

Chapter 2 - Pollution Prevention and Affirmative Procurement Program Requirements (REDACTED)

2.1 Applicability

These procedures are applicable to all civil servants, contract employees, and tenant personnel of Ames Research Center, Moffett Federal Airfield and Crows Landing Flight Facility.

2.2 Purpose

This chapter sets forth elements of the Ames Pollution Prevention Program and Ames specific procedures to implement NASA policy and guidance for complying with requirements of Executive Orders 13101 and 13148.

2.3 Policy

It is the policy of Ames Research Center to:

1. Comply with all pertinent statutory and regulatory requirements and Executive Orders related to pollution prevention and affirmative procurement. Ames recognizes and will comply with applicable federal, state, and local regulations.
2. Consult about the best techniques and methods to promote source reduction and recycling and to promote procurement of products with recycled content, as appropriate, with federal, state, and local agencies including:
 - U.S. Office of the Federal Environmental Executive (OFEE)
 - U.S. Environmental Protection Agency (EPA)
 - U.S. General Services Administration (GSA)
 - California Department of Toxic Substances Control (DTSC)
 - Santa Clara County Health Department
3. Promote employee awareness of pollution prevention and affirmative procurement through training and active information dissemination.

2.4 Authority

Emergency Planning and Community-Right-to-Know Act of 1986 (EPCRA) - Public Law 99-499: Superfund Amendments and Reauthorization Act (SARA), Title III, Sections 312 and 313.

Pollution Prevention Act of 1990 (42 U.S.C. 13101 et. seq.).

Resource Conservation and Recovery Act of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984 (42 U.S.C. 6002).

Executive Order 13101 of September 14, 1998, Greening the Government through Waste Prevention, Recycling and, Federal Acquisition.

Executive Order 13148 of April 22, 2000, Greening the Government Through Leadership in Environment Management.

Hazardous Waste Source Reduction and Management Review Act of 1989 (Senate Bill 14), California Code of Regulations (CCR), Title 22, Sections 67100.4, 67100.5.

NASA Policy Directive 8500.1, NASA Environmental Management.

NASA Procedures and Guidelines, 8820.2, Pollution Prevention.

NASA Procedures and Guidelines, 8830.1, Affirmative Procurement Plan for Environmentally Preferable Products.

2.5 Responsibilities

2.5.1 Line Management and Contracting Officers Technical Representatives:

REDACTED

2.5.2 Environmental Services Office, Code QE:

1. Prepares annual Toxic Release Inventory (TRI) Report
 - a. Makes threshold determinations for Centerwide TRI chemical use based on information reported by each Ames organization as required in Section 2.5.1.
 - b. Reports release quantities to regulatory agencies as required by Section 313 of EPCRA.
2. Prepares and submits an annual source reduction and recycling progress report to NASA Headquarters, Code JE, and the EPA, as required.
3. Submits a record of recycled material purchases to the Office of Procurement via Code JE, NASA Headquarters.
4. Manages Ames Chemical Exchange, including maintaining the ACE inventory.
5. Reports recycling quantities to NASA Headquarters, Code JE, for the documents listed above based on the information submitted by each division, organization, or project. Sets annual goals.
6. Prepares Pollution Prevention and Hazardous Waste Minimization plans and reports as required by environmental regulations and NASA Headquarters.
7. Annually prepares and submits to NASA Headquarters a plan outlining the proceeds Ames expects to receive from solid waste recycling activities for the coming fiscal year, and the projects/items to be funded by these proceeds. Coordinate outreach efforts to promote and enforce affirmative procurement and recycling requirements.

2.5.3 All Personnel:

1. Minimize hazardous and solid waste generation through source reduction and recycling, to the maximum extent practicable.
2. Purchase and use products which meet EPA's minimum recycled/recovered materials content guidelines.
3. Recycle cardboard and place in cardboard recycling bins. Do not place cardboard in solid waste bins.

2.5.4 Logistics Branch, Code JFS:

REDACTED

2.5.5 Plant Engineering Branch, Code JFP:

REDACTED

2.6 Definitions

Pilot Plant Scale: A guiding device, trial apparatus or operation, and/or a site in which processes planned for full-scale operation are tested in advance to eliminate problems.

Pollution: Any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment, including fugitive emissions.

Release: Any planned or unplanned release of toxic chemicals to the environment including air emissions, off-site transfers of chemicals, waste water discharges, underground injections of waste, and wastes disposed of in on-site landfills. Examples include shipments of hazardous wastes to treatment, storage, and disposal (TSD) facilities.

Requester: Any individual that requests to make a purchase with government funds.

TRI Chemical: A chemical or chemical category listed in 40 CFR 372.65 as amended. Users of any of these chemicals are subject to TRI reporting requirements as delineated in Section 2.7 of this chapter.

Persistent Bioaccumulative Toxic (PBT) Chemicals: A chemical or chemical category of special concern due to its persistence in the environment and/or its accumulation in organisms, as listed in 40 CFR 372.28.

2.7 Toxic Release Inventory Reporting

REDACTED

2.8 Affirmative Procurement

In accordance with Executive Orders 13101 and 13148, Ames shall procure products that contain recycled and recovered content and that are environmentally preferable.

Ames will strive to meet or exceed the following goal:

- Achieve 100 percent compliance in affirmative procurement.

2.8.1 Purchasing by Ames Employees

In accordance with Executive Order 13101 and NPG 8830.1, Affirmative Procurement Plan for Environmentally Preferable Products all purchases of the items listed in Section 2.8.2 shall meet the recovered materials content levels established by the EPA. Appendix D contains a detailed list of the designated items and the minimum recycled content levels. Individuals requesting these items through stores stock need not report their purchases.

Bankcard users must indicate anticipated purchases of EPA designated items on page 3 of the electronic purchase request form. The electronic purchase request will be routed to the Environmental Office automatically for approval. Contractors must meet all requirements for purchases of designated items as stipulated in Executive Order 13101 and NPG 8830.1, Affirmative Procurement Plan for Environmentally Preferable Products.

Purchasers of any EPA designated item which does not meet minimum recycled and/or recovered materials content must obtain a waiver from the Environmental Office prior to initiating the purchase request. The Request for Waiver must be approved by the Environmental Office prior to acquisition of any non-conforming item. These requirements apply

to both government and contractor purchases, in accordance with NPG 8830.1, Affirmative Procurement Plan for Environmentally Preferable Products.

2.8.2 EPA Guideline Standards for Recycled Material Purchases

The following items are designated by EPA as being available with recycled content. EPA's recommended recovered materials content levels are specified in Appendix D:

1. paper and paper products
2. non-paper office products
3. vehicular products
4. construction products
5. transportation products
6. park and recreation products
7. landscaping products
8. miscellaneous products

NOTE: Purchases of the above items through General Services Administration (GSA) Federal Supply Service's environmental products catalogs will automatically meet EPA's standards.

Purchases of affected products must meet or exceed EPA's minimum recommended recycled or recovered content levels. Purchasers of items which do not meet EPA minimum requirements must submit a Request for Waiver to the Environmental Services Office (Appendix K), in accordance with NPG 8830.1, Affirmative Procurement Plan for Environmentally Preferable Products.

2.8.3 Stores Stock

The Logistics Branch shall:

1. stock and issue recycled copier paper to fill orders that do not specify virgin paper
2. use GSA Federal Supply Service to stock recycled products (e.g., paper, paper products, and office supplies) as much as possible.
3. stock remanufactured toner cartridges.

2.9 Pollution Prevention Award Program

The Award Program is designed to solicit the creativity of all employees in developing techniques or operational changes that will reduce pollution. Employees working directly with the waste generating process are best suited for finding ways to reduce the waste, whether the process is in a machine shop, a mechanical equipment maintenance shop or a life sciences laboratory. A description of the Award Program including the procedure for submitting pollution prevention ideas is provided in Appendix E.

2.10 Ames Chemical Exchange (ACE)

REDACTED

2.11 Recycled/Recovered Materials Reporting

REDACTED

2.12 Ozone Depleting Substances

REDACTED

2.13 Metrics

- a. Percent reduction in annual TRI releases.

Goals: Reduce releases of TRI chemicals by 50% by 2000 compared to the baseline year of 1994; Further reduce releases of TRI chemicals by an additional 10% annually, or by 40% overall by December 31, 2006 compared to the baseline year of 2001.

- b. Percent reduction in use of 15 target chemicals (TBD).

Goals: Reduce the use of certain target chemicals by 35% overall by December 31, 2006 compared to the baseline year (the year in which the list is promulgated).

- c. Percent of solid waste diverted from landfills annually.

Goal: Divert 35% of solid waste away from landfills by CY 2010 compared with the CY 1997 baseline.

2.14 Appendices

2.14.1 Appendix A: NASA Policy Directive (NPD) 8800.16 NASA Environmental Management

See http://nodis3.gsfc.nasa.gov/displayDir.cfm?Internal_ID=N_PD_8800_016A_&page_name=main

2.14.2 Appendix B: Practices for Pollution Prevention

Practices for Pollution Prevention

The following practices shall be immediately incorporated into all Center activities and operations to promote "cost-effective" source reduction and recycling:

- **Recycled Products Purchasing:** when purchasing/ordering items designated by EPA as being available with recycled content, all Ames Employees and Contractors shall purchase those items composed of the highest percentage of recovered materials practicable consistent with product performance requirements, quality, and safety. EPA has issued guidelines for the procurement of many products containing recovered materials. All purchases of items covered by these guidelines must meet or exceed the EPA guideline standards unless written justification is provided on the Request for Waiver Form (Appendix L). Within one year after EPA designates new items, organizations shall purchase those items according to EPA's guideline standards. Contact Code QH for a list of the items designated or proposed for designation.
- **Recycled Paper Use:** all employees shall order and use printing and writing paper made from recycled materials instead of products made from virgin materials. Printing and writing paper ordered shall contain at least 50% recycled fibers (paper meeting the 50% recycled content requirement is currently available from stores stock).
- **Double Sided Photocopies:** reports, memos, and other paper documents shall be photocopied in double sided format when possible.
- **Electronic Communication:** employees shall transfer documents electronically when possible.
- **Colored Paper:** all employees shall discourage the use of colored paper.

- **Energy Conservation:** all employees shall turn off computers, lighting, printers, and other equipment when not in use and prior to leaving the Center for the day, when feasible.
- **Reusable Products:** all employees shall order and use non-disposable products or products that promote re-use (e.g., ball point pens with replaceable ink cartridges and rechargeable batteries).
- **New Facilities and Installations:** new facilities and equipment shall include specifications for conserving water and energy. Such equipment includes energy saving lighting devices, cooling towers that treat and recycle water, etc.

2.14.3 Appendix C: Form TRI - Toxic Chemical Usage Reporting

REDACTED

2.14.4 Appendix D: EPA Guideline Standards and Recycled Percentages for Procuring Items with Recycled Content

EPA Recommended Minimum Recovered Material Content Standards for Federal Procurement of Products

Current as of October 16, 2000. Be sure to periodically review the EPA's Comprehensive Procurement Guidelines web site at <http://www.epa.gov/cpg/products.htm> for updates to these requirements.

Paper and Paper Products

Printing and writing papers. This category comprise one of the largest categories of paper and paper products. Examples include copier paper, stationery, computer printout, offset paper, and note pads. Printing and writing paper can be either **coated** or **uncoated**.

EPA's Recommended Recovered Fiber Content Levels for Uncoated Printing and Writing Papers		
Item	Postconsumer Fiber (%):	Recovered Fiber (%):
Reprographic Paper (e.g., mimeo and duplicator paper, high-speed copier paper, and bond paper*)	30	30
Offset Paper (e.g., offset printing paper*, book paper*, and bond paper*)	30	30
Tablet Paper (e.g., offset paper such as note pads, stationery*, and other writing* papers)	30	30
Forms Bond (e.g., forms, computer printout paper, and ledger*)	30	30
Envelope Paper		
- Wove	30	30
- Kraft		
- White and colored (including manila)	10 - 20	10 - 20
- Unbleached	10	10
Cotton Fiber Paper (e.g., cotton fiber papers, ledger*, stationery* and matching envelopes, and other writing*)	30	30

papers)		
Text & Cover Paper (e.g., cover stock, book paper*, stationery* and matching envelopes, and other writing* paper)	30	30
Supercalendered	10	10
Machine Finish Groundwood	10	10
Papeteries	30	30
Check Safety Paper	10	10

**These items can be made from a variety of printing and writing papers, depending on the performance characteristics of the item. Some of the papers are a commodity-type and some are specialty papers. EPA recommends that procuring agencies determine the performance characteristics required of the paper prior to establishing minimum content standards. Bond, ledger, or stationery made from cotton fiber paper or a text & cover paper, for example, have different characteristics than similar items made from commodity papers.*

EPA's Recommended Recovered Fiber Content Levels for Coated Printing and Writing Papers		
Item	Postconsumer Fiber (%):	Recovered Fiber (%):
Coated Printing Paper	10	10
Carbonless	30	30

EPA's Recommended Recovered Fiber Content Levels for Bristols		
Item	Postconsumer Fiber (%):	Recovered Fiber (%):
File Folders (manila and colored)	30	30
Dyed Filing Products	20	20 - 50
Cards (index, postal, and other, including index sheets	20	50
Pressboard Report Covers and Binders	20	50
Tags and Tickets	20	20 - 50

**Newsprint is a type of groundwood paper generally used to print newspapers. Recovered-content newsprint is usually manufactured from fiber recovered from old newspapers and magazines.*

EPA's Recommended Recovered Fiber Content Levels for Newsprint		
Item	Postconsumer Fiber (%):	Recovered Fiber (%):
Newsprint	20 - 85	20 - 100

Sanitary tissue products: Includes bathroom and facial tissue, paper towels, napkins, and general-purpose industrial wipers. They are generally sold in rolls or sheets and are used in personal care, food service, and cleaning applications. The grades of sanitary tissue products covered in the CPG are manufactured for use by restaurants, hotels, schools, government agencies, and other similar commercial and institutional buyers.

EPA's Recommended Recovered Fiber Content Levels for Commercial/Industrial Sanitary Tissue Products		
Item	Postconsumer Fiber (%):	Recovered Fiber (%):
Bathroom Tissue	20 - 60	20 - 100
Paper Towels	40 - 60	40 - 100
Paper Napkins	30 - 60	30 - 100
Facial Tissue	10 - 15	10 - 100
General Purpose Industrial Wipers	40	40 - 100

Paperboard and packaging category: Covers two major types of board: "containerboard" used to make corrugated shipping containers, and "paperboard," used in a wide variety of packaging applications such as folding cartons, "blister cards," beverage carriers, book and report covers, mailing tubes, and video cassette boxes, to name just a few.

Containerboard (corrugated board) is a composite paperboard made by sandwiching fluted "corrugating medium" in between layers of linerboard. Linerboard, made primarily from both virgin and recovered fiber from old corrugated containers (OCC), is used to make the inner and outer walls of a box. The inside, fluted "medium" layer in the middle is made almost exclusively from postconsumer recovered fiber from OCC, old newspapers (ONP), used office paper, and mixed papers.

Paperboard containing recovered fiber is a multi-ply material, formed in layers of recovered fiber. Often gray in appearance, a white top layer made from recovered office paper is often used to provide a clean printing surface. Paperboard mills use more recovered fiber than any other segment of the paper industry to manufacture a wide variety of product packaging (folding cartons), beverage carriers, mailing tubes, industrial paperboard (cores, drums, tubes, and cans), and many other items.

Kraft padded mailers, Kraft bags, and wrapping paper made from OCC also fall under the packaging category.

EPA's Recommended Recovered Fiber Content Levels for Paperboard and Packaging Products		
Item	Postconsumer Fiber (%):	Recovered Fiber (%):
Corrugated containers ¹ (300 psi)	25-50	25-30
Solid Fiber Boxes	40	40
Folding Cartons ²	40-80	100
Industrial paperboard (e.g., tubes, cores, drums, and cans)	45-100	100
Miscellaneous (e.g., pad backs, covered binders, book covers, mailing tubes, protective packaging)	75-100	90-100

Padded mailers	5-15	5-15
Carrierboard ³	10-15	10-100
Brown papers (e.g., wrapping paper and bags)	5-20	5-40
<p>¹The recovered fiber and postconsumer fiber content is calculated from the content of each component relative to the weight each contributes to the total weight of the box.</p> <p>²The recommended content ranges are not applicable to all types of paperboard used in folding cartons. Cartons made from solid bleached sulfate or solid unbleached sulfate contain no or small percentages of postconsumer fiber, depending on the paperboard source.</p> <p>³Carrierboard made from unbleached kraft contains up to 25% recovered fiber, while carrierboard made from recycled paperboard contains up to 100% recovered fiber.</p>		

Miscellaneous Paper. Tray liners currently are the only product in the Miscellaneous Paper category. Sometimes referred to as "doilies" or "place mats," tray liners are specialty paper items designed to line food service trays in institutional and commercial restaurants and cafeterias.

EPA's Recommended Recovered Fiber Content Levels for Miscellaneous Paper Products		
Item	Postconsumer Fiber (%):	Recovered Fiber (%):
Tray Liners	50-75	100
<p><i>NOTE: The content levels for all EPA recommendations for paper products should be read as X% recovered fiber, including Y% postconsumer fiber and not as X% recovered fiber plus Y% postconsumer fiber.</i></p>		

Non-Paper Office Products

Binders, clipboards, file folders, clip portfolios, and presentation folders. A loose-leaf binder contains split metal rings attached to a metal back that hold perforated sheets of paper. Chipboard, pressboard, plastic-covered chipboard or paperboard, and cloth-covered chipboard or paperboard binders can all be made with recovered materials.

EPA's Recommended Recovered Materials Content Levels for Binders Clipboards, File Folders, Clip Portfolios, and Presentation Folders¹		
Item	Postconsumer Content (%):	Total Recovered Materials Content (%):
Binders		
- Plastic-covered	--	25-50
- Paper-covered	75-100	90-100
- Pressboard	20	50
- Solid plastic		
- HDPE	90	90
- PE	30-50	30-50
- PET	100	100
- Misc. plastics	80	80
Plastic clipboards		
- HDPE	90	90

- PS	50	50
- Misc. plastics	15	15-80
Plastic file folder		
- HDPE	90	90
Plastic clip portfolios		
- HDPE	90	90
Plastic presentation folders		
- HDPE	90	90

EPA's recommendations do not preclude a procuring agency from purchasing binders, clipboards, file folders, clip portfolios, or presentation folders made from another material. They simply require that procuring agencies, when purchasing these items made from the materials above, purchase them made from recovered materials when these items meet applicable specifications and performance requirements.

Product Specifications:

The U.S. General Services Administration's (GSA's) specification for binders, A-A-2549A, covers four types of binders, including the following:

- *Cloth bound, flexible cover*
- *Cloth bound, stiff cover*
- *Plastic bound, flexible cover*
- *Plastic bound, stiff cover*

In the specification, GSA requires its binders to contain "a minimum of 100% recovered waste paper, including a minimum of 30% postconsumer recovered materials."

Office recycling containers and waste receptacles are used to collect and transport waste and recyclable materials - either in deskside or larger, more centralized containers. These items can be made from recovered paper, plastic, or steel.

EPA's Recommended Recovered Materials Content Levels for Office Recycling Containers and Office Waste Receptacles¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Plastic	20-100	--
Steel	--	25-100
Paper		
- Corrugated	25-50	25-50
- Solid Fiber Boxes	40	--
- Industrial Paperboard	40-80	100

¹EPA's recommendations for office recycling containers and office waste receptacles containing recovered plastic, paper, or steel do not preclude procuring agencies from purchasing containers or receptacles manufactured using another material such as wood. It simply recommends that procuring agencies, when purchasing office recycling containers or office waste receptacles manufactured from plastic, paper, or steel, seek such containers made with recovered materials.

Plastic desktop accessories include desk organizers, desk sorters, desk and letter trays, and memo, note, and pencil holders, as well as other items determined by the procuring agency. They are typically made from polystyrene and are manufactured by injection-molding.

EPA's Recommended Recovered Materials Content Levels for Plastic Desktop Accessories¹		
Product	Material	Post-consumer Content (%)
Plastic Desktop Accessories	Polystyrene	25 - 80

¹EPA's recommendation does not preclude procuring agencies from purchasing a desktop accessory manufactured from another material, such as paper, wood or steel. It simply recommends that, when purchasing plastic desktop accessories, procuring agencies purchase these items made from recovered materials.

Plastic envelopes are used in heavy-duty, security-related, and other specialized mailing applications by the express mail, banking, legal, and other industries. They are lightweight, tear-resistant, durable, water-resistant, and can be manufactured using recovered plastic.

EPA's Recommended Recovered Materials Content Levels for Plastic Envelopes¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Plastic	25	25 - 35

¹EPA's recommendation does not preclude procuring agencies from purchasing envelopes from another material such as paper. It simply requires that a procuring agency, when purchasing plastic envelopes made from plastic, purchase these items made from recovered materials when these items meet applicable specifications and performance requirements.

Plastic trash bags, also called trash can liners, are widely available with recovered material content including HDPE, LDPE, and LLDPE. The amount of recovered materials used in the manufacturing process is affected by the color, size, and thickness of the bag.

EPA's Recommended Recovered Materials Content Levels for Plastic Trash Bags¹		
Product	Material (%)	Post-consumer Content (%)
Plastic Trash Bags	Plastic	10-100
<i>¹EPA's recommendation does not preclude procuring agencies from purchasing a trash bag manufactured using another material, such as paper. It merely recommends that procuring agencies, when purchasing plastic trash bags, purchase items made from recovered materials.</i>		

Toner Cartridges. Toner cartridges are used in laser printers, photocopiers, fax machines, and microphotographic printers. When the toner is replaced, the cartridges can be returned to the manufacturer to be refilled, refurbished, and cleaned for resale.

**EPA's Recommended Recovered Materials Content Ranges
for Toner Cartridges**

EPA recommends that procuring agencies establish procedures and policies that give priority to remanufacturing the agencies' expended toner cartridges. EPA recommends that, under such policies and procedures, agencies procure remanufacturing services for expended cartridges and, when such services are unavailable or not practicable, obtain remanufactured toner cartridges or new toner cartridges made with recovered materials from product vendors.

Vehicular Products

Engine Coolants. Recycled engine coolants, also known as antifreeze, might actually be purer than virgin coolant because the recycling process reduces the chlorides that come from hard water. Testing shows that, like new coolant, recycled coolant meets nationally recognized performance specifications established by the American Society for Testing Materials (ASTM) and the Society of Automotive Engineers (SAE).

**EPA's Recommended Recovered Materials Content Ranges
for Engine Coolants**

- EPA recommends that procuring agencies whose vehicles are serviced by a motor pool or vehicle maintenance facility establish a program for engine coolant reclamation and reuse that consists of either reclaiming the spent engine coolants onsite for use in the agencies' vehicles or establishing a service contract for reclamation of the agencies' spent engine coolant for use in the agencies' vehicles.
- EPA also recommends that procuring agencies request reclaimed engine coolant when having their vehicles serviced at commercial service centers. Additionally, EPA recommends that agencies purchase reclaimed engine coolant when making direct purchases of this item, such as when necessary to make up for losses due to leakage or spillage.
- EPA does not recommend one type of engine coolant over another. EPA recommends, however, that procuring agencies purchase engine coolant containing only one base chemical, typically ethylene glycol or propylene glycol, to prevent the commingling of incompatible types of engine coolant.

Re-refined Lubricating Oils. Re-refined lubricating oils include engine lubrication oil, hydraulic fluids, and gear oils. EPA's designation specifically excludes marine and aviation oils.

**EPA's Recommended Recovered Materials Content Ranges
for Re-refined Lubricating Oils**

EPA recommends that procuring agencies set their minimum re-refined oil content standard at the highest level of re-refined oil that they determine meets the statutory requirements of RCRA section 6002(c)(1), but no lower than 25 percent re-refined oil.

EPA recommends that procuring agencies review their procurement practices and eliminate those which would inhibit or preclude procurement of lubricating oils containing re-refined oil. For example, procuring agencies should review the practices of inviting bids and issuing contracts to do the following:

- Supply a broad range of lubricating oil products on an "all or none" basis.
- Supply lubricating oils for an excessively long period of time.
- Deliver lubricating oils to geographic locations throughout the United States or to an excessively broad geographic area.
- Supply excessively large contract quantities.

Retread Tires. In most situations, retread tires can be driven under the same conditions and at the same speeds as new tires with no loss in safety or comfort. In fact, retread tires have been safely used on school buses, trucks, cars, fire engines, and other emergency vehicles for years. Every year, retreading saves more than 400 million gallons of oil in North America. Retread tires also help divert thousands of scrap tires from disposal each year.

**EPA's Recommended Recovered Materials Content Ranges
for Retread Tires**

EPA recommends that procuring agencies establish preference programs consisting of two components:

- Procurement of tire retreading services for the agencies' used tire casings. EPA recommends that procuring agencies specify that tire repair and retread services must conform to Federal Specification ZZ-T-441H (or current version); obtain retreading services from retreaders participating in the U.S. General Services Administration (GSA) Federal Tire Program's Quality Assurance Facility Inspection Program (QAFIP); and require bidders to submit a copy of their current certification under the QAFIP.
- Procurement of tires through competition between vendors of new tires and vendors of retread tires. 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 Retreaded)," and be listed on Qualified Products List QPL-ZZ-T-381. EPA further recommends that procuring agencies require bidders to submit a copy of their current certification under the QAFIP.

In the event that identical low bids are received in response to a solicitation, all other factors being equal, procuring agencies should provide a preference to the vendor offering to supply the greatest number of retread tires.

Construction Products

Building Insulation. Insulation made from recovered materials is available for thermal insulating applications. The product is available in several forms including rolls, loose-fill, and spray foam. Insulation also can include a range of recovered materials such as glass, slag, paper fiber, and plastics. One manufacturer grinds postconsumer glass bottles into a substitute for the sand used in glass fibers. Others use slag for rock wool or old newspaper for cellulose insulation.

EPA's Recommended Recovered Materials Content Levels for Building Insulation¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Rock Wool - Slag	--	75
Fiberglass - Glass Cullet	--	20-25
Cellulose Loose-Fill and Spray-On - Postconsumer Paper	75	75
Perlite Composite Board - Postconsumer Paper	23	23
Plastic Rigid Foam, Polyisocyanurate/ Polyurethane: Rigid Foam	--	9
Foam-in-Place	--	5
Glass Fiber Reinforced	--	6
Phenolic Rigid Foam	--	5
Plastic, Non-Woven Batt Recovered and/or Postconsumer Plastics	--	100

¹The recommended recovered materials content levels are based on the weight (not volume) of materials in the insulating core only.

Carpet. EPA designated recycled-content polyester carpet for light- and moderate-wear applications. Recycled fiber polyester carpet is manufactured from PET recovered soda bottles.

EPA's Recommended Recovered Materials Content Levels Carpet¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Polyester Carpet Face Fiber PET	25-100	25-100

¹EPA recommends that, based on the recovered materials content levels shown in the table above, procuring agencies establish minimum content standards for use in purchasing polyester carpet for light- and moderate-wear applications. This recommendation does not include polyester carpet for use in heavy-wear or severe-wear applications; however, procuring agencies are encouraged to evaluate the suitability of polyester carpet in these applications. These recommendations do not preclude a procuring agency from purchasing carpet made of other materials such as nylon, wool, or polypropylene.

Carpet Cushion. Also known as carpet underlay, this is padding placed beneath carpet. Carpet cushion improves the insulation properties of carpet, reduces the impact of foot traffic or furniture indentation, enhances comfort, and prolongs appearance. It is available in a variety of thicknesses--the most common being 1/4- and 1/2-inch--and used in both residential and commercial settings. Carpet cushions made from bonded urethane, jute, synthetic fiber, and rubber can be made from recovered materials.

EPA's Recommended Recovered Materials Content Levels Carpet¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Bonded polyurethane - Old carpet cushion	15-50	15-50
Jute - Burlap	40	40
Synthetic fibers - Carpet fabrication scrap	--	100
Tire rubber	60-90	60-90

¹EPA's recommendations do not preclude a procuring agency from purchasing another type of carpet cushion. They simply require that procuring agencies, when purchasing bonded polyurethane, jute, synthetic fiber, or rubber carpet cushions, purchase these items made with recovered materials when these items meet applicable specifications and performance requirement. Refer to Section C-4 in RMAN I (Recovered Materials Advisory Notice I) for EPA's recommendations for purchasing polyester carpet containing recovered materials.

Cement and Concrete. Coal fly ash and ground granulated blast furnace (GGBF) slag are recovered materials that are readily available in some areas for use as ingredients in cement or concrete. Coal fly ash is a byproduct of coal burning at electric utility plants. It is called "fly" ash because it is transported from the combustion chamber by exhaust gases. Slag is a byproduct of iron blast furnaces. The slag is ground into granules finer than Portland cement and can be used as an ingredient in concrete. The level of coal fly ash in concrete typically ranges from 15 to 35 percent of total cementitious material, but can reach 70 percent for use in massive walls, girders, road bases, and dams. The level of GGBF slag usually ranges from 25 to 50 percent.

EPA's Recommended Recovered Materials Content Ranges for Cement and Concrete

EPA's Recovered Materials Advisory Notice recommends that procuring agencies prepare or revise their procurement programs for cement and concrete or for construction projects involving cement and concrete to allow the use of coal fly ash or GGBF slag, as appropriate. EPA does not recommend that procuring agencies favor one recovered material over the other. Rather, EPA recommends that procuring agencies consider the use of both recovered materials and choose the one that meets their performance requirements, consistent with availability and price considerations. EPA also recommends that procuring agencies specifically include provisions in all construction contracts to allow for the use, as optional or alternate materials, of cement or concrete that contains coal fly ash or GGBF slag where appropriate.

Due to variations in coal fly ash, GGBF slag, cement, strength requirements, costs, and construction practices, EPA is not recommending recovered materials content levels for cement or concrete containing coal fly ash or GGBF slag. EPA is, however, providing the following information about recovered materials content:

- Replacement rates of coal fly ash for cement in the production of blended cement generally do not exceed 20 to 30 percent, although coal fly ash blended cements may range from 0 to 40 percent coal fly ash by weight, according to American Society for Testing and Materials (ASTM) C 595, for cement Types IP and I(PM). Fifteen percent is a more accepted rate when coal fly ash is used as a partial cement replacement as an admixture in concrete.
- According to ASTM C 595, GGBF slag can replace up to 70 percent of the Portland cement in some concrete mixtures. Most GGBF slag concrete mixtures contain between 25 and 50 percent GGBF slag by weight. EPA recommends that procuring agencies refer, at a minimum, to ASTM C 595 for the GGBF slag content appropriate for the intended use of the cement and concrete.

Reprocessed and Consolidated Paints. Reprocessed paint is postconsumer latex paint that has been sorted by a variety of characteristics including type (i.e., interior or exterior), light and dark colors, and finish (e.g., high-gloss versus flat). Reprocessed paint is available in various colors and is suitable for both interior and exterior applications. Consolidated paint consists of postconsumer latex paint with similar characteristics (e.g., type, color family, and finish) that is consolidated at the point of collection. Consolidated paint is typically used for exterior applications or as an undercoat.

EPA's Recommended Recovered Materials Content Levels for Reprocessed and Consolidated Paints¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Reprocessed Latex Paint White, Off-White, Pastel Colors Grey, Brown, Earthtones, and Other Dark Colors	20 50-99	20 50-99
Consolidated Latex Paint	100	100

¹EPA's recommendations apply to reprocessed latex paints used for interior and exterior architectural applications such as wallboard, ceilings, and trim; gutter boards; and concrete, stucco, masonry, wood, and metal surfaces, and to consolidated latex paints used for covering graffiti, where color and consistency of performance are not primary concerns.

EPA's recommendation does not preclude agencies from purchasing paints manufactured from other, non-latex materials, such as oil-based paints. It simply recommends that procuring agencies, when purchasing latex paints, purchase these items made from postconsumer recovered materials when these items meet applicable specifications and performance requirements.

Floor Tiles and Patio Blocks. Floor tiles for heavy duty or commercial specialty applications can contain up to 100 percent postconsumer rubber. They are made from used truck and airline tires. Floor tiles containing 90 to 100 percent recovered plastic are also readily available. Patio blocks made from 90 to 100 percent recovered plastic and 90 to 100 percent postconsumer rubber are used in garden walkways and trails.

EPA's Recommended Recovered Materials Content Levels for Floor Tiles and Patio Blocks^{1, 2}		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Patio Blocks - Rubber or Rubber Blend - Plastic or Plastic Blends	90-100 --	-- 90-100
Floor Tiles (heavy duty/commercial use) - Rubber - Plastic	90-100 --	-- 90-100

¹The recommended recovered materials content levels are based on the dry weight of the raw materials, exclusive of any additives such as adhesives, binders, or coloring agents. EPA's recommendation does not preclude procuring agencies from purchasing floor tiles or patio blocks manufactured from another material. It simply recommends that procuring agencies, when purchasing floor tiles or patio blocks made from rubber or plastic, purchase these items made from recovered materials. Recommendations for floor tiles are limited to heavy-duty/commercial-type applications only.

²EPA clarified in the Federal Register (FR) at 62 FR 60995, November 13, 1997, that the use of floor tiles with recovered materials content might be appropriate only for specialty purpose uses (e.g., raised, open-web tiles for drainage on school kitchen flooring). Such specialty purpose uses involve limited flooring areas where grease, tar, snow, ice, wetness or similar substances or conditions are likely to be present. Thus, EPA has no recovered materials content level recommendations for floor tiles made with recovered materials for standard office or more general purpose uses.

Flowable Fill. Flowable fill is commonly used as an economical fill or backfill in road construction. It is usually a mixture of coal fly ash, water, a coarse aggregate (such as sand), and portland cement. Flowable fill can take the place of concrete, compacted soils, or sand commonly used to fill around pipes or void areas. Other applications include filling in bridge abutments, foundation subbases, or abandoned man holes and wells.

EPA recommends that procuring agencies use flowable fill containing coal fly ash and/or ferrous foundry sands for backfill and other fill applications. Specific content levels will depend on the specifics of the job, including the type of coal fly ash (Class C or Class F) or foundry sand used, strength, set time, flowability needed, bleeding, and shrinkage. For typical proportions for high and low coal fly ash content mixtures, see the following table.

Component	Quantity per Cubic Yard
Cement	50 lbs.
Coal fly ash	250 lbs.
Foundry sand	2,850 lbs.
Water	500 lbs.

Structured Fiberboard and Laminated Fiberboard. Flowable Structural fiberboard is a panel made from wood, cane, or paper fibers matted together which is used for sheathing, structural, and insulating purposes. Laminated paperboard is made from one or more plies of kraft paper bonded together and is used for decorative, structural, or insulating purposes. Examples of

these products include building board, insulating formboard, sheathing, and acoustical and non-acoustical ceiling tile.

EPA's Recommended Recovered Materials Content Levels for Reprocessed and Consolidated Paints¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Structural Fiberboard	--	80-100
Laminated Paperboard - Postconsumer Paper	100	100

¹The recovered materials content levels are based on the weight (not volume) of materials in the insulating core only.

Railroad Grade and Crossing Surfaces. Railroad grade crossings are surfacing materials placed between railroad tracks, and between the track and the road at highway and street railroad crossings. Railroad grade crossings are made from recovered rubber, concrete containing coal fly ash, or steel.

EPA's Recommended Recovered Materials Content Levels for Railroad Grade and Crossing Surfaces¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Concrete - Old coal fly	--	15-20
Rubber ² - Tire rubber	--	85-95
Steel ³	16 67	25-30 100

¹EPA's recommendations do not preclude a procuring agency from purchasing another type of railroad grade crossing surface, such as wood or asphalt. They simply require that procuring agencies, when purchasing concrete, rubber, or steel railroad grade crossing surfaces, purchase these items made with recovered materials when these items meet applicable specifications and performance requirements. However, EPA recommends that procuring agencies consider using concrete, rubber, or steel grade crossing surfaces.

²The recommended recovered materials content for rubber railroad grade crossing surfaces are based on the weight of the raw materials, exclusive of any additives such as binders or adhesives.

³The recommended recovered materials content levels for steel in this table reflect the fact that the designated items can be made from steel manufactured in either a Basic Oxygen Furnace (BOF) or an Electric Arc Furnace (EAF). Steel from the BOF process contains 25-30% total recovered materials, of which 16% is postconsumer steel. Steel from the EAF process contains a total of 100% recovered steel, of which 67% is postconsumer.

Shower and Restroom Dividers/Partitions. Made of 20 to 100 percent recovered plastic or steel. They are used to separate individual shower, toilet, and urinal compartments. EPA's designation specifically covers shower and restroom dividers/partitions containing recovered plastic or steel.

Shower and Restroom Dividers/Partitions. Made of 20 to 100 percent recovered plastic or steel. They are used to separate individual shower, toilet, and urinal compartments. EPA's designation specifically covers shower and restroom dividers/partitions containing recovered plastic or steel.

EPA's Recommended Recovered Materials Content Levels for Shower and Restroom Dividers/Partitions ¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Steel ²	16 67	25-30 100
Plastic	20-100	20-100

¹EPA's recommendations do not preclude an agency from purchasing shower and restroom dividers/partitions manufactured from another material such as wood. they simply require that procuring agencies, when purchasing shower and restroom dividers/partitions made from plastic or steel, purchase these items made from recovered materials when they meet applicable specifications and performance requirements.

²The recommended recovered materials content levels for steel in this table reflect the fact that the designated items can be made from steel manufactured in either a Basic Oxygen Furnace (BOF) or an Electric Arc Furnace (EAF). Steel from the BOF process contains 25-30% total recovered materials, of which 16% is postconsumer steel. Steel from the EAF process contains a total of 100% recovered steel, of which 67% is postconsumer.

Landscaping Products

Garden and Soaker Hoses. A garden hose conducts water through its tubing to a specific location using a nozzle, while a soaker hose is perforated tubing that gently irrigates gardens or planted areas. EPA's designation specifically covers garden and soaker hoses containing recovered plastic or rubber.

EPA's Recommended Recovered Materials Content Levels for Garden and Soaker Hoses	
Material	Postconsumer Content (%)
Garden Hose - Rubber and/or Plastic	60-65
Soaker Hose - Rubber and/or Plastic	60-70

Hydraulic Mulch. Comprised of small pieces of cellulose fibers, which can be made completely from wood waste or recovered paper. It stabilizes soil, prevents wind and water erosion, and provides protection and warmth for seeds, helping them grow.

EPA's Recommended Recovered Materials Content Levels for Hydraulic Mulch ¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Paper-Based Hydraulic Mulch - Paper	100	100
Wood-Based Hydraulic Mulch - Wood and Paper	--	100

¹The recommended recovered materials content levels are based on the dry weight of the fiber, exclusive of any dyes, wetting agents, seeds, fertilizer, or other non-cellulose additives.

Plastic Lumber Landscaping Timbers and Posts. Landscaping timbers and posts are used as raised beds, retaining walls, and terracing. Timbers and posts can be manufactured with plastic or composite (plastic mixed with wood or fiberglass) lumber.

EPA's Recommended Recovered Materials Content Levels for Plastic Lumber Landscaping Timbers and Posts¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
HDPE	25-100	75-100
Mixed plastics/Sawdust	50	100
HDPE/Fiberglass	75	95
Other mixed resins	50-100	95-100
<i>¹EPA's recommendations do not preclude a procuring agency from purchasing wooden landscaping timbers and posts. They simply require that procuring agencies, when purchasing plastic landscaping timbers and posts, purchase these items made with recovered materials when the items meet applicable specifications and performance requirements.</i>		

Lawn and Garden Edging. Lawn and garden edging creates a barrier between lawns and landscaped areas or garden beds. Lawn and garden edging can be manufactured with scrap rubber, milk jugs, and other plastic containers. EPA's designation specifically covers lawn and garden edging containing recovered plastic or rubber.

EPA's Recommended Recovered Materials Content Levels for Lawn and Garden Edging¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Plastic and/or Rubber	30-100	30-100
<i>¹EPA's recommendation does not preclude a procuring agency from purchasing lawn and garden edging manufactured from another material such as wood. It simply requires that a procuring agency, when purchasing lawn and garden edging made from plastic and/or rubber, purchase these items made with recovered materials when these items meet applicable specifications and performance requirements.</i>		

Compost made from Yard Trimmings and/or Food Waste. Yard trimmings compost utilizes organic waste from lawns and gardens--grass, leaves, and twigs--to create an effective soil amendment. Food waste compost uses food waste such as fruit and vegetable trimmings and kitchen preparation residuals. Together, yard and food wastes comprise nearly 22 percent of municipal solid waste.

EPA's Recommended Recovered Materials Content Ranges for Compost

EPA's Recovered Materials Advisory Notice recommends that procuring agencies purchase or use compost made from yard trimmings, leaves, grass clippings, and/or food wastes in such applications as landscaping, seeding of grasses or other plants on roadsides and embankments, as nutritious mulch under trees and shrubs, and in erosion control and soil reclamation.

EPA further recommends that those procuring agencies that have an adequate volume of yard trimmings, leaves, grass clippings, and/or food wastes, as well as sufficient space for composting, should implement a composting system to produce compost from these materials to meet their landscaping and other needs.

Miscellaneous Products

Awards and Plaques. Recovered-content awards are generally made from blown glass while plaques can be made with a variety of recovered materials including wood, paper, plastic, and plastic/wood composites.

EPA's Recommended Recovered Materials Content Levels for Awards and Plaques¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Glass	75-100	100
Wood	--	100
Paper	40-100	40-100
Plastic and Plastic/Wood Composite	50-100	95-100

¹EPA's recommendations do not preclude a procuring agency from purchasing awards and plaques manufactured from other materials. They simply require that a procuring agency, when purchasing glass, wood, paper, or plastic awards or plaques, purchase these items containing recovered materials when the item meets applicable specifications and performance requirements.

Industrial Steel, Plastic and Fiber Drums. Steel, plastic, and pressed fiberboard drums can be manufactured with recovered steel, HDPE, and paperboard, respectively.

EPA's Recommended Recovered Materials Content Levels for Industrial Steel, Plastic and Fiber Drums¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Steel drums - Steel ²	16	25-30
Plastic drums - HDPE	30-100	30-100
Fiber drums - Paper	100	100

¹EPA's recommendations do not preclude a procuring agency from purchasing another type of industrial drum. They require that a procuring agency, when purchasing industrial drums made from steel, plastic, or fiber, purchase these items made with recovered materials when they meet applicable specifications and performance requirements.

²The recommended recovered materials content levels for steel in this table reflect the fact that the designated items are made from steel manufactured in a Basic Oxygen Furnace (BOF). Steel from the BOF process contains 25-30% total recovered materials, of which 16% is postconsumer steel.

Mats. Temporary or semipermanent protective floor coverings used for numerous applications including protecting carpet from wear and tear or providing traction on stairs or slippery floors.

EPA's Recommended Recovered Materials Content Levels for Mats¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Rubber	75-100	85-100
Plastic	10-100	100
Rubber/Plastic composite	100	100

¹EPA's recommendations do not preclude a procuring agency from purchasing mats made from other materials. They simply require that procuring agencies, when purchasing mats made from rubber and/or plastic purchase them made with recovered materials when these items meet applicable specifications and performance requirements.

Pallets. Rigid platforms made of wood, plastic, or paperboard used for shipping a variety of products including food, paper, and military supplies. Wooden pallets can be repaired or rebuilt with wood from old pallets. Plastic and corrugated pallets can be manufactured from recovered materials.

EPA's Recommended Recovered Materials Content Levels for Pallets¹	
Material	Postconsumer Content (%)
Wooden Pallets - Wood	95-100
Plastic pallets - Plastic lumber; Plastic content - Thermoformed; Plastic content	100 25-50
Paperboard pallets - Paperboard	50

¹EPA's recommendation does not preclude a procuring agency from purchasing pallets manufactured from another material. It simply requires that a procuring agency, when purchasing pallets made from wood, plastic, or paperboard, purchase these items made with recovered materials when these items meet applicable specifications and performance requirements.

Signage. EPA's designation pertains to plastic signs used for nonroad applications (e.g., building signs, trail signs) and to aluminum roadway and nonroadway signs. The designation also covers any associated plastic or steel supports.

EPA's Recommended Recovered Materials Content Levels for Signage¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Plastic signs ²	80-100	80-100
Aluminum signs	25	25
Plastic sign posts/supports ²	80-100	80-100
Steel sign posts/supports ³	16 67	25-30 100

¹EPA's recommendations do not preclude a procuring agency from purchasing signs or sign posts made from other materials. They simply require that a procuring agency, when purchasing signs made from plastic or aluminum or sign posts made from plastic or steel, purchase them made with recovered materials when these items meet applicable specifications and performance requirements.

²Plastic signs and sign posts are recommended for nonroad applications only, such as, but not limited to, trailway signs in parks and directional/informational signs in buildings.

³The recommended recovered materials content levels for steel in this table reflect the fact that the designated items can be made from steel manufactured in either a Basic Oxygen Furnace (BOF) or an Electric Arc Furnace (EAF). Steel from the BOF process contains 25-30% total recovered materials, of which 16% is postconsumer steel. Steel from the EAF process contains a total of 100% recovered steel, of which 67% is postconsumer.

Sorbents. EPA's designation covers sorbents containing recovered materials for use in oil and solvent clean-ups and for use as animal bedding, although recycled-content sorbents can be used in other applications.

EPA's Recommended Recovered Materials Content Levels for Sorbents Used in Oil and Solvents Cleanups and for Use as Animal Bedding¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Paper	90-100	100
Textiles	95-100	95-100
Plastics	--	25-100
Wood ²	--	100
Other Organics/Multi-Materials ³	--	100

¹EPA's recommendations do not preclude a procuring agency from purchasing sorbents made from other materials. They simply require that a procuring agency, when purchasing sorbents made from paper, wood, textiles, plastic, or other organic materials, purchase them made with recovered materials when these items meet applicable specifications and performance requirements.

²"Wood" includes materials such as sawdust and lumber mill trimmings.

³Examples of other organics include, but are not limited to, peanut hulls and corn stover. An example of multimaterial sorbents would include, but not be limited to, a polymer and cellulose fiber combination.

Manual Grade Strapping. Used in transport packaging to hold products in place on pallets or in other methods of commercial, bulk shipment to prevent tampering and pilferage during

shipping. EPA's designation is limited to manual-grade strapping products that are made from recovered PP (polypropylene), PET (Polyethylene Terephthalate), and steel.

EPA's Recommended Recovered Materials Content Levels for Manual Grade Polyester, Polypropylene, and Steel Strapping¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Polyester strapping - PET (Polyethylene Terephthalate)	50-80	50-85
Polypropylene strapping - Polypropylene	40	10-40
Steel strapping ² - Steel	16 67	25-30 100

¹EPA's recommendations do not preclude a procuring agency from purchasing another type of strapping, such as nylon. They simply require that a procuring agency, when purchasing polyester, polypropylene, or steel manual-grade strapping, purchase these items made with recovered materials when they meet applicable specifications and performance requirements.

²The recommended recovered materials content levels for steel in this table reflect the fact that the designated item can be made from steel manufactured in either a Basic Oxygen Furnace (BOF) or an Electric Arc Furnace (EAF). Steel from the BOF process contains 25-30% total recovered materials, of which 16% is postconsumer steel. Steel from the EAF process contains a total of 100% recovered steel, of which 67% is postconsumer.

Park and Recreation Products

Park Benches and Picnic Tables. Recycled milk jugs and aluminum and steel cans can be used to manufacture these items.

EPA's Recommended Recovered Materials Content Levels for Park Benches and Picnic Tables¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Plastics ²	90-100	100
Plastic composites	50-100	100
Aluminum	25	25
Concrete	--	15-40
Steel ³	16 67	25-30 100

¹EPA's recommendations do not preclude a procuring agent from purchasing park benches and picnic tables made from other materials. They simply require that procuring agencies, when purchasing park benches or picnic tables made from plastic, aluminum, concrete, or steel, purchase these items made from recovered materials when these items meet applicable specifications and performance requirements.

²"Plastics" includes both single and mixed plastic resins. Park benches and picnic tables made with recovered plastics may also contain other recovered materials such as sawdust, wood, or fiberglass. The percentage of these materials contained in the product would also count toward the recovered materials content level of the item.

³The recommended recovered materials content levels for steel in this table reflect the fact that the designated items can be made from steel manufactured in either a Basic Oxygen Furnace (BOF) or an Electric Arc Furnace (EAF). Steel from the BOF process contains 25-30% total recovered materials, of which 16% is postconsumer steel. Steel from the EAF process contains a total of 100% recovered steel, of which 67% is postconsumer.

Plastic Fencing. Can be used to control drifting snow and sand and as a warning or safety barrier at construction sites. EPA's designation specifically covers plastic fencing containing recovered plastic.

EPA's Recommended Recovered Materials Content Levels for Plastic Fencing^{1, 2}		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Plastic	60-100	90-100
<p>¹EPA's recommendation does not preclude a procuring agency from purchasing fencing manufactured from another material, such as wood. It simply requires that a procuring agency, when purchasing plastic fencing, purchase this item made with recovered materials when this item meets applicable specifications and performance requirements.</p> <p>²Designation includes fencing containing recovered plastic for use in controlling snow or sand drifting and as a warning/safety barrier in construction or other applications.</p>		

Playground Equipment. Slides, swings, climbing equipment, merry-go-rounds, and seesaws are all different types of playground equipment. These items can be made with recovered wood, steel, aluminum, HDPE (High density polyethylene), LDPE (Low density polyethylene), LLDPE (Linear low density polyethylene), and PP (polypropylene).

EPA's Recommended Recovered Materials Content Levels for Playground Equipment¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Plastics ²	90-100	100
Plastic composites	50-75	95-100
Steel ³	16	25-30
	67	100
Aluminum	25	25
<p>¹EPA's recommendations do not preclude a procuring agency from purchasing playground equipment manufactured from other materials. They simply require that a procuring agency, when purchasing playground equipment made from plastic, steel, wood, or aluminum, purchase these items with recovered materials when those items meet applicable specifications and performance requirements.</p> <p>²"Plastics" includes both single and mixed plastic resins. Playground equipment made with recovered plastics may also contain other recovered materials such as wood or fiberglass. The percentage of these materials contained in the product would also count toward the recovered materials content level of the item.</p> <p>³The recommended recovered materials content levels for steel in this table reflect the fact that the designated items can be made from steel manufactured in either a Basic Oxygen Furnace (BOF) or an Electric Arc Furnace (EAF). Steel from the BOF process contains 25-30% total recovered materials, of which 16% is postconsumer steel. Steel from the EAF process contains a total of 100% recovered steel, of which 67% is postconsumer.</p>		

Playground Surfaces. Playground surfaces can contain recovered rubber and PVC materials that are often more desirable than wood chips, sand, or asphalt, because they can provide more cushioning and thereby may be safer for children.

EPA's Recommended Recovered Materials Content Levels for Playground Surfaces^{1,2}	
Material	Postconsumer Content (%)
Rubber or Plastic	90-100
<p>¹EPA's recommendation does not preclude procuring agencies from purchasing playground surfaces manufactured from another material. It simply recommends that procuring agencies, when purchasing playground surfaces made from rubber or plastic, purchase these items made from recovered materials.</p> <p>²The recommended recovered materials content levels are based on the dry weight of the raw materials, exclusive of any additives such as adhesives, binders, or coloring agents.</p>	

Running Tracks. Running tracks can contain both recovered rubber and plastic.

EPA's Recommended Recovered Materials Content Levels for Running Tracks^{1,2}	
Material	Postconsumer Content (%)
Rubber or Plastic	90-100
<p>¹EPA's recommendation does not preclude procuring agencies from purchasing running tracks manufactured from another material. It simply recommends that procuring agencies, when purchasing running tracks made from rubber or plastic, purchase these items made from recovered materials.</p> <p>²The recommended recovered materials content levels are based on the dry weight of the raw materials, exclusive of any additives such as adhesives, binders, or coloring agents.</p>	

Transportation Products

Channelizers and Delineators

Channelizers: Barrels or drums that direct traffic around areas of road repair or construction. Channelizers are designed and colored to be highly visible and can be constructed from recovered HDPE and rubber. The bases of the drums are weighted to provide stability and are often made from used tires.

Delineators: Delineators are temporary pavement markers that come in many shapes, sizes, and designs. They are manufactured primarily from recovered and postconsumer HDPE. Delineator bases are either steel stakes that can be driven into the ground or rubber to support the delineator on the road surface. Flexible Delineators: These products come in the form of stakes and are driven into the ground. The product is flexible enough so that vehicles can strike them without causing damage to the vehicle or delineator. They are used at golf courses, airports, military bases, shopping centers, and recreation areas. EPA's designation specifically covers channelizers, delineators, and flexible delineators containing recovered plastic, rubber, or steel.

EPA's Recommended Recovered Materials Content Levels for Channelizers and Delineators¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Channelizers		
- Plastic	25-95	25-95
- Rubber ² (base only)	100	100
Delineators		
- Plastic	25-90	25-90
- Rubber (base only)	100	100
- Steel ³ (base only)	16	25-30
	67	100
Flexible Delineators		
- Plastic	25-85	25-85

¹EPA's recommendation does not preclude a procuring agency from purchasing channelizers, delineators, or flexible delineators manufactured from another material. It simply requires that a procuring agency, when purchasing these items made from rubber, plastic, or steel, purchase them made with recovered materials when these items meet applicable specifications and performance requirements.

²Content levels are based on the dry weight of the raw materials, exclusive of any additives such as adhesives, binders, or coloring agents.

³The recommended recovered materials content levels for steel in this table reflect the fact that the designated items can be made from steel manufactured in either a Basic Oxygen Furnace (BOF) or an Electric Arc Furnace (EAF). Steel from the BOF process contains 25-30% total recovered materials, of which 16% is postconsumer steel. Steel from the EAF process contains a total of 100% recovered steel, of which 67% is postconsumer.

Parking Stops. Used to mark spaces and keep vehicles from rolling beyond a designated parking area. EPA's designation specifically covers parking stops made from concrete or containing recovered plastic or rubber.

EPA's Recommended Recovered Materials Content Levels for Parking Stops^{1,2}		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Plastic and/or rubber ³	100	--
Concrete Containing Coal Fly Ash	--	20-40 ⁴
Concrete Containing Ground Granulated Blast Furnace Slag (GGBF)	--	25-70

¹EPA's recommendation does not preclude a procuring agency from purchasing parking stops manufactured from another material. It simply requires that a procuring agency, when purchasing concrete parking stops or parking stops made with plastic or rubber, purchase these items made with recovered materials when these items meet applicable specifications and performance requirements.

²Transportation products containing recovered materials must conform to the Manual on Uniform Highway Traffic Control Devices used by the Federal Highway Administration, as well as other applicable federal requirements and specifications.

³Parking stops made with recovered plastics may also include other recovered materials such as sawdust, wood, or fiberglass. The percentage of these materials contained in the product would also count toward the recovered materials content level of the parking stops.

⁴Generally, 20 to 30 percent, but could be up to 40 percent. Fifteen percent when used as a partial cement replacement as an admixture in concrete.

Traffic Barricades can be used to redirect or restrict traffic in areas of highway construction or repair. They are typically made from wood, steel, plastic, fiberglass, or a combination of these materials. EPA's designation covers only Types I and II traffic barricades.

EPA's Recommended Recovered Materials Content Levels for Traffic Barricades (Type I and II only)^{1,2}		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Plastic (HDPE, LDPE, PET)	80-100	100
Steel ³	16 67	25-30 100
Fiberglass	--	100

¹The recommended recovered materials content levels are based on the dry weight of the raw materials, exclusive of any additives such as adhesives, binders, or coloring agents.

²Transportation products containing recovered materials must conform to the Manual on Uniform Highway Traffic Control Devices used by the Federal Highway Administration, as well as other applicable federal requirements and specifications.

³The recommended recovered materials content levels for steel in this table reflect the fact that the designated items can be made from steel manufactured in either a Basic Oxygen Furnace (BOF) or an Electric Arc Furnace (EAF). Steel from the BOF process contains 25-30% total recovered materials, of which 16% is postconsumer steel. Steel from the EAF process contains a total of 100% recovered steel, of which 67% is postconsumer.

Traffic Cones. Used to mark a road hazard or to direct traffic. Recovered plastics are used in the upper component of the cones, and crumb rubber and/or plastics are used in the base.

EPA's Recommended Recovered Materials Content Levels for Traffic Cones¹		
Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Plastic (PVC and LDPE)	--	50-100
Crumb rubber	--	50-100

¹Transportation products containing recovered materials must conform to the Manual on Uniform Traffic Devices used by the Federal Highway Administration, as well as other applicable federal requirements and specifications.
²The recommended recovered materials content levels are based on the dry weight of the raw materials, exclusive of any additives such as adhesives, binders, or coloring agents.

2.14.5 Appendix E: Ames Pollution Prevention Award Nomination

AMES HAZARDOUS WASTE MINIMIZATION

Award Program

Purpose: The award program provides an incentive for employees to prevent pollution and minimize environmental impacts associated with their daily operations and activities at Ames. Individuals or groups responsible for implementing a project, activity, or technology that contributes significantly to preventing pollution can receive an award as recognition for their efforts.

Criteria: An eligible contribution must produce a quantifiable change in the amount of pollution prevented, costs saved, or environmental impacts minimized (e.g., pounds of waste reduced, air emissions reduced, operational/compliance costs avoided, amount of recycled materials used, resources conserved, etc.).

Eligibility: All employees including civil servants and on-site support service contractors.

Award: Each award recipient will be presented with a certificate and cash honorarium. Contractor employees will receive an appropriate memento in lieu of the cash honorarium. Award amounts will be directly related to the savings achieved through implementing the waste minimization opportunity. The award may be distributed to more than one winner in a given year depending on the level of savings demonstrated and the number of nominations received.

Procedure: Code QE will make a minimum of one nomination call per year for recipients of the Ames P2 Award. Written nominations must include:

1. A description of the P2 activity, project, or technology.
2. Information detailing the results/benefits achieved by implementing the project such as the amount of waste reduced, amount of toxic chemical usage reduced, quantity of recycled materials purchased, costs saved, releases to the environment reduced, etc.
3. The net or potential savings to be realized by the Center as a result of the activity and/or project.
4. Complete nominations must be submitted to the P2 Program at **REDACTED** for review.

Ames Pollution Prevention Award Nomination Form
 Print or Type

Name of Nominee (Last, First, MI):	Organization or Company/Institution (if contractor include mailing address):
Position Title:	Telephone (include area code):
Description of Pollution Prevention Activity/Project	
Description of the Benefit Achieved (i.e. describe waste reduced, emissions reduced, resources conserved, etc.) Give specific details.	
Quantify Results and Associated Cost Savings (if any)	
Pay-back Period (If applicable.) This is the amount of time required to receive back funds invested through savings achieved. Show calculations. Attach additional pages if necessary.	
<i>Note:</i> A copy of the nomination will be given to the nominee	
Name of nominator (please print or type):	
Signature:	
Extension:	Org. code:
Nomination deadline: <u>May 1 each year.</u> Late nominations will not be accepted	Questions? Call extension REDACTED Return to: P2 Program,

2.14.9 Appendix I: List of Ozone Depleting Substances

REDACTED

2.14.10 Appendix J: NASA Policy on Use of Chlorofluorocarbon and Halon Compounds

REDACTED

2.14.11 Appendix K: Request for Waiver

REQUEST FOR WAIVER

Section 1. To Be Completed By Request Originator

1. Indicate the EPA designated items intended for purchase that do not meet minimum recycled and/or recovered materials content requirements.

2. Items were not obtained because:

- Use of minimum content standards would result in inadequate competition.
- Products meeting EPA guidelines are only available at an unreasonable price.
- Products meeting EPA guidelines do not meet quality/performance specifications or standards.
- Products meeting EPA guidelines are not available within a reasonable time frame.

3. Written Justification and Supporting Documentation For Not Procuring Designated Items Containing Recovered Material:

Request Originator Signature

Extension

Date

Mail to: Environmental Services Office, P2 Program, REDACTED

Section 2. To Be Completed By Environmental Services Office

Approval by Environmental Services Office

Extension

Date

2.14.12 Persistent Bioaccumulative Toxic (PBT) Chemicals

REDACTED

END OF DOCUMENT