and heavy equipment that are hard on their tires
- Millions of tires are retread each year saving billions
- Retreads are readily available for most applications

## Laws and guidance

RCW 43.19A requires the state be consistent with U.S. EPA recycled content standards. The law includes a 10 percent bidding preference for recycled content. EPA's Comprehensive Procurement Guidelines recommends that agencies "purchase retread tires or tire re-treading services for vehicular tires to the maximum extent possible."

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.

## Recycled antifreeze/coolant

Antifreeze/coolants protect the engine cooling system against both freezing and boiling over. You can help the environment and save natural resources by purchasing recycled or extended-life antifreeze/coolants.

Purchase recycled antifreeze/coolants that meet nationally recognized performance specifications for new antifreeze/coolant such as those established by the American Society for Testing and Materials (ASTM) and the Society of Automotive Engineers (SAE). ASTM standard for cars is ASTM D3306 and for heavy-duty engine applications is ASTM D4985. There are other standards so check with the recycler for your vehicle and application.

Antifreeze recyclers have worked with engine original equipment manufacturers (OEMs) for their approval on coolant recycling processes, so your supplier of recycled antifreeze will be able to provide a list of OEM approvals for their products.

## Extended-life antifreeze/coolant

Standard antifreeze/coolant is generally good for 2 years, but extended-life antifreeze/coolant is good for 5 years (or 150,000 miles). Antifreeze/coolant never wears out but the corrosion inhibitors do. Difference between antifreeze/coolants is the additives; the additives are used for anti-corrosion purposes and for extending the life of the antifreeze/coolant.

The service life of antifreeze/coolant is limited by the protection ability of the corrosion inhibitors. Extended-life antifreeze/coolant additives last longer than standard antifreeze/coolant. Extended-life antifreeze/coolants have been shown to retain over 95% of their corrosion inhibitors after five years/150,000 miles in cars and light trucks.

Most extended-life antifreeze/coolants do not contain silicates and phosphates, which tend to be abrasive to water pump seals. Some shops are switching their fleets to extended-life antifreeze/coolant, which greatly reduces the need to purchase new antifreeze/coolant and recycling used product. Many newer vehicles, including cars, light trucks, and heavy-duty diesel trucks, are now factory-filled with extended-life antifreeze/coolant.

## Benefits of recycling antifreeze

Antifreeze contains ethylene glycol, a toxic chemical. Antifreeze should not be drained on the ground, septic, or into a sewer, but must be collected and handled as a hazardous waste. Ethylene glycol is a poison to both people and animals, so it should always be properly handled. Leaks in your antifreeze/coolant system should be promptly fixed to prevent further spilling and contamination of the environment.

If used antifreeze is recycled, it doesn't need to be counted or manifested as a hazardous waste, which can save a considerable amount of paperwork. If used antifreeze is not recycled, it is subject to full regulation unless the generator can document that the antifreeze is not hazardous. For disposing of used antifreeze as a hazardous waste use state contract no.03505. Remember to keep records of all recycling activity.

Most vehicle manufacturers endorse several coolant-recycling systems and state that their engine warranty will not be affected if engine coolant recycling is performed as described by the manufacturer and with approved recycling equipment. Check with your vehicle manufacturer or dealer to see which coolant-recycling equipment or process is best to use.

Recycled antifreeze/coolant can be purchased from vendors that will recycle your used product and generally cost less than new antifreeze/coolant. Depending on your volume you might purchase an on-site recycling system or use a recycler. When you buy new antifreeze/coolant, compare its cost and disposal costs with the cost of on-site or off-site recycling of antifreeze/coolant.

## Recycled antifreeze recommendations

Consider replacing the standard antifreeze, ethylene glycol, with propylene glycol. Both types of antifreeze work, you can use either ethylene glycol or propylene glycol based products in most applications. The EPA does not recommend one type of engine antifreeze product over another.

Propylene glycol is less toxic than ethylene glycol and is used in newer vehicles or in applications where the product could get into the environment. But EPA does recommend engine coolant systems containing only one base chemical so as to prevent the commingling of incompatible types of engine coolants.

Choose the right antifreeze that matches your application and has the least impact on the environment.

## Laws and guidance

RCW 43.19A requires the state be consistent with federal EPA recycled content standards. EPA's Comprehensive Procurement Guidelines recommend that agencies "reclaim engine coolants on site or contract for offsite reclamation services."

## Used Parts

Accidents happen and are often costly to repair, but by using the state contract no.01909 for vehicle accident management service you can manage the body repairs to have a positive environmental impact. When arranging for the vehicle body repair work, request the use of good quality used parts whenever possible. Used parts are considerably less than new OEM parts and used parts easily sell for 25 to 40% less. Most rebuilt parts carry a standard and extended warranty. You will find most parts are readily available. Quality levels among rebuilt or

remanufactured products vary, so ask questions about the source, whether the work was done to OEM specifications and warranty coverage.

## Biobased Lubricants

Biobased lubricants use vegetable oils such as soy, corn, canola, sunflower and other bio-materials. A biobased product as determined by the U.S. Secretary of Agriculture is a commercial or industrial product (other than food or feed) that is composed, in whole or in significant part, of biological products or renewable domestic agricultural materials (including plant, animal, and marine materials) or forestry materials. Uses for biobased lubricants include hydraulic, gear and engine oils. These oils are an excellent choice with equipment that will be operated around water or in environmentally sensitive areas. Check for biobased lubricants on state contract no.09005 - Virgin and Re-refined Lubricants.

## Suggested Resources

Office of State Procurement, http://www.ga.wa.gov/purchase/, related car and truck product contracts #00108, #02806, #09005, #01909, and #03505.

Retread Tire Information Bureau: http://www.retread.org/

EPA's 2007 Buy Recycled Series – Vehicular Products,
http://www.epa.gov/epawaste/conserve/tools/cpg/pdf/vehicle.pdf

EPA's Comprehensive Procurement Guidelines:
http://www.epa.gov/epawaste/conserve/tools/cpg/products/index.htm

# End of Life Material Management Resources

**Prevents Waste**

**End of Life Product Management**

Most of us do not often consider the best way to dispose of products until it is time to get rid of them. As we always have a responsibility to dispose of products safely and according to law, it is important to know and understand the component of the products we buy. Products may have hazardous materials that are harmful to people and the environment if not disposed of properly. Some products can be recycled and reused, other products can be broken down to commodities and then the materials can be recycled, and others need to be handled strictly as a hazardous waste. The state has various contracts to help dispose of products that have come to their end of useful life. Giving some thought to how a product should be disposed of properly when purchasing and at the end of the product's life can have significant impact on the environment.

## What about used lights and old computers?

**Fluorescents lamps and electronics: #09108** – Recycles in accordance with all federal, state, and local regulations. Goal is to reuse or recycle all materials collected and processed.

Recycling and disposal of:

- Lamps/bulbs (fluorescent, HID bulbs, U-shaped lamps)
- Computers, Laptop, Desk top, Main frame, Servers
- Computer peripherals (printers, scanners, keyboards, and mice)
- Televisions, Monitors
- Terminals, power cables/connectors
- Power supply units
- Printed circuit boards, computer cards
- Servers, telephones, cell phones, batteries,
- Electronics, copiers, fax machines

## Is this stuff dangerous?

**Hazardous Waste Handling and Disposal Services: #03505** – The contract provides services for removal and disposal of hazardous chemical waste that is packed in drums or large shipping boxes. Contractor will come to your site, package the waste according to USDOT specifications, prepare necessary paperwork for shipment, transport the waste for proper disposal, and then return a Certificate of Disposal indicating the disposal method and date of disposal.

The contract provides five different waste management methods to dispose of hazardous waste, recycling, treatment, incineration, energy recovery and landfill. The customer chooses the waste management method. The contractor can advise you on the options available for the waste materials you have. Some of the types of waste disposed of on this contract are paints, solvents, lab chemicals, cleaning chemicals, mercury, maintenance wastes, batteries, propane tanks, gas cylinders, light ballasts, acids, PCB transformers, gas cylinders, waste oil, antifreeze and batteries.

## Who will take this old carpet?

Most carpet contractors offer carpet reclamation and recycling services. Depending on the type of carpet and whether the carpet is contaminated, most commercial carpets can be recycled. Market conditions do affect the willingness of carpet manufacturers to take back carpet and any related recycling cost. When writing carpet specifications consider making it a requirement that all removed carpet is to be recycle to the reasonable extent possible. The state contract for flooring has carpet recycling services and be sure to take advantage of the service. Check the state contract for flooring **#00710** and ask the vendor to explain their recycling program.

## What can we do with these worn-out batteries?

**Lead Acid Batteries: #01809** – The vendors on this state contract will recycle your used battery. Nearly all the battery's plastics and lead are recycled back into new batteries. Be careful when transporting used batteries so as not to spill the water (contents sulfuric acid) and wash your hands after contact with a battery. The vendors will take your battery as an exchange for a new battery; if not an exchange, there may be a small fee.

For other types of batteries, such as alkaline, Ni-cad, nickel zinc and lithium ion, use state contracts **#03505** and **#09108,** for the complete list of batteries and the disposal options check the contracts. Check with the vendors to confirm any taping requirements for the battery ends. Some batteries pose fire hazard during shipping from chemical reactions and energy discharges.

## Who's going to take away this grease and oil?

**Waste Pumping: #05406** – The contract provides waste pumping and disposal of waste generated from discarded grease, fats and oils from food preparation facilities, sewage from septic tanks/vaults, parking lot oil/water separators, and other typical waste pumping services at government facilities. Cooking oils are being remanufactured into biodiesel and the vendors will pay you for the oil. Check with the vendors on this contract for details.

## We really need someone who is up to date about environmental problems.

**Environmental Consultants Service: #32206** – This contract offers access to a pool of pre-qualified environmental consultants who can provide professional expertise and assessments on areas of environmental concern. Consulting services include Planning and Permitting, Waste Management and Remediation, Regulatory Compliance, and Natural Resource Management. Customer develops the scope of work and then contacts the Office of State Procurement for the bidding process.

## Can we get money for scrap metal?

If you are considering remodeling or disposing of metal items, you will most likely get paid for your scrap metal. Contact the contractors on State Contract **#01509** for disposal of scrap metals at http://www.ga.wa.gov/purchase/. The contractor provides pick-up services, recycles the scrap metal and returns a portion of the resale value to the customer. The contractor recycles metal furniture, building materials, light poles, wire, guardrails, including metals such as copper, tin, steel and aluminum.

## What do can we do with our surplus and used stuff?

State Surplus offers services to handle your surplus items, whether it is helping you to sell surplus at your location, providing allowances for trade-ins, or simply taking your surplus away. The surplus program receives and redistributes surplus items from state agencies to other state agencies, governmental entities and private non-profit organizations. The surplus program is part of the Department of General Administration. State Surplus cannot accept hazardous or toxic waste. When these items are declared surplus, it's your agency's responsibility to ensure they are disposed of properly. Contact State Surplus for assistance.