

Evaluation of Environmental Protection Agency Comprehensive Procurement Guideline (EPA CPG) Items and Energy Efficient Products as Environmental Attributes

June 24, 1998

Contract No. DAAA21-93-C-0046
Task No. N.135
CDRL Item A001

*Prepared by
National Defense Center for Environmental Excellence (NDCEE)*

Operated by Concurrent Technologies Corporation

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as Environmental Attributes**

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ACRONYMS

APP	Affirmative Procurement Program
CPG	Comprehensive Procurement Guideline
CTC	Concurrent Technologies Corporation
DLA	Defense Logistics Agency
DOE	Department of Energy
ENAC	environmental attribute code
EO	Executive Order
EPA	Environmental Protection Agency
EPACT	Energy Policy Act of 1992
EPP	environmentally preferable product
FAR	Federal Acquisition Regulation
FEMP	Federal Energy Management Program
FLIS	Federal Logistics Information System
GSA	General Services Administration
JG-EnvAtt	Joint Group on Environmental Attributes
JLC	Joint Logistics Commanders
LCC	life-cycle cost
NDCEE	National Defense Center for Environmental Excellence
NSN	national stock number
RCRA	Resource Conservation and Recovery Act
RMAN	Recovered Materials Advisory Notice
VOC	volatile organic compound

1.0 OBJECTIVE

The Joint Group on Environmental Attributes (JG-EnvAtt), headed by the Defense Logistics Agency (DLA), is leading a Federal-wide effort to build consensus across the Federal government on the standard use of positive environmental attributes in the Federal Logistics Information System (FLIS). The objective of this initiative is to inform Federal procurement personnel of alternative items that are environmentally preferable to conventional products. The initial focus is on commodities used by Federal facilities, operations, and maintenance personnel.

This report outlines the JG-EnvAtt Coordinating Committee's approach for selecting and evaluating environmentally preferable products (EPPs) for display in the FLIS, a cataloging system used by government procurement personnel. The focus of this report is on the evaluation of two potential environmental attributes to be added to the FLIS: *Environmental Protection Agency Comprehensive Procurement Guideline (EPA CPG) items* and *energy efficient products*. The evaluation of these two potential environmental attributes may be used to introduce the goals of this initiative to procurement personnel and inform them of the EPPs available through the Federal requisitioning process.

2.0 BACKGROUND

The Federal government is directed by law, Executive Orders (EOs), and other Federal and departmental policies to reduce waste and minimize the environmental impacts of its activities. In most cases, this task begins with the acquisition of goods and services. Through the procurement of EPPs, Federal agencies can minimize the use of hazardous or toxic substances, promote the use of recycled materials, improve energy efficiency, reduce the volume of waste for disposal, improve worker health and safety, reduce operating costs, and save taxpayer dollars.

DLA was tasked by the Joint Logistics Commanders (JLC) to research the possibility of adding environmental attributes to the Federal acquisition process. DLA completed a business cases analysis, which concluded that over the long term, the potential benefits of increasing the Federal acquisition of EPPs through the wide dissemination of environmental attribute information in the FLIS would outweigh the capital and operational costs required to modify the FLIS.

Based on the positive results of the business case analysis, DLA established the JG-EnvAtt Coordinating Committee to further evaluate the approach for adding environmental attributes to the FLIS. This committee is headed by DLA, with the other primary stakeholders being the Army, Navy, Air Force, Marine Corp, and the General Services Administration (GSA). Advisors include the EPA, Department of Energy (DOE), and other government agencies.

This report was prepared by the National Defense Center for Environmental Excellence (NDCEE), operated by Concurrent Technologies Corporation (CTC), with the assistance and guidance of the JG-EnvAtt Coordinating Committee. The purpose of this report is to evaluate two targeted environmental attributes (*EPA CPG items* and *energy efficient products*) for addition to the FLIS. Following an approach proposed by JG-EnvAtt Coordinating Committee, this report highlights the underlying policy priorities, provides standard definitions and criteria, and shows the associated life-cycle benefits of these selected environmental attributes.

3.0 JG-EnvAtt COORDINATING COMMITTEE APPROACH

Acquisition is the first step towards meeting pollution prevention and waste reduction goals. Federal procurement agencies have already initiated activities to encourage the procurement of EPPs. Paper catalogs and guides exist for Federal procurement of environmentally preferable alternatives to conventional commodities. However, these catalogs and guides are not directly linked to FLIS, which contains over 7 million items, each characterized by 240 code elements including national stock number (NSN), manufacturer's name, procuring agency, and standard price. These "form, fit, and function" characterization elements aid requisitioning personnel in choosing the appropriate item for their specific needs. The JG-EnvAtt Coordinating Committee focus is to include environmental attributes in FLIS product characterization codes, which would provide requisitioning personnel and end users ready access to environmental information on the products they are considering for use.

3.1 Environmental Attributes

Environmental attribute codes (ENACs) would consist of a two-digit alpha numeric sequence. Approximately 1300 combinations are possible, therefore, a large number of environmental attributes, and combinations of attributes, can be designated in FLIS.

The JG-EnvAtt Coordinating Committee is considering thirty potential environmental attributes that are being evaluated for inclusion in FLIS:

- Energy Efficient Products
- EPA CPG Items
- Biodegradable
- Recyclable
- Refillable
- Reusable
- Remanufacturable
- Water Conserving
- Environmental Packaging
- Non-Ozone Depleting Substance (Class I Substitutes)
- Reduced Volatile Organic Compound (VOC) Content
- Fragrance Free
- Benzene Free
- Chlorine Free
- Cadmium Free
- Lead Free
- Chromium Free
- Phosphate Free
- Vinyl Chloride Free
- Mercury Free
- Greenhouse Impacts
- Low Bioconcentration Factor
- Non-Hazardous
- Low Skin Irritation
- Compostable
- Long Shelf-Life
- Renewable
- Non-Toxic
- Non-Corrosive
- Radioisotope/Radioactive Material Substitute

3.2 Evaluation Criteria

The process for selecting and including potential environmental attributes in FLIS involves evaluating each attribute against three criteria. As shown in Figure 1, the attributes must be: (1) a policy priority; (2) definable; and (3) show a life-cycle cost savings (unless overridden by another requirement or policy).

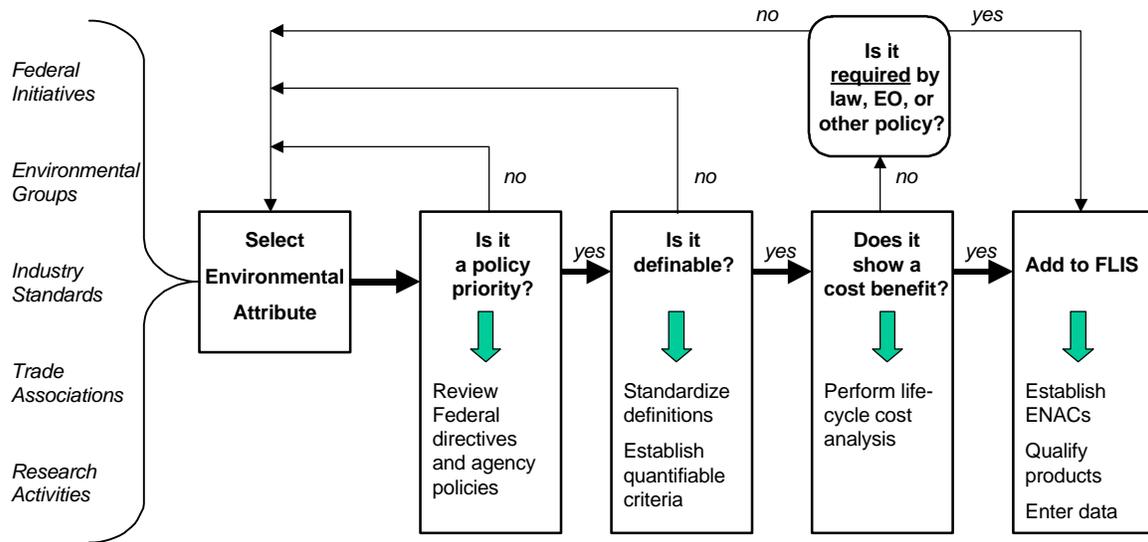


Figure 1: Approach for Adding Environmental Attributes to FLIS

Is it a policy priority?

Federal procurement agencies must follow the rules and requirements of various environmental regulations, EOs, and other directives. Environmental regulations apply to everyone, while EOs are specifically directed at federal agencies. In addition, the Federal Acquisition Regulation (FAR) provides contracting and procurement personnel with further direction on how to implement the requirements contained in the regulations and EOs.

In addition to legal requirements, procurement agencies must also abide by departmental policies or initiatives for affirmative procurement of EPPs. Environmental stewardship programs, pollution prevention initiatives, and green design projects are other examples of activities that may support the procurement of non-hazardous or energy efficient products.

Is it definable?

The intent of adding environmental attributes to FLIS is to aid procurement personnel in making informed purchasing decisions that reduce environmental impact. Based upon vendor claims, procurement agents must be able to identify these attributes in the wide array of products available in the database. The environmental attribute field must contribute information that is understandable and that indicates that a specific product is preferable over a similar product that performs the same function. As such, the environmental attributes must be defined clearly and include some quantifiable characteristic.

For many potential environmental attributes, definitions and values for measurable characteristics are often available from numerous sources. Environmental supporters, lawmakers, marketing departments, and industry organizations have developed definitions on various environmental attributes. However, these definitions may vary among users and often reflect a specific characteristic of the particular product or are narrowly focused to meet individual needs. Consensus on some terms has been reached, while others definitions are oriented towards a specific use for unique applications or situations.

Does it show a cost benefit?

In addition to meeting environmental and energy conservation goals, the procurement of an EPP usually results in a cost savings over the lifetime of the product. One means of quantifying this savings is to perform a life-cycle cost (LCC) assessment.

A LCC assessment potentially encompasses all phases and impacts of a product from “cradle to grave.” The first step in completing a LCC assessment is to establish the boundaries of the assessment by identifying the life-cycle stages to be considered. As shown in Figure 2, for Federal procurement items, the LCC assessment boundaries will be limited to include the stages from the point of procurement through the handling, use, and disposal of the product.

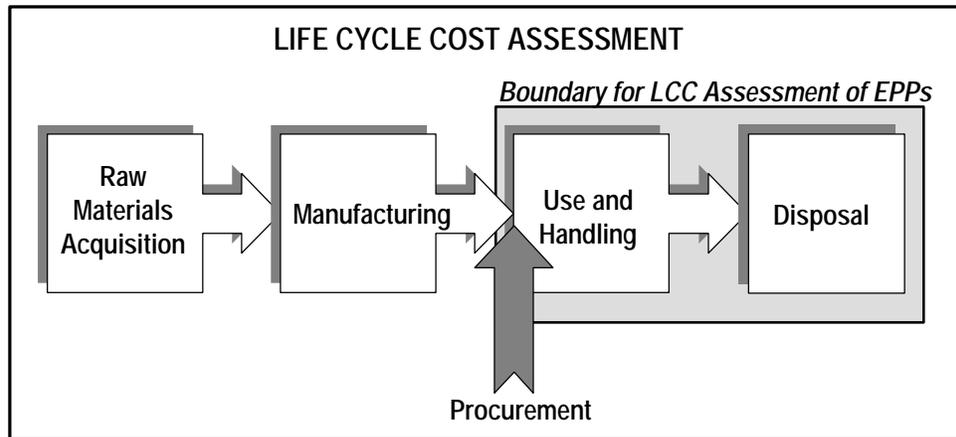


Figure 2: Boundaries for LCC Assessment of EPPs

EO 12873 and other Federal directives require government agencies to consider life-cycle costs in acquisition planning. The most significant benefits of EPPs are typically found in reducing the costs associated with:

- Material storage and handling
- Use of energy, water, and other resources
- Waste storage, treatment, and disposal
- Compliance, permitting, and reporting
- Liability for work-related injuries and environmental contamination

For most EPPs, the overall savings is determined by weighing the cost savings for each of these criteria (over the lifetime of the product) against the purchase price of the item. In most cases, any potential increase in the purchase price is balanced by the reductions in handling, use, and disposal costs. In other cases, the results of the LCC assessment may be overridden by the requirements of a federal directive or agency policy.

3.3 Initial Focus

The JG-EnvAtt Coordinating Committee's intends to select and evaluate priority environmental attributes for addition to FLIS with the intention of adding additional attributes in the future. For the initial focus of this effort, two high-priority environmental attributes were selected for evaluation: *EPA CPG items* and *energy efficient products*. Using the previously outlined approach, these two environmental attributes were evaluated based on policy priority, definability, and life-cycle cost.

4.0 EPA CPG ITEMS

EPA has issued procurement guidelines for 36 product categories containing recovered materials (see Appendix A). These EPA-designated items have been consolidated and published in a Comprehensive Procurement Guideline (CPG). EPA also published a Recovered Materials Advisory Notice (RMAN), which recommends procurement practices and ranges of recovered material content levels available for the products designated in the CPG.

Products containing recovered material content reduce environmental impacts from material consumption and waste disposal. Because materials are reclaimed for new stock, further depletion of natural resources is reduced. For many materials, recycling processes are less energy intensive than creating a finished product from raw materials. Finally, recovered material content indicates that materials were diverted from solid waste streams. This reduces dependence on landfills and incinerators and their associated impacts. The procurement of products with recovered materials provides an incentive for manufacturers to produce these products, which creates a market for recovered materials. In addition, many of these products become a source of recovered materials, promoting “closed loop” recycling.

4.1 Policy Priority

The following federal directives support or require the procurement of products containing recovered materials:

- *Resource Conservation and Recovery Act (RCRA)*: The primary objective of RCRA is to ensure the safe and environmentally acceptable management of solid waste, preferably through recycling and resource recovery. Section 6002 of RCRA established a program to promote recycling by directing government agencies to purchase products containing recovered materials. RCRA requires EPA to designate products that can be made with recovered materials and to recommend practices for buying these products. Under RCRA, the requirement to purchase an EPA-designated product containing recovered materials applies to procuring agencies that spend more than \$10,000 a year on that item. Once a product is designated, procuring agencies are required to purchase it with the highest recovered material content level practicable.
- *Executive Order 12873, Federal Acquisition, Recycling, and Waste Prevention*: EO 12873 has three main elements: urge the federal government to become a leader in pollution prevention, maximize recycling efforts, and mandate the procurement of recycled content and other EPPs. This directive establishes a link between programs to collect and supply materials for recycling and the need to encourage markets for products composed of recovered materials. It requires each government agency to establish an Affirmative Procurement Program (APP) for EPA-designated items. All purchases of these items must meet certain

guideline standards unless written justification is provided that it is not feasible or practical to do so. EO 12873 also mandates EPA to issue guidelines on procuring products with recovered materials content, including minimum recycled content levels for EPA-designated items.

Many of the requirements established in these regulations and EOs are further emphasized in the FAR. The FAR outlines procurement policies followed by Federal executive agencies in their acquisition of supplies and services. On August 22, 1997, the FAR was amended to reflect the Federal government's preference for the acquisition of environmentally preferable products and services. Table 1 shows the FAR segments that encourage the acquisition of products containing recovered materials.

Table 1: FAR Segments Supporting the Acquisition of EPA CPG Items

FAR Subpart	
23.4, 4.303 10.001(a)(v) 11.301	Use of Recovered Materials Paper Documents Recovered Material Acquiring Other Than New Material, Former Government Surplus Property, and Residual Inventory
Solicitation Provisions and Contract Clauses	
52.223-4	Recovered Material Certification
52.223-8	Estimate of Percentage of Recovered Material for Designated Items to be Used in the Performance of the Contract
52.233-9	Certification of Percentage of Recovered Material Content for EPA-Designated Items Used in Performance of the Contract
52.204-4	Printing/Copying Double-Sided on Recycled Paper
52.211-5	New Material
52.211-6	Listing of Other Than New Material, Residual Inventory, and Former Government Surplus Property
52.211-7	Other Than New Material, Residual Inventory, and Former Government Surplus Property

The Federal acquisition of EPA CPG items is supported by RCRA, EO 12873, and the FAR. Therefore, EPA CPG items are a policy priority and meet the requirements of the first evaluation criterion for addition to the FLIS.

4.2 Comprehensive Procurement Guideline (CPG) Definition

The CPG definition is:

Product meets or exceeds the Environmental Protection Agency's (EPA) Comprehensive Procurement Guidelines – Recovered Materials Advisory Notices (RMAN)

4.3 Life-Cycle Cost Assessment

For EPA-designated products, the LCC assessment does not necessarily require an evaluation of any economic criteria beyond the purchase price. Most of these products will not differ in handling, use, or disposal from conventional products. However, the cost benefit to society of promoting a market for recovered materials can be significant. The EPA anticipates that affirmative procurement will increase recycling and waste prevention across government agencies. This focus on recycling and waste prevention will reduce the reliance on natural resources and promote conservation of materials and energy. Secondary pollution to air and water will be reduced, as will the environmental impacts of mining, harvesting, and other material extraction processes. Recycling also diverts a large volume of material from landfills and incinerators and recognizes the importance of better material management. By purchasing these products, the government publicizes its commitment to community-wide benefits of environmental improvement and overall long-term cost savings.

EPA CPG items show a life-cycle cost benefit. In addition, the procurement of these items is required by Federal directives. Therefore, EPA CPG items meet the third and final evaluation criterion for addition to the FLIS.

5.0 ENERGY EFFICIENT PRODUCTS

The federal government spends an estimated \$10 to \$20 billion per year to purchase energy-consuming equipment and pays an \$8 billion annual energy bill. As one of the world's largest energy users, the federal government's leadership in buying energy efficient products can help to improve the availability and lower the cost of these products while reducing facility operating costs. In addition, conserving energy reduces pollution associated with the by-products of fossil fuel electricity generation. In the United States, electricity generation accounts for 35 percent of all U.S. emissions of carbon dioxide, 75 percent of sulfur dioxide, and 38 percent of nitrogen oxides. Energy efficiency is a positive step toward reducing air pollution. By encouraging the production and use of energy efficient equipment, energy usage and air pollution can be drastically reduced.

The DOE Federal Energy Management Program (FEMP) has developed Product Energy Efficiency Recommendations for 24 product categories (see Appendix B). These recommendations are described in two-page guidelines that establish energy efficiency standards within comparable classes of products. Products in the lower 25 percent of power consumption within each product classification are considered to be energy efficient. An additional 39 product categories have been identified for the development of future Product Energy Efficiency Recommendations.

DLA and GSA work with FEMP to clearly identify products that meet the recommended efficiency levels. The EE symbol and the Energy Star label¹ are used in GSA and DLA catalogs to identify those products that meet or exceed energy efficiency criteria for government purchasing.

5.1 Policy Priority

The following federal directives support or require the procurement of energy efficient products:

- *Energy Policy Act of 1992 (EPACT)*: This directive requires federal agencies to reduce energy consumption by 20 percent between 1985 and the year 2000. EPACT directs the DOE, in association with other Federal agencies, to “identify and designate those energy efficient products that offer significant potential savings.”
- *Executive Order 12845, Requiring Agencies to Purchase Energy-Efficient Computer Equipment*: This EO established the government as a participant in the Energy Star Computer Program. To the maximum extent possible, Federal agencies must purchase computer products (e.g., computers, monitors, and printers) that qualify for the Energy Star logo as

¹ The EPA and manufacturers developed the Energy Star label to denote office machines, such as computers, monitors, and copiers, that meet specific energy consumption levels.

long as they meet other performance requirements and are available in a competitive bid. EO 12845 also requires existing computers to be equipped with energy efficient standby features.

- *Executive Order 12902, Energy Efficiency and Water Conservation at Federal Facilities:* EO 12902 encourages the design and construction of “green buildings” within the federal government. The goals of this directive are to reduce energy use, increase energy efficiency and water conservation, increase the use of alternative or renewable energy sources, minimize the use of imported fuel, and maximize the use of environmentally friendly materials. To accomplish this, this EO requires Federal agencies to maximize their purchase of products that are in the upper 25 percent of energy efficiency, or at least 10 percent above the minimum Federal standards. EO 12902 also directs Federal agencies to reduce energy consumption per square foot by 30 percent (from 1985 levels) by 2005.

Many of the requirements established in these regulations and EOs are further emphasized in the FAR. On August 22, 1997, the FAR was amended to reflect the Federal government’s preference for the acquisition energy efficient products and services. Table 2 shows the FAR segments that encourage the acquisition of energy efficient products.

Table 2: FAR Segments Supporting the Acquisition of Energy Efficient Products

FAR Subpart	
23.2	Energy Conservation
23.7	Contracting for Environmentally Preferable and Energy-Efficient Products and Services
Solicitation Provisions and Contract Clauses	
52.223-10	Waste Reduction Program

The Federal acquisition of energy efficient products is supported by EPACT, EO 12845, EO 12902, and the FAR. Therefore, energy efficient products are a policy priority and meet the requirements of the first evaluation criterion for addition to the FLIS.

5.2 Energy Efficiency Definition

The Federal government definition for energy efficiency that will be used in the FLIS is defined as:

Product meets or exceeds the Department of Energy's (DOE) Energy-Efficient Products Standards -- products in the top 25 percent of energy efficiency for all similar products, or at least 10% more efficient than required by DOE standards, or meets efficiency criteria of the EPA/FDOE Energy Star label.

5.3 Life-Cycle Cost Assessment

For energy efficient products, DOE's Product Energy Efficiency Recommendations provide the information necessary to complete a LCC assessment based solely on energy cost savings over the life of the product. These Recommendations are available for each of the 24 categories of energy efficient products. It is assumed that the handling, use, and disposal of items in the same category will not differ. As a result, the LCC assessment may be simplified to only account for the cost savings attributed to an increase in energy efficiency.

In general, each Product Energy Efficiency Recommendation provides cost data for a less efficient base model, a model of the recommended level, and the best available model. Using this information, consumers can determine the cost-effectiveness of a product based on its purchase price and energy efficiency rating. The cost-effectiveness data may be modified to reflect different utility prices and operating hours by multiplying the energy cost savings by the ratios provided in the guidelines.

Energy efficient products show a life-cycle cost savings. In addition, the procurement of these items is required by Federal directives. Therefore, energy efficient products meet the third and final evaluation criterion for addition to the FLIS.

6.0 SUMMARY AND CONCLUSIONS

The JG-EnvAtt Coordinating Committee's approach for adding environmental attributes to the FLIS is to identify and evaluate potential environmental attributes based on their policy priority, definability, and LCC assessment. This approach was used to evaluate two high-priority environmental attributes: *EPA CPG items* and *energy efficient products*.

Both of these environmental attributes are strongly supported by laws (e.g., RCRA and EPACT), EOs, the FAR, and other Federal agency policies. EPA CPG items are defined by the EPA in the CPG and RMAN. Energy efficient products are defined by the DOE and EPA. Finally, the procurement of EPA CPG items and energy efficient products results in a LCC savings.

Meeting the requirements of the evaluation criteria, EPA CPG items and energy efficient products are qualified environmental attributes. Based on this evaluation, the JG-EnvAtt Coordinating Committee recommends the addition of ENACs designating EPA CPG items and energy efficient products to the FLIS.

It is also the recommendation of the JG-EnvAtt Coordinating Committee to follow this approach in evaluating other potential environmental attributes for future additions of ENACs to the FLIS.

APPENDIX A

EPA Comprehensive Procurement Guideline (CPG) Items

CPG PRODUCT	RMAN RECOMMENDATIONS		FEDERAL STOCK CLASS ASSIGNMENT
	Post-Consumer Materials Content (%)	Total Recovered Materials Content (%)	
Paper and Paper Products <i>newsprint</i> <i>high-grade bleached printing and writing paper</i> <i>tissue products</i> <i>unbleached packaging</i> <i>recycled paperboard</i>	40 --- 5-40 5-35 80-90	--- 50 (waste paper: post-consumer and other) --- --- ---	9310 Paper and paperboard 7630 Newspapers and periodicals 7530 Stationary and record forms 8115 Boxes, cartons, crates 8135 Packaging & packing bulk materials 8540 Toilet paper products
VEHICLE PRODUCTS			NA
Engine Coolants	---	Purchase reclaimed coolants in either of the two base chemical types (ethylene glycol or propylene glycol) to prevent comingling of incompatible types of engine coolant	2930 Engine cooling systems components, except aircraft
Re-Refined Lubricating Oils	---	25	9150 Oils and greases
Retread Tires	---	Federal agencies must purchase retread tires or tire retreading services to the maximum extent feasible. (APP recommendations: GSA's Federal Supply Schedule 26II, Pneumatic Tires, Table C-3)	NA
CONSTRUCTION PRODUCTS			3895 Misc. construction equipment 5670 Building components prefabricated 5675 Non-wood construction, lumber and related materials 5680 Misc. construction materials 9320 Rubber fabricated materials 9330 Plastic fabricated materials

Post-consumer – material or finished product that has served its intended use, and has been diverted or recovered from waste destined for disposal, having completed its life as a consumer item.

Recovered materials – waste materials and by-products which have been recovered or diverted from solid waste, but not including those materials and by-products generated from, and commonly reused within, an original manufacturing process.

CPG PRODUCT	RMAN RECOMMENDATIONS		FEDERAL STOCK CLASS ASSIGNMENT
	Post-Consumer Materials Content (%)	Total Recovered Materials Content (%)	
Building Insulation Products	---	75	5640 Wallboard, building paper, thermal insulation materials
<i>rock wool</i>	---	20-25	
<i>fiberglass</i>	---	75	
<i>cellulose loose-fill and spray-on</i>	---	23	
<i>perlite composite</i>	---	9	
<i>board</i>	---	5	
<i>plastic rigid foam</i>	---	6	
<i>foam-in-place</i>	---	5	
<i>glass fiber reinforced</i>	---		
<i>phenolic rigid foam</i>	---		
Carpet	25-100	---	9220 Floor coverings
Cement and Concrete Containing Coal Fly Ash	---	Recommends adhering to voluntary consensus standards (APP recommendation: ASTM Standards C618 and C311). Typically 20% to 40% coal fly ash.	NA
Cement and Concrete Containing Ground Granulated Blast Furnace (GGBF) Slag	---	Recommends adhering to voluntary consensus standards (APP recommendation: ASTM Standard C989). Typically 25% to 50% GGBF slag.	NA

Post-consumer – material or finished product that has served its intended use, and has been diverted or recovered from waste destined for disposal, having completed its life as a consumer item.

Recovered materials – waste materials and by-products which have been recovered or diverted from solid waste, but not including those materials and by-products generated from, and commonly reused within, an original manufacturing process.

CPG PRODUCT	RMAN RECOMMENDATIONS		FEDERAL STOCK CLASS ASSIGNMENT
	Post-Consumer Materials Content (%)	Total Recovered Materials Content (%)	
Reprocessed and Consolidated Latex Paint <i>white, off-white, and pastels</i> <i>grey, brown, earthtones, and dark colors</i> <i>consolidated latex paint</i>	20	---	8010 Paints, dopes, varnishes and related items
	50-99	---	
	100	---	
Floor Tiles <i>rubber</i> <i>plastic</i>	90-100	---	9220 Floor coverings
	---	90-100	
Patio Blocks <i>rubber or rubber blends</i> <i>plastic or plastic blends</i>	90-100	---	NA
	---	90-100	
Shower and Restroom Dividers and Partitions <i>Steel</i> <i>Plastic</i>	16	20-30	NA
	20-100	20-100	
Structural Fiberboard	---	80-100	NA
Laminated Paperboard	100	100	NA
TRANSPORTATION PRODUCTS			NA
Channelizers <i>Plastic</i> <i>Rubber (base only)</i>	25-95	---	NA
	100	---	
Delineators <i>Plastic</i> <i>Rubber (base only)</i> <i>Steel (base only)</i>	25-90	---	NA
	100	---	
	25-50	---	
Flexible Delineators (plastic)	25-85	---	NA

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Recovered materials – waste materials and by-products which have been recovered or diverted from solid waste, but not including those materials and by-products generated from, and commonly reused within, an original manufacturing process.

CPG PRODUCT	RMAN RECOMMENDATIONS		FEDERAL STOCK CLASS ASSIGNMENT
	Post-Consumer Materials Content (%)	Total Recovered Materials Content (%)	
Parking Stops			NA
<i>Plastic and/or rubber</i>	100	---	
<i>Concrete containing coal fly ash</i>	---	20-40	
<i>Concrete containing GGBF slag</i>	---	25-70	
Traffic Barricades			NA
<i>HDPE, LDPE, PET</i>	80-100	100	
<i>steel</i>	---	100	
<i>Fiberglass</i>			
Traffic Cones	---	50-100	NA
PARK AND RECREATION PRODUCTS			NA
Plastic Fencing	60-100	90-100	5660 Fencing, fences and gates
Playground Surfaces (rubber or plastic)	90-100	---	NA
Running Tracks (rubber or plastic)	90-100	---	NA
LANDSCAPING PRODUCTS			NA
Garden and Soaker Hoses			NA
<i>garden – rubber and/or plastic</i>	60-65	---	
<i>soaker – rubber and/or plastic</i>	60-70	---	
Hydraulic Mulch			NA
<i>paper-based</i>	100	---	
<i>wood-based</i>	---	100	
Lawn and Garden Edging (plastic and/or rubber)	30-100	30-100	NA

Post-consumer – material or finished product that has served its intended use, and has been diverted or recovered from waste destined for disposal, having completed its life as a consumer item.

Recovered materials – waste materials and by-products which have been recovered or diverted from solid waste, but not including those materials and by-products generated from, and commonly reused within, an original manufacturing process.

CPG PRODUCT	RMAN RECOMMENDATIONS		FEDERAL STOCK CLASS ASSIGNMENT
	Post-Consumer Materials Content (%)	Total Recovered Materials Content (%)	
Yard Trimmings Compost	---	Recommends the purchase or use of compost made from yard trimmings, leaves, and/or grass clippings. Agencies should implement a composting system when feasible.	NA
NON-PAPER OFFICE PRODUCTS			7510 Office supplies 7520 Office supplies and accessories
Binders (plastic covered)	---	25-50	NA
Office Recycling Containers	20-100	---	NA
<i>plastic</i>	---	25-100	
<i>steel</i>			
Office Waste Receptacles	20-100	---	NA
<i>plastic</i>	---	25-100	
<i>steel</i>			
Plastic Desktop Accessories	25-80	---	NA
Plastic Envelopes	25	25-35	NA
Plastic Trash Bags	10-100	---	8105 Bags and sacks
Printer Ribbons	---	Recommends procuring printer reinking or reloading services or, if unavailable, procuring reinked or reloaded printer ribbons.	NA

Post-consumer – material or finished product that has served its intended use, and has been diverted or recovered from waste destined for disposal, having completed its life as a consumer item.

Recovered materials – waste materials and by-products which have been recovered or diverted from solid waste, but not including those materials and by-products generated from, and commonly reused within, an original manufacturing process.

CPG PRODUCT	RMAN RECOMMENDATIONS		FEDERAL STOCK CLASS ASSIGNMENT
	Post-Consumer Materials Content (%)	Total Recovered Materials Content (%)	
Toner Cartridges	---	Recommends procuring services to exchange remanufactured cartridges for expended toner cartridges or procuring new toner cartridges made with recovered materials.	NA
MISCELLANEOUS PRODUCTS			NA
Pallets			8115 Boxes, cartons, and crates
<i>wooden</i>	95-100	---	
<i>plastic lumber</i>	100	---	
<i>thermoformed plastic</i>	25-50	---	
<i>paperboard</i>	50	---	

NA = Not applicable

Sources: RMAN I, 60 *Fed. Reg.* 21385, May 1, 1995.

RMAN II, 62 *Fed. Reg.* 60975, November 13, 1997.

Post-consumer – material or finished product that has served its intended use, and has been diverted or recovered from waste destined for disposal, having completed its life as a consumer item.

Recovered materials – waste materials and by-products which have been recovered or diverted from solid waste, but not including those materials and by-products generated from, and commonly reused within, an original manufacturing process.

Post-consumer – material or finished product that has served its intended use, and has been diverted or recovered from waste destined for disposal, having completed its life as a consumer item.

Recovered materials – waste materials and by-products which have been recovered or diverted from solid waste, but not including those materials and by-products generated from, and commonly reused within, an original manufacturing process.

APPENDIX B

DOE Energy Efficient Product Categories

PRODUCT CATEGORY	PRODUCTS	FEDERAL STOCK CLASS ASSIGNMENT
Residential Appliances	Room air conditioners Refrigerators Dishwashers (<i>Clothes washers</i>) (<i>Dryers</i>)	4110 Refrigeration equipment 4120 Air conditioning equipment 4130 Air conditioning and refrigeration equipment 7320 Kitchen equipment and appliances
Residential Equipment	Central air conditioners Furnaces Water heaters – electric Water heaters – gas Heat pumps – air source (<i>Water heaters – heat pump</i>)	4520 Space heat equipment, domestic water heaters
Water Saving Technologies	Faucets Showerheads Toilets Urinals	4510 Plumbing fixtures and accessories
Lighting Technologies	Exit signs Fluorescent tube ballasts Fluorescent ballasts (<i>Fluorescent luminaires</i>) (<i>Compact fluorescent lamps</i>) (<i>CFL fixtures</i>) (<i>HID luminaires</i>) (<i>Task lighting</i>) (<i>Lighting control systems</i>) (<i>Exterior lighting</i>) (<i>Street lighting</i>) (<i>Traffic lights</i>)	6210 Indoor and outdoor electric lighting fixtures 6240 Electric lamps 6310 Traffic, transit signal systems
Commercial Appliances	Ice cube machines (<i>Office water coolers</i>) (<i>Refrigerated cases</i>) (<i>Vending machines</i>)	3550 Vending and coin operating machines
Office Technologies	Monitors Computers Printers Copiers Fax machines (<i>Multi-function machines</i>)	5815 Teletype and facsimile equipment 7110 Office furniture 7435 Office information systems equipment 7490 Misc. Office machines

PRODUCT CATEGORY	PRODUCTS	FEDERAL STOCK CLASS ASSIGNMENT
Commercial Equipment	Large electric chillers <i>(Small electric chiller)s</i> <i>(Unitary air conditioners)</i> <i>(Heat pumps – air source)</i> <i>(Boilers)</i> <i>(Gas-engine cooling)</i> <i>(Evaporative cooling)</i> <i>(Desiccant cooling)</i> <i>(Absorption cooling)</i> <i>(Space heaters)</i>	4410 Industrial boilers 4420 Heat exchangers and steam converters
Commercial/Industrial Technologies	Motors Transformers – building scale <i>(Pumping systems)</i> <i>(Fan systems)</i> <i>(Adjustable speed drives)</i> <i>(Air compressor systems)</i> <i>(Transformers – utility)</i>	4140 Fans, air circulators, and blower equipment 6105 Motors, electric 6120 Transformers, distribution and power stations
<i>(Construction Products)</i>	<i>(Windows)</i> <i>(Roofing)</i> <i>(Insulation)</i>	
<i>(Renewable Technologies)</i>	<i>(Photovoltaics)</i> <i>(Heat pumps – ground source)</i> <i>(Water heaters – solar assisted)</i>	6116 Fuel cell power units, components, and accessories 6117 Solar electric power systems
<i>(Transportation Technologies)</i>	<i>(Light duty vehicles)</i> <i>(Refrigerated transport systems)</i> <i>(Low rolling resistance tires)</i>	2310 Passenger motor vehicles

(Note: italicized products are planned for future release)

APPENDIX C

References

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4. U.S. Department of Energy, Federal Energy Management Program. *Buying Energy Efficient Products*.
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