RESPONSIBLE PURCHASING **GUIDE**

paint

RPN
Responsible Purchasing Network
Center for a New American Dream

About the Guide

The Responsible Purchasing Guide for Paint is published by the Responsible Purchasing Network in print, as a PDF file, and on the web. Print and PDF copies are available to the public for purchase. The online edition includes additional resources available to members of the Responsible Purchasing Network, including: searchable product listings, multiple policy and specification samples, comparisons of standards, and related documents. Visit www.ResponsiblePurchasing.org to purchase a copy or to access the members-only web-based edition of the Guide.

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About the Responsible Purchasing Network

The Responsible Purchasing Network (RPN) was founded in 2005 as the first national network of procurement-related professionals dedicated to socially and environmentally responsible purchasing.

RPN is a program of the Center for a New American Dream (www.newdream.org) and guided by a volunteer Steering Committee of leading procurement stakeholders from government, industry, educational institutions, standards setting organizations, and non-profit advocacy organizations.

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Overview

The *Responsible Purchasing Guide for Paint* provides the components of a successful responsible paint procurement program. This guide covers architectural and industrial paint, with particular emphasis on architectural recycled-content latex paint. Architectural paint includes exterior and interior products, while industrial paint includes, but is not limited to, factory-applied, automotive, marine, and traffic marking paint.

Social and Environmental Issues

Some volatile organic compounds (VOCs), common in paint products, are known to cause human health problems such as damage to the liver, kidney, and central nervous system over long-term exposure (Green California, n.d.). Heavy metals, which occur in small levels in paint, may cause liver and blood damage (EPA, 2006c). Due partly to these hazardous materials, paint disposal is a concern to human and environmental health. Additionally, improperly disposed latex paint can contribute to suffocation of aquatic ecosystems. Paint contains petroleum-derived ingredients, a non-renewable polluting resource extracted from unstable and ecologically sensitive regions. Latex Recycled low-VOC and zero-VOC paints mitigate disposal challenges and reduce risks to human health and the environment. More specifically, recycled paint manufacturing conserves resources by reusing waste materials. It is important to note, however, that recycled paint has VOC levels approximately equal to its feedstock.

Best Practices

To procure paint and manage its use and disposal in the most responsible ways possible, it is advisable to form a team specifically devoted to the task; establish baseline data on inventory and impact; set goals for cost reduction and lower health and environmental impacts; adopt a policy; evaluate standards and specifications; educate staff and improve current practices; and measure and report progress.

Cost, Quality, and Supply

High quality, low-priced recycled-content architectural paints are widely available (CIWMB, n.d.). But until now, the recycled content and performance standards have been inconsistent due to lack of certification. Recycled-content architectural paints certified by Green Seal (GS) and/or EcoLogo (formerly Environmental Choice) include recycled content minimums and meet the Master Painters Institute performance standards that apply to other latex paints. GS and EcoLogo certified products are expected to enter the market by summer 2007. Low- and zero-VOC latex paints typically carry no price premium, perform as well as virgin latex paints, and are widely available. “Natural paints,” made from non-toxic ingredients like soy, milk, and silicate typically cost more, need to be special ordered, and the quality has not been adequately evaluated. It should be noted however, that any of the above lower-impact paints can contain some petroleum-derived ingredients (see the Specifications for additional details).

Policies and Specifications

Paint purchasing programs should include a policy commitment to purchasing socially and environmentally preferable paint, providing a framework for defining and implementing improved purchasing practices. Exemplary policies emphasize the use of recycled-content and low- and no-VOC paint, and identify desired human health and environmental product attributes. This guide provides model policies and specifications from a variety of institutions.

Standards

Environmental paint certifications include: 1) Green Seal GS-43 for recycled latex paint, which builds on GS-11 for interior and exterior paints, setting limits and restrictions on hazardous ingredients and incorporating the performance standards established by the Master Painters Institute for virgin latex paints; 2) EcoLogo (formerly Environmental Choice) CCD-047 for architectural surface coatings, which is similar to GS-11; and EcoLogo CCD-048 Recycled Water-borne Surface Coatings for recycled-content paint certification, which had no approved products as of January 2007; 3) Scientific Certification Systems' Indoor Advantage Gold program tests and certifies compliance with specific indoor air quality emissions requirements, such as the Collaborative for High Performance Schools (CHPS) Section 01350; and 4) GREENGUARD Environmental Institute certification, which addresses indoor air quality and sets limits for VOC emissions (actual air emissions, rather than product content).

Social and Environmental Issues

Paint has a wide range of social and environmental impacts, including energy conservation, air and water quality, hazardous substances, and waste. By choosing environmentally preferable paint, institutions can divert waste, and decrease worker and community exposure to VOCs, carcinogenic chemicals, and other toxic materials.

Energy

Architectural paint, used on walls and ceilings, can increase energy use in buildings by necessitating additional lighting. Light-colored paint reduces the need for artificial lighting indoors (MPI, 2001; MPI, 2002). The reflectivity of light paint increases the dispersion of natural light in offices and classrooms. According to the US Department of Energy, daylighting, i.e. making use of natural light, can save up to 75% of the energy used for lighting buildings and reduce cooling costs at the same time (Anderson, 2007). Other added benefits of lighter walls include enhanced employee productivity through daylighting and the tendency of light colored paints to contain less hazardous chemicals (LRC, 2002; MPI, 2002).

Hazardous Substances

Latex and oil-based paints are both formulated with petrochemicals and hazardous substances such as organic solvents.

The latex used in water-based latex paint is synthesized from petroleum, i.e. crude oil, and oil-based paints are thinned with petroleum distillate solvents. Large amounts of crude oil are extracted from deposits in ecologically sensitive parts of Alaska and elsewhere. As more accessible reserves are depleted, more extraction is likely to take place in fragile habitats, on land and off-shore, causing damage to the air, water and soil (NCMS, 2003). Concentration of petroleum in the hands of national oil companies in the Persian Gulf and other regions makes the petroleum industry vulnerable to international market pressure and geopolitical instability. Ecological degradation, coupled with this vulnerability leads to price volatility in the short term. In the long term, environmental damage and dependence on foreign oil can lead to human health problems and major supply disruptions.

A number of toxic heavy metals may be found in paint, including antimony, cadmium and lead (Green California, n.d.). Thankfully, the industry has eliminated mercury and reduced lead in architectural paints (PSI, 2004 and Green California, n.d.). However, manufacturers still use small amounts of heavy metals like cadmium in some industrial paints. As with other heavy metals, when cadmium leaches into soil and water, it accumulates in plants and animals, so even small amounts are cause for serious concern. Chronic exposure of 0.005 milligrams per liter concentration of cadmium is known to have grave health effects. Over the long-term, ingestion of food and water contaminated with cadmium may cause kidney, liver, bone and blood damage (EPA, 2006c). Biocides like formaldehyde, a known human carcinogen and respiratory irritant, are often added to paint as preservatives (Green California, n.d). Organic solvents, referred to as volatile organic compounds (VOCs), added to paint carry further long term health risks.

Air Quality

All oil-based, most water-based, and some natural paints contain toxic organic solvents to disperse and bind other paint components (Green California, n.d.). Volatile organic compound (VOC) content is based on white paint. Additions of colorants, also known as tinters, to architectural paint may raise the VOC levels. Typically added by the paint distributor, tinters

increase VOC content by an average of 12 g/L per ounce of colorant. Using 15 ounces of the average tinter to achieve a deep color adds 180 g/L of VOCs, negating many benefits to using low- or zero-VOC paint. See Energy, Cost and Quality subsections for further details on the affect of colorants on paint.

Paint emits VOCs during and after application, impacting indoor and outdoor air quality. EPA's National Emissions Inventory estimates that paint and coatings manufacturers released 7,000 tons of VOCs in 2002. During the same year, VOC emissions resulting from the use of paint and coatings products were estimated at 2 million tons (EPA, n.d.b).

Acute VOC exposure, especially indoors or in enclosed areas, can cause eye, nose, and throat irritation; headaches; loss of coordination; fatigue; nausea; or dizziness. Chronic exposure may cause damage to the liver, kidney, and central nervous system (Green California, n.d.; EPA, n.d.). Outdoors, VOCs contribute to the formation of ground level ozone and photochemical smog, both of which are harmful to human health (EPA, 2006a). Ozone can irritate the respiratory system, aggravate asthma and chronic lung diseases, and cause permanent lung damage (EPA, 2006b).

Specifying light colored and low- or zero-VOC paints will reduce VOC emissions. Less tinters means fewer added VOCs and greater durability. The addition of colorants often reduces the duty cycle, or durability, of paint. Lighter colors will need fewer applications in the long-term and are easier to touch up. Using less paint overall results in fewer VOC emissions (MPI, 2002).

Water

Water-based latex paints generally contain fewer toxic materials and VOCs than oil-based paints but are still ecologically hazardous. Though dangerous solvents are not needed for latex paint clean up, equipment is washed with water. When waste paint is washed into waterways and ground water, the primary environmental hazard of latex paint is to aquatic life. In addition to toxic constituents that bioaccumulate in plants and animals, latex paint contains high concentrations of pigments that increase turbidity in water (PSI, 2004). High turbidity, or murkiness, blocks sunlight to photosynthetic plants and consequently disrupts the natural cycle of oxygen. Without sufficient oxygen, aquatic life is smothered and an entire aquatic ecosystem can fail.

End-of-Life Management

Due to the potentially hazardous ingredients in most paint, safe disposal is imperative. Leftover architectural paint represents between 40% and 60% of all material collected at household hazardous waste facilities and events (PSI, 2004). Though the federal government does not classify architectural paint as a hazardous waste, a few states, like California and Massachusetts, have stricter regulations that do include architectural paint. The volume and cost of paint waste management may be holding other jurisdictions back.

End-of-life management of paint is challenging due to high volumes in the waste stream and subsequent higher costs. The U.S. produces between 16-35 million gallons of leftover architectural paint, representing 2.5% to 5% of sales, annually (PSI, 2004). Less than half of leftover paint is properly managed and recycled (Green California, n.d.). If municipalities properly managed and disposed of all this leftover paint, the costs would be an estimated $128 to $280 million per year (PSI, 2004). Recycled paint makes use of leftover paint in place of virgin materials, reducing the need for further materials extraction. Recycling paint can also mitigate the high cost of end-of-life management and keep waste out of the landfill. See the Cost, Quality and Supply section for more details.

It is not only the paint that needs to be safely manufactured and disposed. Both steel and plastic paint cans are recyclable, but not every community accepts them as part of their recycling program (Earth 911, n.d.). The maximum recycled-content in steel cans is 30-35%, while plastic containers could be made from 100% post-consumer materials (PSI, 2004). In addition to disposal, containers significantly impact the environment through energy intensive materials extraction and manufacturing processes (PSI, 2004).

Related Documents

Technical Background Report on Paint, PSI, 2004
A Background Report for the National Dialogue on Paint Product Stewardship published by the Product Stewardship Institute.

Best Practices

A successful program follows best practices for procuring, using, and disposing paint. Best practices include forming a team dedicated to the task, establishing baseline data, setting goals, adopting a policy, evaluating standards and specifications, improving current behaviors, and measuring and reporting progress.

Form a Team

Assemble a dedicated team to address the environmental and human health effects of paint purchasing. The team should include a balance of stakeholders, such as administrators, purchasers, specifiers, paint distributors/manufacturers, painters, building occupants, waste management representatives, and health and environmental departments. This team (which can also be a broader task force addressing responsible purchasing in general) should develop a plan for implementation and monitor its progress.

Establish Baseline

Inventory current consumption, including type, amount and function of all paint being purchased. Also include financial, social, and environmental impact data points. Consider these questions when compiling an inventory:

- How many gallons of paint is currently being purchase?
- What types of paint are being used?
- Is any zero VOC or recycled-content paint already being used?
- How much paint is being disposed annually?
- What are the social and environmental consequences from the above inventory?

After establishing a baseline, evaluate current paint requirements and future paint needs.

- Can leftover paint and containers be turned over to a recycler?
- Are there opportunities to consolidate and reduce the amount of paint purchased?

Buying the minimum amount required for jobs saves money and is the easiest way to reduce environmental and human health impacts.

Set Goals

Examine baseline data and identify areas for improvement. Set targets for reductions and savings, such as dates for testing and selecting safer paints, and phase-out dates for less preferable products. Set target dates for achieving ideal purchasing ratios of recycled-content and zero VOC paints. Choose emissions reduction goals for VOCs and other hazardous chemicals. Set goals for collection and appropriate disposal of leftover paint and cans. In addition to setting goals, identify how to meet those goals. For example, establish a program for paint reclamation and/or an institutional line of recycled paint, as the Portland Metro Government has done. See the Specifications section for more information on Portland's MetroPaint line of recycled-content paint.

Adopt Policy

Formally adopt a policy establishing a commitment to purchasing more responsible paints. If a policy on recycled products, air quality or landfill diversion already exists, update it to include paint products. In the policy, include measures that enhance the environmental and money-saving benefits of buying responsible paint products. For example, set organization-wide policy

to purchase recycled paint and/or return leftovers to paint recyclers. See the Policies section for more information and sample policies.

Evaluate Standards and Specifications
Once the broad paint purchasing requirements and needs have been determined, draft bid specifications based on third-party standards and other verifiable attributes. Review the standards and specifications used by other institutions for purchasing responsible paint products. Existing standards and specifications are available to meet the needs of most institutions. See the Specifications section for more information and sample specs.

Improve Practices
There are ways to save money and reduce environmental and health risks even before purchasing paint. At the outset of projects, evaluate whether paint is in fact the best product for the job, when including social and environmental costs as factors. A variety of alternatives, such as some stains, washes, and clay plasters, may be less-toxic options for brightening and protecting all types of surfaces. Wall coverings made from cork, organic cotton, jute, bamboo, 100% post-consumer recycled paper and other renewable materials are especially useful for interior projects and can be preferable to paint under the right circumstances.

When paint is the chosen option, the National Paint and Coatings Association and the Paint Product Stewardship Initiative (PPSI) recommend the following six steps to minimize the volume and cost of managing leftover paint:

- Buy only what you need for the project.
- Store the paint to keep it fresh.
- Use up leftover paint.
- Reuse or recycle the leftover paint.
- Dispose of the paint properly.

Consult with the supplier and with credible painters to estimate the volume needed for the job, in order to reduce disposal and costs. Work with vendors to identify methods to track paint use. At the conclusion of the project, properly manage all leftover paint. Carefully store leftover paint in original containers and apply it before the quality degrades. If leftover paint will not be needed later on, return it to a paint recycler if possible, or arrange for it to be acquired by the proper disposal authority, which in some states requires a licensed hazardous waste hauler.

Measure Progress
Regularly assess the success of the paint program. Check to see if predetermined benchmarks are being met and report on progress for the year. Use consistent measures of success, such as amount of VOCs avoided or gallons of paint diverted from landfill. Reward or recognize the stakeholders responsible for achieving success. If necessary, identify and address any obstacles that may be limiting the program's success.

Cost, Quality, and Supply

Environmentally preferable architectural paints, virgin and recycled, are gaining market share and thus increasingly available. In general, quality is comparable, supply is improving, and cost is competitive.

Cost

About 34 million gallons, or five percent of architectural paint sold, becomes leftover paint each year in the U.S (PSI, 2004). At an average disposal cost of $8 per gallon, it would cost municipalities $272 million dollars to collect and properly manage all this leftover consumer paint (PSI, 2004).

Water-based Latex

Improving painting practices and switching to environmentally preferable paints can yield savings by reducing hazardous materials handling and disposal costs. As part of its pollution prevention efforts, the U.S. Army's Aberdeen Proving Ground (APG) adopted Green Seal's environmental standards for latex paint, including limits on volatile organic compound (VOC) content and its list of prohibited materials (US EPA EPP, 1999). When compared to other paints, those paints meeting APG's environmental standards were, on average, $1.76 less expensive per gallon. Because paints meeting APG's environmentally preferable standards do not generate hazardous wastes and do not require hazardous materials to clean paint brushes and paint guns, APG lowered its hazardous waste tracking costs and disposal fees. The initial sales savings combined with disposal cost-cuts resulted in a first year savings of $60,000. The costs for developing the environmentally preferable paint purchasing program were recovered in one and a half years (US EPA EPP, 1999).

Using paints with little tint, can also save on operating and maintenance costs. Use of colorants often drops the gloss/sheen and the durability of the applied coating. Lighter colors require less upkeep because they are more abrasion resistant and require fewer coats. These light colored paints also reflect light well, decreasing spending on electricity for lighting indoor areas (MPI, 2001; MPI, 2002). To save on maintenance costs, specify high quality light-colored paint.

Recycled-Content

Recycled paint, in particular, reduces paint disposal. Manufacturers produce recycled paint using leftover paint collected from consumers as well as excess from the original paint manufacturing process (PSIGS, 2006a). Certified recycled-content architectural paint products are expected to be available by summer 2007. By specifying recycled latex paint, institutions increase the demand for recycling facilities and the reliability of supply. As recycled paint programs and manufacturers respond to bids, institutions will benefit from the consequent quality improvements and cost savings.

Natural Paints

Soy, milk, and silicate dispersion interior and exterior paints are more expensive alternatives to conventional latex- and oil-based paints. These surface coatings cost between $25 and $50 for 300-400 square feet of coverage. Despite the expense, natural paints are options to review when evaluating the health and environmental impacts of paint products. However, due to a lack of performance data on natural paints, it is important to pilot-test products before committing to a contract. See the Supply section below for more information.

Quality

Water-based Latex

Though the performance of white latex paint is reliable, additives like colorants may change the durability of a product (MPI, 2002). Use of tinters most often drops the gloss/sheen and the durability of the applied coating, so lighter colors are more abrasion resistant (MPI, 2001; MPI, 2002). Specify light colors to take advantage of longer lasting paints and consequent savings.

Recycled-Content

Although the equivalent performance of low and zero VOC architectural latex paint is widely recognized, consumer concern about quality, color, and sheen of the recycled product has been a major impediment to increasing its use (PSIGS, 2006b). New certifications should help to address these misconceptions when certified recycled architectural latex paint products become available in summer 2007. The Green Seal and EcoLogo (formerly Environmental Choice) certifications assure purchasers that recycled paint is environmentally preferable and performs just as well as virgin paints, both in terms of quality and longevity of finish (PSIGS, 2006b). Green Seal and EcoLogo certified recycled latex paint meet the same performance criteria from the Master Painters Institute (MPI), a nationally recognized paint performance certification organization (PSIGS, 2006b), as virgin latex paints.

Local and regional paint recyclers are available, but quality is not assured without a warranty and third-party certification. Institutional customers can encourage manufacturers to seek environmental certification and/or submit samples to the Master Painters Institute (MPI) for performance evaluation. For a performance evaluation of recycled-content paint, manufacturers should use the Performance Evaluation for Recycled Paint submission form.

Even prior to these new standards, jurisdictions successfully procured recycled latex paint. The State of Connecticut evaluated the performance of recycled-content paint and concluded that it performed just as well as virgin paint. Recycled-content paint was applied to a variety of surfaces and examined after 3-4 years. According to the Connecticut Department of Environmental Protection, “respondents indicated overwhelmingly that there were no problems with the performance of the recycled-content paint” (CT, 2001).

In Hennepin County, Minnesota, the Public Works Department painted 60% of the surfaces in a new public works facility with recycled paint. The county’s Environmental Services Department worked with a local virgin architectural paint manufacturer, Hirshfield's Paint Mfg. Inc, on a pilot project. Twelve hundred gallons of paint were recycled from local household hazardous waste collection and reprocessed for use. Using recycled paint saved Hennepin County between $3,600 and $6,000. The painting contractor, Swanson and Youngdale, reported, "These products performed comparable to virgin paint products. This product showed that the coverage and viscosity of the recycled products are comparable to virgin latex paint" (MOEA, 2002).

Natural Paints

Reports on the full environmental impacts and performance quality of natural paints and how they compare to recycled or virgin paints were not available to the Responsible Purchasing Network at the time of publication. For non-certified natural paint, consider testing the product and checking with the manufacturer and others about the paint's performance, proper handling and recommended applications. Natural silicate dispersion paint, which contains potassium silicate as a binder, can be used on any mineral surfaces. Soy and milk coatings can be recommended for interior projects but may need an additional clear acrylic top coating.

Supply

Water-Based Latex

Water-based latex paints, which generally have fewer solvents and toxic materials than oil-based paints, have increased in market share to over 80% (PSI, 2004). Fourteen manufacturers have Green Seal GS-11 certified paint products. These certified paints and other low- and zero-VOC virgin paints are responsible options to consider. Latex paint can be recycled for reuse.

Recycled-Content

The EPA categorizes recycled paint into two types, which is also reflected in the new Green Seal recycled-paint certification GS-43: consolidated and reprocessed paints. Consolidated paints contain a minimum of 95% by volume post-consumer paint with a maximum 5% by volume secondary industrial materials or virgin materials, while reprocessed paints contain a minimum of 50% by volume post-consumer paint. Recyclers sort paints to provide customers with a wide array of colors and finishes. Often, recycled products can be customized in much the same way as virgin architectural paint. It is important to note, however, that recycled paint will have VOC levels approximately equal to its feedstock.

These two types of recycled-content latex paint are already widely available in the market, and GS certified recycled-content latex paint products are expected to be available by summer 2007. In the meantime, purchasers can refer to the list of manufacturers of non-certified recycled-content paint provided by the Product Stewardship Institute (PSI), which includes Amazon Environmental, Calibre Environmental, Dunn-Edwards, Hotz Environmental Services, Kelly-Moore Paint, Local Color, Metro Oregon Recycled Paint (MetroPaint), Laurentide (Boomerang Recycled Paint), and Visions Recycling (PSI, n.d.).

The historic lack of recycled paint markets created a barrier to its success, but the new recycled latex paint certifications should address any lingering concerns over performance quality. By specifying certified recycled paint, institutions increase the demand for recycling facilities and thereby increase supply. As recycled paint programs and manufacturers respond to bids, institutions will benefit from the consequent quality improvements and cost reductions. As mentioned previously, many local and regional paint manufacturers sell uncertified recycled paint, but the environmental and performance quality of these products requires verification. To ensure product quality and utilize local waste paint, a number of government agencies, like the Portland Metro government and the State of Louisiana, process their own recycled paint. Locally produced recycled paint is sold to households and businesses at well below virgin paint prices.

Natural Paints

Biobased paints are typically made from widely available renewable substances, such as soy and milk proteins. Milk paint can be used as an alternative to latex paint. This surface coating uses casein, a protein derived from milk, as a binding agent. Manufacturers market milk paints in diverse palettes nationwide. Although natural paints are relatively widely available, in some cases they may need to be special ordered.

Related Documents

Technical Background Report on Paint, Product Stewardship Institute, 2004
Background Report for the National Dialogue on Paint Product Stewardship.

Painting the Town Green, EPA, n.d.
This case study of the Army's Aberdeen Proving Grounds (APG) Paint Pilot Project examines responsible purchasing strategies for environmentally preferable paint products.

Recycled Content Paint Submission Form, MPI, n.d.
Manufacturers may use this form to submit recycled-content paint product samples to the Master Painter's Institute (MPI) for performance evaluation.

Policies

Educational institutions, cities, states, counties, and an increasing number of other institutions have responsible paint procurement policies, stating the social and environmental issues associated with paint and describing the importance of buying recycled-content products.

Model Policy

Minnesota SWMCB, Resolution to use Recycled Content Paint, 2001 (See Addendum I)
Minnesota's Solid Waste Management Coordinating Board adopted a resolution in 2001 encouraging Minnesota counties, cities, and other jurisdictions to begin using or increase the use of recycled-content paint for government projects (MOEA, 2002).

More Sample Policies

Federal

Department of Health and Human Services (HHS), Affirmative Procurement Plan, 2006
Supports HHS' three key initiatives, green building, EPP, and sustainable operations and calls for the purchase of Green Seal certified paints on page 63 and recycled latex paint on page 69.

State

Illinois, Executive Order for Green Activities, 2001
Section 3.a.ii of this mandate requires that the Department of Central Management Services ensures the availability of Green Seal certified low- and zero-VOC paint.

County

Multnomah, Resolution No. 03-092, 2003
Multnomah County, Oregon resolves to purchase re-blended paint and recycled paper through this succinct policy entitled "Adopting a Policy for Paper and Paint Purchasing and Setting Goals for Paper Use."

City

Santa Clarita, CA, Resolution No. 05-103, 2005.
This comprehensive environmentally preferable purchasing policy addresses VOCs and recycled content paints in section 3.4.5.

Educational Institution

Duke University, EPP Guidelines, n.d.
Section 5 on Toxics and Pollution includes reference to purchasing products, including paint, with the highest recycled content, lowest VOC levels, and low or no formaldehyde.

Rutgers University, Green Purchasing Policy, 2006
Commits to researching and developing contracts for a variety of products, including paint, considering issues of waste reduction, packaging, materials source, energy efficiency and supplier environmental record. See pages 4 and 5.

Specifications

Securing contracts with cooperative vendors assists in quantifying the environmental benefits of paint purchases. In addition to requiring third party certifications that address hazardous chemical component limitations and recycled-content, contract specifications should address the following considerations:

Formulation

- Few or no petrochemical components
- Light colors and/or Low VOC colorants

Supply/Feedstock

- Recycled product manufactured using local or regional leftover paint resources

End of Life Management

- Container design conducive to safe, long-term storage
- Container design conducive to recycling of product
- Containers are recyclable and made from recycled materials
- Take-back services for leftovers and containers

Model Specs

Federal Construction Guide for Specifiers, EPA, 2005 (See Addendum II)
Sample paint specification language for construction projects according to EPA goals.

More Sample Specs

Federal

Federal Construction Guide for Specifiers, EPA, 2005
Sample paint specification language for construction projects according to EPA goals.

State

Connecticut, Evaluation of the Performance of Recycled Content Latex Paint, 2002.
Report on a recycled content paint pilot project that utilized Waste Watch Center's specifications. (See page 7 of document).

Minnesota, Section 09914: Recycled Latex Paint, 2002.
Includes comprehensive details on paint product and application specifications.

City

Portland Metro Area, OR, MetroPaint Product Data Sheet, 2004
MetroPaint™ 100% recycled content latex paint: Product Data Sheet provides key information on a high quality recycled content paint and its use. See the tabular specifications listed under "Technical Details."

Standards

The following environmental certifications make it easier for institutions to choose high quality, low environmental impact paint. For Green Seal, EcoLogo, and Scientific Certification Systems, VOC content limits are compared in the chart below. GREENGUARD sets VOC limits according to emissions rather than content, and Scientific Certification Systems sets limits for both content and emissions. These differences in criteria make direct comparison difficult.

Green Seal
GS-11: Paints standard (first edition May 20, 1993, under revision as of April 2007)
GS-43: Recycled-content Latex Paint (first edition August 1, 2006)

GS-11 is the Green Seal, Inc. standard for interior and exterior paints, setting VOC limits for interior and exterior, flat and non-flat (including gloss); and limiting use of heavy metals and other hazardous compounds. This standard was under revision as of April 2007. Green Seal expects to complete the revision process by the end of 2007.

GS-43 for recycled-content latex paint was released in August, 2006, establishing requirements for recycled-content latex paint that is consolidated or reprocessed. Consolidated paints contain a minimum of 95% by volume post-consumer paint with a maximum 5% by volume secondary industrial materials or virgin materials, while reprocessed paints contain a minimum of 50% by volume post-consumer paint with a maximum of 50% by volume secondary industrial materials or virgin materials (PSIGS, 2006a). Because consolidated paints have lesser amounts of known feedstock, they undergo more frequent performance testing to ensure consistency of product quality (PSIGS, 2006a). No GS-43 certified recycled paint can contain more than 250 g/L of VOCs. GS-11 and GS-43 also require products to comply with all applicable federal and state regulatory VOC content limits (PSIGS, 2006a).

The GS-43 standard emerged from a national dialogue on paint lead by the Product Stewardship Institute (PSI) and a working group of over 60 stakeholders as a key initiative to increase demand for recycled paint. The diversity of stakeholders involved helped assure a standard that addresses environmental as well as performance and quality concerns. Stakeholders included Responsible Purchasing Network staff; paint manufacturers; recyclers; painting contractors; non-profits, academics; federal, state, and local government agencies; (PSIGS, 2006b) and the Master Painters Institute, whose performance standards are integrated into GS-43.

Green Seal reports that several GS-43 product certifications are imminent. For updates: www.ResponsiblePurchasing.org or www.greenseal.org.

Related Documents
Recycled Paint Standard Fact Sheet, PSI and Green Seal, 2006
Two page summary of Green Seal GS-43 standard for recycled content latex paint, plus answers to frequently asked questions.

Recycled Paint Standard Press Release, PSI and Green Seal, 2006
Press release announcing completion of the Green Seal GS-43 standard on recycled content latex paint, including media contact information for the Product Stewardship Institute and Green Seal, Inc.

EcoLogo (formerly Environmental Choice)
CCD-047: Architectural Surface Coatings (last revised December 2005)
CCD-048: Recycled Water-borne Surface Coatings (last revised March 2006)

CCD-047 is the EcoLogo standard for architectural surface coatings, including interior and exterior paints, as well as stains and varnishes. Unlike GS-11, CCD-047 differentiates gloss from non-flat paint, and sets lower VOC content limits for each category. In addition to paints, CCD-047 also covers stains and varnishes. See the chart below for a comparison of VOC content restrictions referenced in Green Seal and EcoLogo standards.

EcoLogo CCD-048, Recycled Water-borne Surface Coatings certifies recycled water-based latex paint, setting VOC content limits and restricting heavy metals and other hazardous compounds. Like GS-43, CCD-048 uses post-consumer content as its main criteria, but sets stricter VOC limitation at 150 g/L. As of April 10, 2007, no products were CCD-048 certified. For updates, check www.ResponsiblePurchasing.org or www.environmentalchoice.com.

In 1988, Environment Canada established the Environmental Choice (now called EcoLogo) eco-labeling program, managed by Terrachoice Environmental Marketing. EcoLogo requires third party verification for certification and licensing. Certified products are tagged with the EcoLogo label. Like Green Seal, this standard evaluates environmental quality as well as performance.

Scientific Certifications Systems (SCS)
SCS-EC10.2-2007: Indoor Advantage Gold (Last update, April, 2007)

SCS is an independent, third-party auditing and certification firm of environmental, sustainability, and social responsibility claims. SCS's Indoor Advantage Gold indoor air quality certification program is based upon the SCS standard, SCS-EC10.2-2007, and establishes the most rigorous criteria of all of the SCS indoor air quality programs. The goal of SCS-EC10.2-2007 is to improve the environmental performance of products and services such as building products, office furniture, and paints and coatings.

Indoor Advantage Gold certifies paints and coatings to comply with the VOC emission criteria of California's Collaborative for High Performance Schools (CHPS) Section 01350 and the VOC content criteria of USGBC LEED EQ 4.2, which includes the criteria of the South Coast Air Quality Management District (SCAQMD) Rule #1113 and Green Seal GS-11. See the Other Standards and Certifications section below for information on the USGBC's LEED program.

California's Section 01350 requires the measurement of emission rates for each of the chemicals on the California Office of Environmental Health Hazard Assessment (OEHHA) Chronic Reference Exposure Limit (CREL) list. To date, the OEHHA program has developed Chronic Reference Exposure Levels (CRELs) for 78 chemical substances. The CRELs are concentrations that assume long-term exposures and include a number of conservative uncertainty factors. These guidelines provide the scientific basis for the Indoor Advantage Gold program. In order for a product to qualify for certification, its estimated VOC concentrations for classrooms and offices must not exceed one half the CREL concentrations under the assumption that other products in a building also may be sources of the same compounds.

VOC-Content Limits Comparison Green Seal, EcoLogo, SCS Indoor Advantage Gold					
VOC Content (g/L)	**GS-11**	**CCD-047**	**GS-43 (recycled)**	**CCD-048 (recycled)**	**Indoor Advantage Gold**
Interior					
Flat	50	50	250	150	50
Non-flat	150	100	250	150	50
Gloss	see non-flat	150	see non-flat	150	50*
Stains	n/a	175	n/a	n/a	100*
Varnishes	n/a	250	n/a	n/a	275
Exterior					
Flat	100	80	250	150	50
Non-flat	200	125	250	150	50
Gloss	see non-flat	150	see non-flat	150	50*
Stains	n/a	175	n/a	n/a	100*
Varnishes	n/a	250	n/a	n/a	275

Sources: GS, 1993; GS, 2006; EC, 2005; EC, 2006; SCS, 2007
*Effective 7/1/07. Current requirement is 150g/L.

GREENGUARD
GREENGUARD Indoor Air Quality Certified, Paints and Coatings (2006)
Method for Measuring Chemical Emissions from Various Sources Using Dynamic Environmental Chambers (November 2006)

GREENGUARD Environmental Institute (GEI) is an independent non-profit organization that oversees the GREENGUARD Certification Program. GREENGUARD evaluates impact on indoor air quality based on product emission, or off-gassing, levels. GREENGUARD Indoor Air Quality Certified products comply with maximum allowable emissions levels for VOCs and other hazardous compounds, based on credible third-party studies and standards. As of April 11, 2007, Benjamin Moore was the only manufacturer with GREENGUARD certified latex paint.

GREENGUARD and SCS Indoor Advantage Gold Selected Pollutant Emission Restrictions		
	GREENGUARD	**Indoor Advantage Gold**
Total VOCs	0.5 mg/m^3	n/a
CA CREL list	n/a	≤ ½ CA CREL
Benzene	160 $\mu g/m^3$	prohibited
Vinyl Acetate	250-500 $\mu g/m^3$	prohibited
Formaldehyde	0.05 ppm	prohibited
Styrene	0.07 mg/m^3	≤ 0.45 mg/m^3
Acetaldehyde	n/a*	≤ 9 $\mu g/m^3$

Sources: GREENGUARD, 2006; SCS, 2007
*Total aldehyde restriction set at 0.1 ppm

Standards Comparison Chart
The following chart compares the paint certification criteria of GreenSeal, EcoLogo, GREENGUARD and SCS (coming soon). This chart only indicates whether a criterion is addressed by a standard. It does not convey the precise requirements for each criterion. Please refer to each certifier for complete certification standards. Or become an RPN Member to access an online version of this chart that includes the exact language from each standard.

PAINT

CERTIFICATIONS

CRITERIA (Please contact each certifier for complete certification standards.)	**Green Seal**		**EcoLogo (Environmental Choice)**		**GREENGUARD**	**Scientific Certification Systems**
	GS-11 Latex Paint	GS-43 Recycled-Content Latex Paint	CCD-047 Architectural Surface Coatings	CCD-048 Recycled Water-borne Surface Coatings	Indoor Air Quality Certified Paints and Coatings	SCS-EC10.2-2007 Indoor Advantage Gold
Environmental & Human Health						
Heavy Metals	✓	✓	✓	✓		
Persistent, Bioaccumualtive Toxins (PBTs, POPs)	✓	✓	✓	✓		
Endocrine Disruptors	✓	✓	✓	✓		
Toxicity to Aquatic Life			✓	✓		
Other Hazardous Substances (e.g. carcinogens, reproductive toxins, chlorinated compounds)	✓	✓	✓	✓	✓	info available soon
Aromatic Compounds	✓	✓	✓	✓	✓	
VOCs (see also Air)	✓	✓	✓	✓	✓	
Acute Toxicity						
Combustibility			✓	✓		
Energy						
Renewable Energy						
Embodied Energy						
Energy Efficiency						info available soon
Land						
Habitat Alteration						
Air						
Air Emissions (Photochemical Smog)						
Indoor Air Quality	✓	✓	✓	✓	✓	info available soon
Smog (tropospheric ozone; nitrogen oxides; VOCs; peroxyacl nitrates; aldehydes)	✓	✓	✓	✓		

Particulates						
Global Warming						
Acidification						
Stratospheric Ozone Depletion	✓	✓	✓	✓		
Water						
Water Conservation						
Water Efficiency						info available soon
Water Emissions						
Ocean Acidification						
Eutrophication						
Materials						
Material Reduction						
Durability, Reliability & Performance	✓	✓				
Renewable feedstock						info available soon
Regionally Sourced						
Recycled Content		✓		✓		
Reliance on Petroleum Derived Products						
Bio-based Materials						
Manufacturing & Retailing						
ISO 9000+ Good Manufacturing Process						
ISO 14000+ Environmental Management Systems						info available soon
Packaging	✓	✓				
Labeling		✓	✓	✓		
Shipping, Distribution, Advertising & Sales			✓	✓		
Training						
End of Life & New Life						
Recyclability vs. Downcyclability		✓				
Material Take Back						info available soon
Material Reuse		✓				
Biodegradable						
Disposal		✓	✓	✓		
Social Responsibility						info available soon
SA8000 approved workplace						
Environmental Justice						
Employee Health and Safety Management						

Extended Social Responsibility Expectations into Supply Chain					
Community Outreach/Involvement					
Performance Standards ASTM, AATCC, CSPA, CRI, ISO, IIRC, *MPI*, more	✓	✓	✓	✓	info available soon

Other Standards and Programs

Master Painters Institute (MPI)

MPI Green Performance Standard for Paints & Coatings: GPS-1-05 (2005)
This trade organization was established with the purpose of upholding the quality of paint and painters. In addition to participating in the GS-43 development process, MPI developed its own standard for environmentally preferable paints and coatings. It includes interior and exterior paints, as well as many other architectural coatings. Like the Green Seal and EcoLogo certifications, GPS-1-05 verifies performance quality, chemical component restrictions, and VOC content limits.

US Green Building Council (USGBC)

Leadership in Energy and Environmental Design Green Building Rating System (LEED)
The USGBC awards buildings LEED certification at the Certified, Silver, Gold, and Platinum levels, based on the number of credits earned in a variety of categories. Ratings systems for new construction including: LEED-CI, v. 2.0 (Commercial Interiors); LEED-NC, v. 2.2 (New Construction); LEED-CS, v. 2.0 (Core & Shell Development); LEED for Schools, and other forthcoming standards contain detailed requirements for indoor air quality. EQ Credit 4.2: Low-Emitting Materials: Paints & Coatings, worth one credit, varies slightly in each LEED standard. EQ 4.2 may specify GS-11 equivalency, South Coast Air Quality Management District (SCAQMD) Rule 1113: Architectural Coatings, and/or California Department of Health Services Standard Practice for The Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, including 2004 Addenda.

Products

The Responsible Purchasing Network's online database lists hundreds of paint products certified by Green Seal, EcoLogo, Scientific Certification Systems and GREENGUARD. Products include GS-11, GS-43, CCD-047, and CCD-048, SCS-EC10.2-2007, and GREENGUARD Indoor Air Quality Certified Paints and Coatings; including interior and exterior paints; stains; and varnishes. Listings are updated regularly but please check directly with certifying agencies to verify product certification status.

Handy Facts

- The U.S. produces 16-35 million gallons of leftover consumer paint annually (PSI, 2004).
- Safe paint disposal costs an average of $8 per gallon (PSI, 2004).
- Less than half of leftover paint is properly managed and recycled (PSI, 2004).
- In 2002, paint and coatings manufacturers released 7,000 tons of VOCs (EPA, n.d.b).
- VOC emissions from the use of paint and coatings products were estimated at 2 million tons, in 2002 (EPA, n.d.b).
- Environmentally preferable water-based paints have increased in market share to over 80% (PSI, 2004; EPA, n.d.b).
- The Portland Metro Government recycles more than 100,000 gallons of paint annually (Green California, n.d.).
- 14 manufacturers offer Green Seal GS-11 certified paint products.
- GS-43 standard for recycled-content paint was collaboratively developed by over 60 diverse stakeholders.
- U.S. Army's Aberdeen Proving Ground saves $60,000 annually by using environmentally preferable paint (US EPA EPP, 1999).

Definitions

Architectural paint	coatings intended for, but not restricted to, on-site application to interior and exterior surfaces of residential, commercial, institutional or industrial buildings.
Baseline	basic information gathered before a program begins that is used later in order to provide a comparison for assessing program impact.
Bioaccumulate	process whereby harmful substances concentrate or magnify as they move up the food chain.
Biobased	products composed in whole or in significant part of biological products, forestry materials, or renewable domestic agricultural materials, including plant, animal, or marine materials; generally safer for the environment than petroleum-based counterparts, and usually biodegradable or recyclable.
Environmentally preferable	products and services that have a lesser or reduced effect on human health and the environment when compared to other products and services that serve the same purpose.
Hazardous substance	1. material posing a threat to human health and/or the environment, that can be toxic, corrosive, ignitable, explosive, or chemically reactive 2. substance that must be reported to the EPA if released into the environment.
Hexavalent chromium	positive-6 valence chromium, a potential occupational carcinogen.
Industrial paint	surface coatings including but not limited to, special purpose, factory-applied, automotive, marine, and traffic marking paint.
Natural paint	paint made from non-toxic and non-petroleum-derived ingredients like soy, milk, and silicate.
Toxic substance	a chemical or mixture that may present an unreasonable risk of injury to health or the environment.
Volatile organic compound (VOC)	organic compound that typically vaporizes at room temperature and participates in atmospheric photochemical reactions except those designated by EPA as having negligible photochemical reactivity

Endnotes

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Addendum I: Model Policy

Minnesota SWMCB, Resolution to use Recycled Content Paint, 2001
Minnesota's Solid Waste Management Coordinating Board adopted a resolution in 2001 encouraging Minnesota counties, cities, and other jurisdictions to begin using or increase the use of recycled-content paint for government projects (MOEA, 2002).

See attached for complete policy.

Addendum II: Model Specifications

Federal Construction Guide for Specifiers, EPA, 2005
Sample paint specification language for construction projects according to EPA goals.

See attached for complete specifications