

NEWMOA FACT SHEET

COMPREHENSIVE PROCUREMENT GUIDELINE (CPG) PROGRAM

January 18, 2002

The Comprehensive Procurement Guideline (CPG) program is intended to promote the use of materials recovered from solid waste. It was authorized by Congress under Section 6002 of the Resource Conservation and Recovery Act (RCRA). The United State Environmental Protection Agency (EPA) is required to designate products that are or can be made with recovered materials (waste materials and byproducts which have been recovered or diverted from solid waste). Once a product has been designated, procuring agencies are then required to purchase it with the highest recovered material content levels practicable. **This requirement applies to any federal agency, state agency, or political subdivision of state that uses federal funds for procurement.** In 1995, the first of three CPGs was put into effect with 19 products on the list. In November 1997, 12 more products were added with CPG II, and in January 2000, CPG III added 18 more. Another 11 items were proposed for inclusion in August 2001 and should be officially added by June of 2002.

Extensive information about the CPG program is available on the Internet at www.epa.gov/cpg.

Potential manufacturers and users of materials made from materials recovered from solid waste should be aware that even though a particular waste/use combination is listed in the CPG, state and/or local regulations and requirements could apply. For example, potential manufacturers and/or users of products listed in the CPG might need to apply to the state for approval. Potential manufacturers and users should contact the appropriate state regulatory program to identify specific manufacturing and/or use conditions, and permit requirements. A listing of state contacts is located in a table at the end of this fact sheet.

How are products selected and evaluated in the CPG Program?

A broad list of potential products made from recovered materials is developed from publicly available information. Individual products are then evaluated with the following factors in mind:

- availability of the item containing recovered material and an adequate level of competition among manufacturers
- potential impact of procurement on the solid waste stream
- economic/technological feasibility and performance of the item
- other uses of recovered materials used to produce an item

The EPA determines a Total Recovered Materials Content (TRMC) for each of the designated products listed under the CPG. EPA also issues guidance on buying recycled-content products in Recovered Material Advisory Notices (RMANs). The RMANs recommend recycled-content ranges for CPG products based on current information on commercially available recycled-content products. RMAN levels are updated as marketplace conditions change.

How does a company get its product added to the EPA List of Manufacturers, Suppliers, and Vendors?

Companies that produce a designated item with recovered material content within the ranges recommended by the EPA in its Recovered Material Advisory Notices (RMANs) should send a letter to:

Terry Grist
US EPA Office of Solid Waste
410 M. St. SW (Mail Code 5309W)
Washington, DC 20460

The letter should include all publicly available information that substantiates recovered material content of that product.

Who is required to buy recycled content products?

The CPG Program applies to any procuring agency that spends federal funds of more than \$10,000 per year on a product type that is listed in the CPG (provided that the given product type has been approved for use in that particular state by the appropriate state regulatory program, as discussed previously). Agencies may elect not to purchase the designated items when: the cost is unreasonable, inadequate competition exists, items are not available within a reasonable period of time, or items do not meet the agency's reasonable performance specifications. As part of the affirmative procurement program, it is the responsibility of the procuring agency to obtain estimates and certifications of recovered materials content and then to reasonably verify these estimates.

How is the CPG Program enforced?

RCRA does not authorize the EPA (or any federal agency) to enforce provisions of Section 6002 and the guidelines, BUT:

- Section 403 of Executive Order 13101 requires the EPA to include an evaluation of compliance with RCRA 6002 when conducting federal facility inspections.
- the Office of Federal Environmental Executive oversees all of the Executive Order requirements (including compliance with the CPG).

PRODUCTS MADE FROM WASTES

There are 8 product categories that are either already designated or proposed to be designated in the Comprehensive Procurement Guideline Program. They are: Construction Products, Landscaping Products, Non-Paper Office Products, Paper & Paper Products, Park & Recreational Products, Transportation Products, Vehicular Products, and Miscellaneous Products. The CPG groups the recovered material by the product use category (i.e., Construction). However, this fact sheet is organized by the type of waste the products are made from (i.e., coal fly ash) and outlines the various

CPG products (i.e., flowable fill and cement) that contain it. This fact sheet only contains information regarding wastes produced by industrial sources – wastes from consumer and commercial sources (such as plastic bottles and carpet) are not included.

1 - COAL FLY ASH

Coal fly ash is a by-product of coal-burning at electric utility plants that is transported from the combustion chamber by exhaust gases. Approximately 70% to 75% of the total coal fly ash being produced is being disposed of in landfills even though the majority of it is capable of being recycled and used. In 1996, an estimated 16.2 million tons of fly ash were recovered and used, and of this amount, 13.3 million tons were recovered and used in construction-related applications. One of the components of coal fly ash is also proposed for listing in the CPG, cenospheres (proposed August 2001).

Cenospheres are very small (10-350 microns), inert, lightweight, hollow, “glass” spheres composed of silica and alumina and filled with air or other gases. Cenospheres cannot be manufactured, their only source is recovery from coal fly ash. There are two uses of coal fly ash listed in the CPG: cement and flowable fill; and one use of cenospheres: high-performance concrete. These products are described below.

Flowable Fill

Flowable fill is a mixture of coal fly ash, water, a coarse aggregate (usually sand), and portland cement typically used as an economical fill or back fill in road construction. 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.

Coal fly ash has been used in flowable fill as a fine aggregate and supplement to or replacement for the cement. Either pozzolanic or self-cementing fly ash can be used in flowable fill and when large quantities are added, then the fly ash can act as both the fine aggregate and part of the cementitious matrix.

The quality of fly ash used in flowable fill does not need to be as strictly controlled as use in other cementitious applications and therefore no TRMC is specified in the CPG. More information on the use of coal fly ash as flowable fill can be obtained from the NEWMOA fact sheet, available at www.newmoa.org/solidwaste.

Cement

Coal fly ash may be used in the process of making Portland cement. EPA recommends that the coal fly ash percentage in blended cement should not exceed 30%, but may range from 0%-40% depending on the weight for cement types IP & I(PM) (according to the American Society for Testing & Materials, ASTM). However, 15% is a more accepted rate when coal fly ash is used as a partial cement replacement as an admixture in concrete.

Concrete containing cenospheres (proposed August 2001) is a high performance concrete that can be used in a construction applications, including, but not limited to: roads, bridges, buildings, docks, and dams; and in specialty cements, mortars, grouts, and stucco. Cenospheres are used as a filler or

extender in place of traditional fillers. The cenosphere content in concrete recommended in the CPG is 10-15% by weight. ASTM C-618 covers concrete additives and can be used to develop specifications for procurement.

2 - SLAG (GROUND GRANULATED BLAST FURNACE SLAG)

Ground granulated blast furnace (GGBF) slag is the result of the production of iron from iron ore, iron scrap, and fluxes (limestone/dolomite) charged into a blast furnace with coke for fuel. The coke is combusted to produce carbon monoxide which then reduces the iron ore to a molten iron product. GGBF slag is a granular material formed when the molten iron blast furnace slag is rapidly chilled by immersion in water.

Concrete

GGBF slag has proven to be technologically and economically feasible to process into an additive for cement and concrete. GGBF is added to concrete before or during the mixing process to improve plastic/hardening properties of Portland cement concrete. In some concrete mixtures, GGBF can replace up to 75% of Portland cement on a pound for pound basis. However, most mixtures of cement contain a TRMC of 25%-50% from GGBF slag. It can also be compatibly used with coal fly ash and other cementitious and pozzolanic materials when used in concrete.

The CPG does not recommend one material (coal fly ash vs. GGBF slag) over the other and leaves it to the discretion of the company to choose which material they prefer to use based on such factors as performance requirements, product availability, competition, and product price.

Building Insulation

Building insulation can be made in several forms (rolls, loose fill, spray foam) and is produced from recovered materials such as slag, glass, paper fibers, and postconsumer plastics. The recovered slag can be made into a “rock/mineral wool” component of insulation and its typical TRMC is 75%.

3- SILICA FUME (proposed August 2001)

Silica fume is produced during the production of metal alloys and is the solid waste collected on filters of electric arc furnace stacks. The CPG is for silica fume produced from silicon metal or ferrosilicon production only. Silica fume is a very fine, dust-like material composed primarily of silicon dioxide. Concrete containing silica fume is a high-performance concrete that can be used in construction and maintenance projects including, but not limited to, roads, bridges, buildings, docks, and dams. The small particle size of silica fume allows it to fill the holes in traditional cement, which increases its density and strength. There are some health concerns regarding exposure to silica fume dust, and precautions should be taken to reduce worker exposure to dust. The use of silica fume in concrete has been standardized in specifications published by ASTM (C1240), the American Concrete Institute (ACI 234-R-96), and the American Association of State Highway and Transportation Officials (AASHTO M840). The silica fume content in concrete recommended in the CPG is 5-20% by weight.

4 - SCRAP TIRES

Each year approximately 280 million tires are discarded by American motorists, with only an estimated 30 million being retread. This leaves 250 million scrap tires to be managed annually. In addition, millions more are located in numerous stockpiles around the country. Scrap tires can be managed as a whole tire, a slit tire, a shredded or chipped tire, as ground rubber, or as a crumb rubber product. Generally, the products contained in the CPG are made from ground or crumb rubber.

The below table illustrates the amount of recoverable rubber that can be used from automobile and truck tires.

Type of tire	Average weight of tire	Amount of recoverable rubber
Automobile tire	20 lbs.	12-13 lbs.
Truck tire	40 lbs.	24-28 lbs.

- **Cut/Slit tires:** Slit tires are produced in tire cutting machines that slit the tire into two halves and separate the sidewalls from the treads.
- **Ground rubber:** Ground rubber may be sized anywhere from 19mm to .15mm, depending upon the specifications needed for the particular job.
- **Crumb rubber:** Crumb rubber is a fine granular or powdered rubber capable of being used in products. It is recovered from scrap tires using thermal and/or mechanical processing techniques derived from the tire retread process, when tire treads are removed during the buffing process before a new tread is affixed.

Carpet Cushion/Underlay

This is the padding beneath the carpet and is generally produced from bonded urethane, jute, synthetic fibers, and ground rubber from recovered materials. It has been estimated that for every 10,000 square yards of carpet cushion produced from scrap rubber, 3,300 tires could be diverted from the waste stream. The scrap rubber TRMC for the rubber used in carpet cushion/underlay is approximately 60%-90% but producers are recommended to use the appropriate standards set by the Carpet & Rug Institute (<http://www.carpet-rug.com>) and the Carpet Cushion Council (<http://www.carpetcushion.org>) when purchasing bonded polyurethane, jute, synthetic fibers, and rubber carpet cushions containing recovered materials.

Railroad Grade Crossing Surfaces

Railroad grade crossing surfaces are surfacing materials placed between railroad tracks, between the track and the road at highways and at street railroad crossings. Generally they are made from recovered rubber, plastic, and wood, concrete containing coal fly ash, and steel. The TRMC of cut scrap rubber found in these crossing surfaces is between 85%-95%.

Floor Tiles & Patio Blocks

Floor tiles and patio blocks can also be made from postconsumer truck and airline tires (scrap rubber). These generally contain 90%-100% of recovered materials (TRMC).

Garden & Soaker Hoses

Garden and soaker hoses may be made from scrap rubber (old tires) and from recovered postconsumer plastics. The TRMC of scrap rubber in a garden hose is generally between 60%-65% and the TRMC in a soaker hose is between 60%-70%.

Lawn & Garden Edging

Lawn and garden edging can be made from scrap rubber, milk jugs, and other recovered postconsumer plastic containers. The TRMC in the edging is anywhere from 30%-100%.

Playground Surfaces & Running Tracks

Playground surfaces and running tracks are generally made from recovered postconsumer rubber or plastic with a TRMC of 90%-100% for ground scrap rubber.

Parking Stops

Parking stops are used to mark spaces and keep vehicles from rolling beyond the designated parking area. The EPA designation covers parking stops made from concrete or those containing recovered plastic or ground rubber. The TRMC of ground scrap rubber found in parking stops is 100%.

Traffic Cones

Traffic cones use recovered plastics for the upper component of the cone and crumb rubber and/or plastics for the base. For the rubber aspect of the cone, the TRMC of crumb rubber is generally between 50%-100%.

Roofing Materials (proposed August 2001)

Roofing materials with recycled content are typically made from recovered steel, aluminum, fiber, rubber, plastic, or cement. The TRMC for recovered rubber (shingles) is 100%.

Modular Threshold Ramps (proposed August 2001)

Modular threshold ramps (MTRs) are used to modify door thresholds and other small rises to remove barriers to access by people with disabilities. MTRs with a recycled content are typically made containing recovered aluminum, steel, or rubber. The TRMC for recovered rubber is 100%.

5 – GLASS (recycled)

The EPA estimates that in 1997, 27.5% of all glass produced in the United States was recycled. The majority of recycled glass is used in the production of new glass materials. However, the second largest use of recycled glass is fiberglass. The CPG also lists the use of glass for blasting grit.

Fiberglass

In 1998, more than 500,000 tons of glass cullet were used by fiberglass manufacturers, some of them incorporating as much as 40% of recovered materials. One truckload of insulation made with recovered materials diverts one and a half tons of glass from the nation's waste stream. The recycled glass is ground, re-melted, and reprocessed into fiberglass. Typically, the TRMC of glass cullet in fiberglass is 20%-25%.

Blasting Grit (proposed August 2001)

Blasting grit is a loose form of industrial abrasive that is used to shape, cut, sharpen, finish, or clean a variety of surfaces and materials. The TRMC for recovered glass in blasting grit is 100%.

6 – WOOD WASTES

Unadulterated wood wastes can be reused in a variety of applications. Unadulterated wood means wood that does not contain any non-wood materials, has not been chemically-treated, and is free of paint or other coatings. Wood that has been chemically-treated or has been painted or otherwise coated should be disposed of as a waste and should not be reused in products.

Hydraulic Mulch

Hydraulic mulch helps soil hold moisture therefore reducing the need for watering. It also eliminates the need for pesticides by controlling weeds. Hydraulic mulch can be made from small pieces of cellulose fibers which can be made from wood wastes or recovered paper. The TRMC of recovered wood and paper in hydraulic mulch is 100%.

Plastic Lumber Landscaping Timbers & Pots

Plastic lumber landscaping timber and pots are manufactured with recovered postconsumer plastic or a composite lumber (plastic with wood or fiberglass) from recovered wood and plastic materials like milk jugs and plastic bags. The sawdust used in the composite lumber contains a TRMC of 100%.

Plaques

Plaques can be made from recovered wood, plastic, paper, or plastic/wood composites. The TRMC in these plaques is generally around 100%.

Sorbents

Absorbents and adsorbents (sorbents) are used in environmental, industrial, agricultural, medical, and scientific applications to retain liquids or gases. Sorbents can be manufactured with recovered paper, textiles, plastics, and wood. However, the EPA designation only pertains to sorbents containing recovered materials for use in oil and solvent clean-ups and use as animal bedding. In this case, “wood” refers to sawdust and/or lumbermill trimmings and the wood used in sorbents is generally completely recovered and recycled (TRMC being 100%).

Pallets

Pallets are generally made from recovered postconsumer wood, plastic, and paperboard. The TRMC of recovered wood in pallets is 95% to 100%.

7 – STEEL (recycled)

All steel has recycled content. According to the Steel Recycling Institute, all steel is made with an estimated TRMC of 25% and the recycled content level is determined by the type of furnace used. There are two kinds of steel-making furnaces being used at this time: basic oxygen and electric arc. The steel from the basic oxygen furnace (BOF) process contains 25%-30% of total recovered materials to make such products as cans, cars, and appliances. The electric arc furnace (EAF) uses virtually 100% recycled steel to make rebar and structural beams.

Office Recycling Containers & Waste Receptacles

These recycling and waste containers are made from recovered plastics, paper, and steel. The TRMC of recovered steel in these products is 25%-30%.

Railroad Grade Crossing Surfaces

Railroad grade crossing surfaces are surfacing materials placed between railroad tracks, between the track and the road at highways and at street railroad crossings. They are typically made from recovered rubber, plastic, and wood, concrete containing coal fly ash, and steel. The percentage of recovered steel in these products depends on the furnace used in the process. If a BOF is used, then the TRMC for recovered steel is 25%-30%. However, if an EAF is used, the TRMC for recovered steel reaches virtually to 100%.

Shower & Restroom Dividers/Partitions

These partitions are made from recovered plastic or steel, with anywhere from 25%-100% recovered steel, depending on the furnace used in the manufacturing process (BOF vs. EAF).

Bike Racks (proposed August 2001), Park Benches, Picnic Tables & Playground Equipment

These products are made from recovered plastics, plastic composites, aluminum, concrete, and recovered steel. With a BOF, the TRMC for recovered steel is 25%-30% and with an EAF, the TRMC is 100%.

Channelizers, Delineators, Flexible Delineators

Channelizers, delineators, and flexible delineators with recycled content are made from recovered postconsumer plastic, rubber, and steel. The TRMC for recovered steel will range from 25%-100% depending on the steelmaking process used.

Traffic Barricades

Traffic barricades with recycled content are typically made from recovered postconsumer plastic and fiberglass, and steel. The TRMC for recovered steel will range from 25%-100% depending on the steelmaking process used.

Roofing Materials (proposed August 2001)

Roofing materials with recycled content are typically made from recovered steel, aluminum, fiber, rubber, plastic, or cement. Steel containing materials can include roof decking, shingles, and panels. The TRMC for recovered steel will range from 25%-100% depending on the steelmaking process used.

Modular Threshold Ramps (proposed August 2001)

Modular threshold ramps (MTRs) are used to modify door thresholds and other small rises to remove barriers to access by people with disabilities. MTRs with a recycled content are typically made containing recovered aluminum, steel, or rubber. The TRMC for recovered steel will range from 25%-100% depending on the steelmaking process used.

Blasting Grit (proposed August 2001)

Blasting grit is a loose form of industrial abrasive that is used to shape, cut, sharpen, finish, or clean a variety of surfaces and materials. The TRMC for recovered steel in blasting grit is 25%-100% depending on the steelmaking process used.

8 – PAINT (recycled)

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 (i.e., high-gloss vs. 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 (i.e., 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.

Product	Total Recovered Materials Content
Reprocessed latex paint • white, off-white, pastel colors • grey, brown, earthtones, and other dark colors	20% 59%-99%
Consolidated latex paint	100%

FOR MORE INFORMATION

In addition to industrial and construction related wastes, there are many other products listed under the EPA's Comprehensive Procurement Guidelines that deal exclusively with postconsumer materials such as soda bottles and plastic containers. More information about the CPG and all the products it contains can be found at:

- EPA's Comprehensive Procurement Guideline Program homepage
<http://www.epa.gov/epaoswer/non-hw/procure>
- For the final CPG III and RMAN III Background Document, visit:
<http://www.epa.gov/epaoswer/non-hw/procure/pdf/backgr1.pdf>
- For a complete description of the CPG and RMAN guidelines and products visit:
<http://www.epa.gov/cpg>

In addition, the Massachusetts Environmentally Preferable Products (EPP) Procurement Program maintains a website that contains an excellent links section to EPP-related information sorted into the following categories: Federal Programs and Guidance; Massachusetts Programs; Other [State and Local] Government EPP Programs; National and Local Nonprofit Organizations; Sustainable Design; and Trade Associations:

- www.state.ma.us/osd/enviro/enviro.htm

For More Information Please Contact:

In Connecticut: Oswald Inglese Department of Environmental Protection 79 Elm Street Hartford, CT 06106 (860) 424-3725 <u>Environmentally Preferable Purchasing:</u> Carlos Velez, Procurement Services Connecticut Department of Administrative Services Box 1540414 165 Capitol Avenue, Room G-8A Hartford, CT 06115-0414 (860) 713-5080	In Maine: James Glasgow Department of Environmental Protection 17 State House Station Augusta, ME 04333 (207) 287-7719
In Massachusetts: Sean Griffin Department of Environmental Protection One Winter Street Boston, MA 02108 (617) 292-5967 <u>Environmentally Preferable Purchasing:</u> Marcia Deegler, Program Manager Massachusetts Operational Services Division One Ashburton Place, 10th Floor Boston, MA 02108 (617) 720-3356	In New Hampshire: Mike Sills Department of Environmental Services 6 Hazen Drive Concord, NH 03301 (603) 271-2907
In New Jersey: Robert Confer Department of Environmental Protection 401 East State Street, Box 414 Trenton, NJ 08625-0414 (609) 984-6985	In New York: Jeff Schmitt Department of Environmental Conservation 50 Wolf Road Albany, NY 12233 (518) 457-6072
In Rhode Island: Chris Shafer Department of Environmental Management 235 Promenade Street Providence, RI 02908 (401) 222-2797 <u>Environmentally Preferable Purchasing:</u> Nancy McIntyre, Buyer Rhode Island Office of Purchases One Capitol Hill Providence, RI 02903 (401) 222-2142, Ext. 126	In Vermont: Bryan Harrington Department of Environmental Conservation 103 South Main Street Waterbury, VT 05671 (802) 241-3473 <u>Environmentally Preferable Purchasing:</u> Ken Feld Purchasing and Contract Administration 128 State Street, Drawer 33 Montpelier, VT 05633 (802) 828-4658
At NEWMOA: Jennifer Griffith NEWMOA 129 Portland Street, 6th Floor Boston, MA 02114 (617) 367-8558, ext. 303	

