

ENVIRONMENTAL PROTECTION AGENCY

[SWH-FRL-6151-9]

Recovered Materials Advisory Notice III**AGENCY:** Environmental Protection Agency.**ACTION:** Notice of draft document for review.

SUMMARY: The Environmental Protection Agency (EPA or the Agency) today is providing notice of the issuance of a draft Recovered Materials Advisory Notice (RMAN III) that provides guidance to procuring agencies for purchasing certain items containing recovered materials. Under section 6002 of the Resource Conservation and Recovery Act of 1976, EPA designates items that are or can be made with recovered materials and provides recommendations for the procurement of these items. Elsewhere in today's **Federal Register**, EPA is proposing to designate the following 19 additional items: nylon carpet with recycled content backing, carpet cushion, flowable fill, railroad grade crossing surfaces, park and recreational furniture, playground equipment, food waste compost, plastic lumber landscaping timbers and posts, solid plastic binders, plastic clipboards, plastic file folders, plastic clip portfolios, plastic presentation folders, absorbents and adsorbents, industrial drums, awards and plaques, mats, signage, and manual-grade strapping. Today's draft RMAN III contains recommended recovered materials content levels for these items.

DATES: EPA will accept public comments on the recommendations contained in the draft RMAN III until October 26, 1998.

ADDRESSES: To comment on this notice, please send an original and two copies of comments to: RCRA Information Center (5305W), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460. Please place the docket number F-98-CP3P-FFFFF on your comments.

If any information is confidential, it should be identified as such. An original and two copies of Confidential Business Information (CBI) must be submitted under separate cover to: Document Control Officer (5305), Office of Solid Waste, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460.

Documents related to today's notice are available for viewing at the RCRA Information Center (RIC), located at:

U.S. Environmental Protection Agency, 1235 Jefferson Davis Highway, Ground Floor, Crystal Gateway One, Arlington, VA 22202. The RIC is open from 9 a.m. to 4 p.m. Monday through Friday, except for Federal holidays. The public must make an appointment to review docket materials. Call (703) 603-9230 for appointments. Copies cost \$.15 per page.

FOR FURTHER INFORMATION CONTACT: For general information contact the RCRA Hotline at (800) 424-9346 or TDD (800) 553-7672 (hearing impaired). In the Washington, DC metropolitan area, call (703) 412-9810 or TDD (703) 412-3323. For technical information on individual item recommendations, contact Terry Grist at (703) 308-7257.

SUPPLEMENTARY INFORMATION:**I. Authority**

The draft Recovered Materials Advisory Notice (RMAN III) is issued under the authority of sections 2002(a) and 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 (RCRA), as amended; 42 U.S.C. 6912(a) and 2962; and section 502 of Executive Order 12873 (58 FR 54911, October 20, 1993).

II. Background

Section 6002 of RCRA establishes a Federal buy-recycled program. RCRA section 6002(e) requires EPA to (1) designate items that are or can be made with recovered materials and (2) prepare guidelines to assist procuring agencies in complying with affirmative procurement requirements set forth in paragraphs (c), (d), and (i) of section 6002. Once EPA has designated items, section 6002 requires that any procuring agency using appropriated Federal funds to procure those items must purchase them composed of the highest percentage of recovered materials practicable. For the purposes of RCRA section 6002, procuring agencies include the following: (1) any Federal agency; (2) any State or local agencies using appropriated Federal funds for a procurement, or (3) any contractors with these agencies (with respect to work performed under the contract). The requirements of RCRA section 6002 apply to such procuring agencies only when procuring designated items where the price of the item exceeds \$10,000 or the quantity of the item purchased in the previous year exceeded \$10,000.

Executive Order 12873 (the Executive Order) (58 FR 54911, October 22, 1993) directs EPA to designate items in a Comprehensive Procurement Guideline (CPG) and publish guidance that

contains EPA's recommended recovered content levels for the designated items in the RMANs. The Executive Order further directs EPA to update the CPG annually and the RMANs periodically to reflect changes in market conditions. EPA codifies the CPG designations in the Code of Federal Regulations (CFR), but, because the recommendations are guidance, the RMANs are not codified in the CFR. This process enables EPA to revise its recommendations in response to changes in a product's availability or recovered materials content so as to provide timely assistance to procuring agencies in fulfilling their RCRA section 6002 responsibilities.

EPA issued CPG I on May 1, 1995 (60 FR 21370) designating 19 new items and published RMAN I for the designated items on the same day (60 FR 21386). These notices also consolidated the guidelines previously issued for five items designated between 1983 and 1989. The first CPG update (CPG II) was published on November 13, 1997, and designated an additional 12 products. Today, in a separate section of the **Federal Register**, EPA is proposing to designate 19 new items (CPG III). Today's draft RMAN III recommends recovered materials content levels and procurement guidance for these 19 new items: nylon carpet with backing containing recovered materials, carpet cushion, flowable fill, railroad grade crossing surfaces, park and recreational furniture, playground equipment, food waste compost, plastic lumber landscaping timbers and posts, solid plastic binders, plastic clipboards, plastic file folders, plastic clip portfolios, plastic presentation folders, absorbents and adsorbents, industrial drums, awards and plaques, mats, signage, and manual-grade strapping. Once finalized, today's RMAN will serve as companion guidance to the previous RMANs.

EPA, once again, wants to stress that the recommendations in RMAN III are just that—recommendations and guidance to procuring agencies in fulfilling their obligations under RCRA section 6002. The designation of an item as one that is or can be produced with recovered materials and the inclusions of recommended content levels for an item in the RMAN does not compel the procurement of an item when the item is not suitable for its intended purpose. RCRA section 6002 is explicit in this regard when it authorizes a procuring agency not to procure a designated item which "fails to meet the performance standards set forth in the applicable specification or fails to meet the reasonable performance standards of the

procuring agencies." Section 6002(1)(B), 42 U.S.C. 6962(c)(B).

Thus, for example, in the proposal section of today's **Federal Register**, EPA has proposed to designate railroad grade crossing surfaces as items that are or can be made with recovered materials. The Agency's research shows that these items can be made with rubber, cement, or steel containing recovered materials. If EPA adopts the proposed designation and recommendations for railroad grade crossing surfaces, however, the mere fact that they are available containing recovered materials does not require the use of rubber, steel, or concrete railroad grade crossing surfaces in every circumstance. The choice of appropriate materials to be used in construction applications remains with project engineers, construction contracts, and, in the case of buildings, architects. The effect of designation (and RCRA section 6002) is simply to require the purchase of items containing recovered materials where consistent with the purpose for which the item is to be used. Procuring agencies remain free to procure designated items made from other materials where the design specifications call for other materials. However, agencies must affirmatively determine whether items containing recovered materials meet their performance needs.¹

A. Methodology for Recommending Recovered Materials Content Levels

In providing guidance in the RMANs, the Executive Order directs EPA to present "the range of recovered materials content levels within which the designated recycled items are currently available." Based on the information available to the Agency, EPA recommends ranges that encourage manufacturers to incorporate the maximum amount of recovered materials into their products without compromising competition or product performance and availability. EPA recommends that procuring agencies use these ranges, in conjunction with their own research, to establish minimum content standards for use in purchasing the designated items. EPA recommends ranges rather than minimum standards for several reasons:

First, the Executive Order directs EPA to develop ranges, not minimum content

standards or specific recovered materials levels.

Second, EPA has only limited information on recovered materials content levels for the new items proposed for designation. It would not be appropriate to establish minimum content standards without more detailed information because the standards may be treated as maximum targets by manufacturers and may stifle innovative approaches for increasing recovered material use. EPA hopes that the use of ranges will encourage manufacturers producing at the low end of the recovered materials range to seek ways of increasing their recovered materials usage. Minimum content standards are less likely to encourage such innovation.

Third, many items are purchased locally rather than centrally. As a result, the recovered materials content of the items are likely to vary from region to region depending on local cost and availability of recovered materials. Minimum content standards are unlikely to be effective given the regional variance in recovered materials content because minimum content levels that are appropriate for one region, may be excessively high or low for other regions. A recovered materials content range gives regional procuring agencies the flexibility to establish their own recovered materials content standards and to make them as high as possible, consistent with the statute, given local product availability and market conditions.

EPA reviewed publicly-available information, information obtained from product manufacturers, and information provided by other government agencies regarding the percentages of recovered materials available in the items proposed for designation in CPG III. Based on this information, EPA established ranges of recovered materials content for the proposed designated items. In some instances, EPA recommends a specific content level (e.g., 100 percent recovered materials), rather than a range, because the item is universally available at that recommended level, the item contains 100% recovered materials, or that level is the maximum content currently used in that item.

In establishing the ranges, EPA's objective was to ensure the availability of the item, while challenging manufacturers to increase their use of recovered materials. By recommending ranges, EPA believes that sufficient information will be provided to enable procuring agencies to set appropriate procurement specifications when purchasing the newly designated items.

It is EPA's intention to provide procuring agencies with the best and most current information available to assist them in fulfilling their statutory obligations under RCRA section 6002. To do this, EPA will monitor the progress made by procuring agencies in purchasing designated items with the highest practical recovered materials content levels and will adjust the recommended content ranges as appropriate. EPA anticipates that the recommended ranges will narrow over time as other items become more available, although for technical reasons, many may never be available with 100 percent recovered materials content levels.

Under RCRA section 6002(I), it is each procuring agency's responsibility to establish minimum content standards, while EPA provides recommendations regarding the levels of recovered materials in the designated items. To make it clear that EPA does not establish minimum content standards for other agencies, EPA refers to its recommendations as "recovered materials content levels," consistent with RCRA section 6002(e) and the Executive Order.

More information on EPA's methodology for recommending recovered materials content levels for designated items is contained in "Background Document for Proposed CPG III and Draft RMAN III," located in the RCRA public docket for this notice.

B. Definitions

Today's draft RMAN III contains recommendations on the recovered materials content levels and postconsumer materials content levels at which the designated items are generally available. For several items being proposed for designation, this RMAN recommends two-part content levels—a postconsumer recovered materials content component and a total recovered materials component. In these instances, EPA found that both types of materials were being used to manufacture a product. Recommending only postconsumer content levels would fail to acknowledge the contribution to solid waste management made when manufacturers use, as feedstock, the byproducts of other manufacturing processes that would otherwise be destined for disposal as solid waste. The terms "recovered materials" and "postconsumer materials" are defined in 40 CFR 247.3. These definitions are repeated here as a reference for the convenience of the reader. The Agency is not proposing to change these definitions and will not consider any comments submitted on these terms.

¹ See also the revisions to the Federal Acquisition Regulation requiring that the statement of work for facility design contracts "shall require that the architect-engineer specify, in the construction design specifications, use of the maximum practicable amount of recovered materials consistent with the performance requirements, availability, price reasonableness, and cost-effectiveness." (62 FR 44812, August 22, 1997, revising 48 CFR 36.601-3(a).)

Postconsumer materials means a material or finished product that has served its intended end use and has been diverted or recovered from waste destined for disposal, having completed its life as a consumer item. Postconsumer material is part of the broader category of recovered materials.

Recovered materials means waste materials and byproducts which have been recovered or diverted from solid waste, but such term does not include those materials and byproducts generated from, and commonly used within an original manufacturing process.

C. Request for Comments

EPA requests comments, including additional supporting documentation and information, on the types of recovered materials identified in the item recommendations, the recommended recovered and postconsumer materials content levels, and other recommendations for purchasing the designated items containing recovered materials. EPA requests specific comments and information on the following issues:

- Whether any specifications exist or are appropriate for park benches or picnic tables made from steel or aluminum containing recovered materials;
- Whether any specifications exist or are appropriate for solid plastic binders containing recovered materials;
- Whether any specifications or standards exist for awards or plaques containing recovered materials; and
- Whether any specifications or standards exist for mats containing recovered materials.

III. Supporting Information and Accessing Internet

The index of supporting materials for today's draft RMAN III is available in the RCRA Information Center (RIC) and on EPA's Internet web page. The address and telephone number of the RIC are provided in **ADDRESSES** above. The index and the following supporting materials are available on the Internet: "Background Document for Proposed CPG III and Draft RMAN III," EPA530-R-98-003, U.S. EPA, Office of Solid Waste and Emergency Response, April, 1998.

Copies of the following supporting materials are available for viewing at the RIC only:

"Recovered Materials Product Research for the Comprehensive Procurement Guideline III," Draft Report, September 26, 1997.

Follow these instructions to access information electronically:

WWW: <http://www.epa.gov/epaoswer/non-hw/procure.htm>.

FTP: <ftp://ftp.epa.gov>

Login: anonymous
Password: your Internet address
Files are located in /pub/epaoswer.

Dated: August 19, 1998.

Carol M. Browner,
Administrator.

Recovered Materials Advisory Notice III

The following represents EPA's draft recommendations to procuring agencies for purchasing the items proposed today for designation in the Comprehensive Procurement Guideline III, in compliance with section 6002 of the Resource Conservation and Recovery Act (RCRA). These recommendations are intended to be used in conjunction with RMAN I (60 FR 21386, May 1, 1995), the Paper Products RMAN (61 FR 26985, May 29, 1996), and RMAN II (62 FR 60975, November 13, 1997). Refer to the previous RMANs or the Code of Federal Regulations at 40 CFR Part 247 for definitions, general recommendations for affirmative procurement programs, and recommendations for previously designated items.

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I. General Recommendations

(See the May 1, 1995 RMAN I for EPA's general recommendations for definitions, specifications, and affirmative procurement programs.)

II. Specific Recommendations for Procurement of Designated Items

(See the May 1, 1995 RMAN I, the May 29, 1996 Paper Products RMAN, and the November 13, 1997 RMAN II for recommendations for previously-designated items.)

Part C—Construction Products

Note: Refer to Part F—Landscaping Products for additional items that can be used in construction applications.

Section C-8. Nylon Carpet (Broadloom and Tiles) Made With Backing Containing Recovered Materials

Preference Program: EPA recommends that, based on the recovered materials content levels shown in Table C-8, procuring agencies establish minimum content standards for use in purchasing nylon broadloom carpet and carpet tiles made with backing containing recovered materials. EPA further recommends that Federal procuring agencies use GSA's carpet contract GS-00F-8453-A when purchasing nylon broadloom carpet or carpet tiles made with backing containing recovered materials.

TABLE C-8.—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR BACKING FOR NYLON BROADLOOM AND CARPET TILES

Material	Postconsumer content (%)	Total recovered materials content (%)
Old carpets	35-70	100

Note: EPA's recommendation does not preclude a procuring agency from purchasing broadloom carpet or carpet tiles made from another material, such as wool. It simply requires that procuring agencies, when purchasing nylon broadloom carpet or carpet tiles, purchase these items made with backing containing recovered materials when they meet applicable specifications and performance requirements. Refer to Section

C-4 in RMAN I for EPA's recommendations for purchasing polyester carpet containing recovered materials.

Specifications: EPA recommends that procuring agencies review their carpet specifications and revise them as necessary to permit the use of backing containing recovered materials.

Section C-9. Carpet Cushion Made From Bonded Polyurethane, Jute, Synthetic Fibers, or Rubber Containing Recovered Materials

Preference Program: EPA recommends that, based on the recovered materials content levels shown in Table C-9, procuring agencies establish minimum content standards for use in purchasing bonded polyurethane, jute, synthetic fiber, or rubber carpet cushion containing recovered materials.

TABLE C-9.—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR BONDED POLYURETHANE, JUTE, SYNTHETIC FIBER, AND RUBBER CARPET CUSHION

Product	Material	Post consumer content (%)	Total recovered materials content (%)
Bonded polyurethane.	Old carpet cushion.	15-50	15-50
Jute	Burlap	40	40

TABLE C-9.—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR BONDED POLYURETHANE, JUTE, SYNTHETIC FIBER, AND RUBBER CARPET CUSHION—Continued

Product	Material	Post consumer content (%)	Total recovered materials content (%)
Synthetic fibers.	Carpet fabrication scrap.	.....	100
Rubber	Tire rubber	60-90	60-90

Note: EPA'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 requirements. Refer to Section C-4 in RMAN I for EPA's recommendations for purchasing polyester carpet containing recovered materials.

Specifications: EPA is not aware of carpet cushion specifications unique to carpet cushions containing recovered materials. Therefore, EPA recommends that procuring agencies use the standards set by the Carpet and Rug Institute and the Carpet Cushion Council when purchasing bonded polyurethane, jute, synthetic fiber, or rubber carpet cushion containing recovered materials.

Section C-10. Flowable Fill Containing Coal Fly Ash and/or Ferrous Foundry Sands

Preference Program: EPA recommends that procuring agencies use flowable fill containing coal fly ash and/or ferrous foundry sands for backfill and other fill applications. EPA further recommends that procuring agencies include provisions in all construction contracts involving backfill or other fill applications, to allow for the use of flowable fill containing coal fly ash and/or ferrous foundry sands, where appropriate.

The specific percentage of coal fly ash or ferrous foundry sands used in flowable fill depend on the specifics of the job, including the type of coal fly ash used (Class C or Class F); the strength, set time, and flowability needed; and bleeding and shrinkage. Therefore, EPA is not recommending specific coal fly ash or ferrous foundry sands content levels for procuring agencies to use in establishing minimum content standards for flowable fill. EPA recommends that procuring agencies refer to the mix proportions in Tables C-10a and C-10b for typical proportions for high and low coal fly ash content mixes. EPA further recommends that procuring agencies refer to American Concrete Institute (ACI) report ACI 229R-94 for guidance on the percentages of coal fly ash that can be used in flowable fill mixtures.

TABLE C-10A.—TYPICAL PROPORTIONS FOR HIGH FLY ASH CONTENT FLOWABLE FILLS

Component	Range kg/m ³ (lb/yd ³)	Mix design kg/m ³ (lb/yd ³)
Fly ash (95%)	949 to 1542 (1600 to 2600)	1234 (2080)
Cement (5%)	47 to 74 (80 to 125)	62 (104)
Added water	222 to 371 (375 to 625)	*247 (416)
Total .....	.....	1543 (2600)

* Equal to 189 liters (50 gallons).

Source: "Fly Ash Facts for Highway Engineers," FHWA-SA-94-081, U.S. Department of Transportation, Federal Highway Administration, August 1995.

TABLE C-10B.—TYPICAL PROPORTIONS FOR LOW FLY ASH CONTENT FLOWABLE FILLS

Component	Range kg/m ³ (lb/yd ³)	Mix Design kg/m ³ (lb/yd ³)
Fly ash (6% to 14%)†	119 to 297 (200 to 500)	178 (300)
Cement	30 to 119 (50 to 200)	59 (100)
Sand	1483 to 1780 (2500 to 3000)	1542 (2600)
Added water	198 to 494 (333 to 833)	*297 (500)
Total .....	.....	2076 (3500)

† High calcium fly ash is used in lower amounts than low calcium fly ash.

* Equal to 227 liters (60 gallons).

Source: "Fly Ash Facts for Highway Engineers," FHWA-SA-94-081, U.S. Department of Transportation, Federal Highway Administration, August 1995.

Specifications: The following recommendations address mix designs, test methods, and performance standards.

- **Mix designs.** EPA recommends that procuring agencies use ACI report ACI229R-94, "Controlled Low Strength Materials (CLSM)" and "Fly Ash Facts for Highway Engineers," (FHWA-SA-94-081, U.S. Department of Transportation, Federal Highway Administration, August 1995) in developing mix designs. Among other things, ACI229R-94 addresses materials, including coal fly ash and foundry sands, mix design, and mixing, transporting, and placing. It also provides examples of mixture designs containing coal fly used by the states of Iowa, Florida, Illinois, Indiana, Oklahoma, Michigan, Ohio, and South Carolina. "Fly Ash Facts for Highway Engineers" addresses materials, strength, flowability, time of set, bleeding and shrinkage.

A mix design for the use of foundry sand and coal fly ash in flowable fill was developed for Ford Motor Company. Procuring agencies can obtain a copy of this design by contacting the RCRA Hotline at 1-800-424-9346. Table C-10c provides the recommended trial mixture from this specification.

TABLE C-10C.—MATERIALS QUANTITIES FOR FLOWABLE FILL MIXTURE CONTAINING FOUNDRY SANDS AND COAL FLY ASH

Component	Quantity per cubic yard (lbs.)
Cement	50
Coal fly ash	250
Foundry sand	2850
Water	500

- **Materials specifications and test methods.** EPA recommends that procuring agencies use ACI229R-94 and the ASTM standards listed in Table C-10d when purchasing flowable fill or contracting for construction that involves backfilling or other fill applications.

EPA recommends that procuring agencies refer to ASTM C 33-93, "Standard Specification for Concrete Aggregates," for appropriate gradation requirements for ferrous foundry sands used as aggregates in flowable fills. Procuring agencies should note that ferrous foundry sands may need to be blended with natural sand or other fine aggregate to meet the C 33-93 gradation requirements.

TABLE C-10D.—RECOMMENDED TEST METHODS FOR FLOWABLE FILLS (CONTROLLED LOW STRENGTH MATERIALS)

ASTM specification NO.	Title
D 4832-95e1	Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders.
D 5239-92 ...	Standard Practice for Characterizing Fly Ash for Use in Soil Stabilization.
D 5971-96 ...	Standard Practice for Sampling Freshly Mixed Controlled Low Strength Material.
D 6103-07 ...	Standard Test Method for Flow Consistency of Controlled Low Strength Material.
D 6023-96 ...	Standard Test Method for Unit Weight, Yield, Cement Content and Air Content (Gravimetric) of Controlled Low Strength Material (CLSM).
D 5971-96 ...	Standard Practice for Sampling Freshly Mixed Controlled Low Strength Material.
D 6024-96 ...	Standard Test Method for Ball Drop on Controlled Low Strength Material (CLSM) to Determine Suitability for Load Application.

- **State specifications.** The following states have specifications for flowable fill containing coal fly ash: California, Colorado, Delaware, Florida, Georgia, Illinois, Indiana, Kansas, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Nebraska, New Hampshire, New Mexico, North Carolina, Ohio, Texas, Washington, West Virginia, and Wisconsin.

The state of Ohio has a specification entitled "Flowable Fill Made with Spent Foundry Sand," and the states of Pennsylvania, Wisconsin, and Indiana are developing specifications for using foundry sands in flowable fill.

If needed, procuring agencies can obtain state specifications from the respective state transportation departments and adapt them for use in their programs. ACI229R-94 includes mix designs from several of these states.

- **Contract specifications.** EPA recommends that procuring agencies which prepare or review "contract" specifications for individual construction projects revise those specifications to allow the use of flowable fills containing coal fly ash and/or ferrous foundry sands.

- **Performance standards.** EPA recommends that procuring agencies review and, if necessary, revise performance standards relating to fill materials to insure that they do not arbitrarily restrict or preclude the use of flowable fills containing coal fly ash and/or ferrous foundry sands, either intentionally or inadvertently, unless the restriction is justified on a job-by-job basis: (1) to meet reasonable performance requirements for fill materials or (2) because the use of coal fly ash or ferrous foundry sands would be inappropriate for technical reasons. EPA recommends that this justification be documented based on specific performance information. Legitimate documentation of technical infeasibility can be for certain classes of applications, rather than on a job-by-job basis. Agencies should reference such documentation in individual contract specifications, to avoid extensive repetition of previously documented points. However, procuring agencies should be prepared to submit such documentation to scrutiny by interested parties and should have a review process available in the event of disagreements.

Promotion program: EPA recommends that, as part of the promotion programs required by section 6002(I) of the Resource Conservation and Recovery Act, procuring agencies conduct demonstration programs for using flowable fills containing coal fly ash and/or ferrous foundry sands. EPA further recommends that procuring agencies educate construction contractors about the design, use, and performance of flowable fills containing coal fly ash and/or ferrous foundry sands.

Section C-11. Railroad Grade Crossing Surfaces Containing Coal Fly Ash, Recovered Rubber, or Recovered Steel

Preference Program: EPA recommends that based on the recovered materials content levels shown in Table C-11a, procuring agencies establish minimum content standards for use in purchasing concrete, rubber, and steel railroad grade crossing surfaces containing recovered materials.

EPA further recommends that procuring agencies include provisions in all concrete railroad grade crossing construction contracts to allow for the use, as optional or alternate materials, of concrete containing coal fly ash, where appropriate.

TABLE C-11A.—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR CONCRETE, RUBBER, AND STEEL RAILROAD GRADE CROSSING SURFACE

Surface material	Recovered material	Post-consumer content (%)	Total recovered materials content (%)
Concrete ...	Coal fly ash.	.....	15–20
Rubber	Tire rubber	.....	85–95
Steel	Steel	16–75	20–100

Notes: EPA'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 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.

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

Coal fly ash can be used as an ingredient of concrete slabs, pavements, or controlled density fill product, depending on the type of concrete crossing system installed. Higher percentages of coal fly ash can be used in the concrete mixture; the higher percentages help to produce a more workable and durable product but can prolong the curing process.

Specifications: EPA recommends that procuring agencies use the ASTM standards listed in Table C-11b when purchasing rubber railroad grade crossing surfaces. EPA recommends that procuring agencies use the ASTM and AASHTO standards listed in Table C-11c when purchasing concrete railroad grade crossing surfaces.

TABLE C-11B.—RECOMMENDED SPECIFICATIONS FOR RUBBER RAILROAD GRADE CROSSINGS

ASTM specification No.	Title
D 2000–96 ...	Rubber Products in Automotive Applications.
D 2240–97 ...	Rubber Property—Durometer Hardness.
D 412–97	Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers—Tension.

TABLE C-11B.—RECOMMENDED SPECIFICATIONS FOR RUBBER RAILROAD GRADE CROSSINGS—Continued

ASTM specification No.	Title
D 297–93	Rubber Products—Chemical Analysis.
E 303–93	Measuring Surface Frictional Properties Using the British Pendulum Tester.
D 1171–94 ...	Rubber Deterioration—Surface Ozone Cracking Outdoors or Chamber (Triangular Specimens).
D 573–88	Deterioration in an Air Oven.
D 395–89	Rubber Property—Compression Set.
D 257–93	DC Resistance or Conductance of Insulating Materials.
D 2137–94 ...	Rubber Property—Brittleness Point of Flexible Polymers and Coated Fabrics.

TABLE C-11C.—RECOMMENDED SPECIFICATIONS FOR CEMENT AND CONCRETE CONTAINING RECOVERED MATERIALS

Specification No.	Title
ASTM C 595	Standard Specification for Blended Hydraulic Cements.
ASTM C 150	Standard Specification for Portland Cement.
AASHTO M 240	Blended Hydraulic Cements.
ASTM C 618	Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete.
ASTM C 311	Standard Methods of Sampling and Testing Fly Ash and Natural Pozzolans for Use as a Mineral Admixture in Portland Cement Concrete.

Part E. Park and Recreation Products

Section E-3. Picnic Tables and Park Benches Containing Recovered Steel, Aluminum, or Plastic

Preference Program: EPA recommends that, based on the recovered materials content levels shown in Table E-3a, procuring agencies establish minimum content standards for use in purchasing aluminum, steel, or plastic park benches and picnic tables containing recovered materials.

TABLE E-3A.—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR PICNIC TABLES AND PARK BENCHES CONTAINING RECOVERED ALUMINUM, STEEL, CONCRETE OR PLASTIC

Material	Post-consumer content (%)	Total recovered materials content (%)
Plastics	90–100	100
Plastic composites	50–100	100
Aluminum	25	25
Concrete .....	.....	15–40
Steel	16–25	100

Notes: "Plastics" includes both single and mixed plastic resins. Picnic tables and park benches 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.

EPA's recommendations do not preclude a procuring agency from purchasing park benches or 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 with recovered materials when these items meet applicable specifications and performance requirements.

Specifications: EPA did not identify any specifications for park benches or picnic tables made from steel or aluminum and requests comments on whether any specifications exist or are appropriate for these materials when used in park benches and picnic tables.

EPA recommends that procuring agencies use the ASTM specifications referenced in Table E-3b for park benches and picnic tables made from plastic lumber.

TABLE E-3B.—RECOMMENDED SPECIFICATIONS FOR PLASTIC LUMBER USED IN PARK BENCHES AND PICNIC TABLES

ASTM specification number	Title
D 6108–97 ...	Standard Test Method for Compressive Properties of Plastic Lumber.
D 6109–97 ...	Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastic Lumber.

TABLE E-3B.—RECOMMENDED SPECIFICATIONS FOR PLASTIC LUMBER USED IN PARK BENCHES AND PICNIC TABLES—Continued

ASTM specification number	Title
D 6111-97 ...	Standard Test Method for Bulk Density and Specific Gravity of Plastic Lumber and Shapes by Displacement.
D 6112-97 ...	Standard Test Method for Compressive and Flexural Creep and Creep Rupture of Plastic Lumber and Shapes.
D 6117-97 ...	Standard Test Method for Mechanical Fasteners in Plastic Lumber and Shapes.

Section E-4. Playground Equipment

Preference Program: EPA recommends that, based on the recovered materials content levels shown in Table E-4a, procuring

agencies establish minimum content standards for use in purchasing playground equipment made from plastic lumber, steel, or aluminum containing recovered materials.

TABLE E-4A.—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR PLAYGROUND EQUIPMENT CONTAINING RECOVERED PLASTIC, STEEL, OR ALUMINUM

Material	Post-consumer content (%)	Total recovered materials content (%)
Plastics	90-100	100
Plastic Composites	50-75	95-100
Steel	25-100	25-100
Aluminum	25	25

Notes: "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.

EPA's recommendations do not preclude a procuring agency from purchasing playground equipment made from other materials. They simply require that procuring agencies, when purchasing playground equipment made from plastic, aluminum, or steel purchase these items made with recovered materials when the item meets applicable specifications and performance requirements.

Specifications: EPA recommends that procuring agencies use the specifications in Table E-4b when procuring playground equipment. Playground equipment may also be subject to state and local codes and standards as well as Federal child safety laws. EPA also recommends that procuring agencies use the ASTM specifications referenced in Table E-4c for playground equipment made from plastic lumber.

TABLE E-4B.—RECOMMENDED SAFETY SPECIFICATIONS FOR PLAYGROUND EQUIPMENT

Specification	Title
Consumer Product Safety Commission (CPSC) Publication No. 325	Handbook for Public Playground Safety.
ASTM F-1487-95	Safety Performance Specification for Playground Equipment for Public Use.

TABLE E-4C.—RECOMMENDED SPECIFICATIONS FOR PLASTIC LUMBER USED IN PLAYGROUND EQUIPMENT

ASTM specification number	Title
D 6108-97	Standard Test Method for Compressive Properties of Plastic Lumber.
D 6109-97	Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastic Lumber.
D 6111-97	Standard Test Method for Bulk Density and Specific Gravity of Plastic Lumber and Shapes by Displacement.
D 6112-97	Standard Test Method for Compressive and Flexural Creep and Creep Rupture of Plastic Lumber and Shapes.
D 6117-97	Standard Test Method for Mechanical Fasteners in Plastic Lumber and Shapes.

Part F. Landscaping Products

Section F-2. Compost Made From Yard Trimmings and/or Food Waste (Revised)

Note: Following are EPA's revised recommendations for purchasing compost. The revisions add recommendations for purchasing compost made from food waste to EPA's 1995 recommendations for purchasing yard trimmings compost. When EPA issues final recommendations for purchasing composts made from yard trimmings and/or food waste, procuring agencies should substitute them for the recommendations found in Section F-2 of the 1995 RMAN I.

Preference Program: EPA 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 grass 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.

Specifications: EPA recommends that procuring agencies ensure that there is no language in their specifications relating to landscaping, soil amendments, erosion control, or soil reclamation that would preclude or discourage the use of compost. For

instance, if specifications address the use of straw or hay in roadside revegetation projects, procuring agencies should assess whether compost could substitute for straw or hay or be used in combination with them.

The U.S. Department of Transportation's "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects 1996," specifies compost as one of the materials suitable for use in roadside revegetation projects associated with road construction. These standards do not preclude the use of compost made from yard trimmings, leaves, grass, clippings, and/or food waste.

The State of Maine has developed quality standards for compost products

that are used by its agencies and/or purchased with state funds. The quality standards have been set for six types of compost products, ranging from topsoil (three classes), to wetland substrate, to mulch (two classes). For each of these types of compost product, standards for maturity, odor, texture, nutrients, pH, salt content, organic content, pathogen reduction, heavy metals, foreign matter, moisture content, and density have been established. EPA recommends that procuring agencies obtain and adapt this or another suitable specification for their use in purchasing compost products.

The Composting Council is helping to define and develop industry wide standards for composts made from various combinations of materials, including yard trimmings, leaves, grass clippings, and food wastes. The Composting Council publishes these standards in an operating guide for composting facilities entitled, "Test Methods for Examination of Composting and Compost." The guide also provides standards for the suitability of different types of composts made for different applications, depending on the compost mix.

Section F-5. Plastic Lumber Landscaping Timbers and Posts Containing Recovered Materials

Preference Program: EPA recommends that, based on the recovered materials content levels shown in Table F-5a, procuring agencies establish minimum content standards for use in purchasing plastic

lumber landscaping timbers and posts containing recovered materials.

TABLE F-5A.—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR PLASTIC LUMBER LANDSCAPING TIMBERS AND POSTS

Material	Post-consumer-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

Note: EPA'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.

Specifications: EPA recommends that procuring agencies use the ASTM specifications referenced in Table F-5b for plastic lumber landscaping timbers and posts.

TABLE F-5B.—RECOMMENDED SPECIFICATIONS FOR PLASTIC LUMBER LANDSCAPING TIMBERS AND POSTS

ASTM specification No.	Title
D 6108-97 ...	Standard Test Method for Compressive Properties of Plastic Lumber.

TABLE F-5B.—RECOMMENDED SPECIFICATIONS FOR PLASTIC LUMBER LANDSCAPING TIMBERS AND POSTS—Continued

ASTM specification No.	Title
D 6109-97 ...	Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastic Lumber.
D 6111-97 ...	Standard Test Method for Bulk Density and Specific Gravity of Plastic Lumber and Shapes by Displacement.
D 6112-97 ...	Standard Test Method for Compressive and Flexural Creep and Creep Rupture of Plastic Lumber and Shapes.
D 6117-97 ...	Standard Test Method for Mechanical Fasteners in Plastic Lumber and Shapes.

Part G. Non-Paper Office Products

Section G-8. Solid Plastic Binders, Plastic Clipboards, Plastic File Folders, Plastic Clip Portfolios, and Plastic Presentation Folders Containing Recovered Plastic

Preference Program: EPA recommends that, based on the recovered materials content levels shown in Table G-8, procuring agencies establish minimum content standards for use in purchasing solid plastic binders, plastic clipboards, plastic file folders, plastic clip portfolios, and plastic presentation folders containing recovered materials.

TABLE G-8.—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR SOLID PLASTIC BINDERS, CLIPBOARDS, FILE FOLDERS, CLIP PORTFOLIOS, AND PRESENTATION FOLDERS

Product	Material	Postconsumer content (%)	Total recovered materials content (%)
Solid plastic binders	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 folders	HDPE	90	90
Plastic clip portfolios	HDPE	90	90
Plastic presentation folders	HDPE	90	90

Note: EPA's recommendations do not preclude a procuring agency from purchasing binders, clipboards, file folders, clip portfolios, or presentation folders made from another material, such as paper. They simply require that procuring agencies, when purchasing these items made from solid

plastic, purchase them made with recovered plastics when these items meet applicable specifications and performance requirements. For EPA's recommendations for purchasing pressboard binders and paper file folders containing recovered materials, see table A-1c in the Paper Products RMAN (61 FR

26986, May 29, 1996). See Table G-3 in RMAN I for EPA's recommendations for purchasing plastic-covered binders containing recovered materials.

Specifications: EPA did not identify any specifications for solid plastic

binders, clipboards, file folders, clip portfolios, and presentation folders and requests comments on whether any specifications exist or are appropriate for these items containing recovered plastic.

Part H. Miscellaneous Products

Section H-2. Sorbents

Preference Program: EPA recommends that, based on the recovered materials content levels shown in Table H-2a, procuring agencies establish minimum content standards for use in purchasing sorbent materials for use in oil and solvent clean-ups and for use as animal bedding.

TABLE H-2A.—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR SORBENTS USED IN OIL AND SOLVENTS CLEAN-UPS AND FOR USE AS ANIMAL BEDDING

Material	Post-consumer content (%)	Total recovered materials content (%)
Paper	90-100	100
Textiles	95-100	95-100
Plastics .....	.....	25-100
Wood .....	.....	100
Other Organics/Multi-Materials .....	.....	100

Notes: "Wood" includes materials such as sawdust and lumber mill trimmings. Examples of other organics include, but are not limited to, peanut hulls and corn stover. An example of multi-material sorbents would include, but not be limited to, a polymer and cellulose fiber combination.

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

Specifications: EPA recommends that procuring agencies ensure that there is no language in their specifications for sorbents that would preclude or discourage the use of products containing recovered materials.

EPA recommends that procuring agencies use the ASTM specifications in Table H-2b when procuring sorbents for use on oil and solvent clean-ups.

TABLE H-2B.—ASTM SPECIFICATIONS FOR ABSORBENTS AND ADSORBENTS

ASTM specification No.	Title
F 716-81	Standard Method of Testing Sorbent Performance of Adsorbents.
F 716-82	Standard Method of Testing Sorbent Performance of Absorbents.

Section H-3. Industrial Drums Containing Recovered Steel, Plastic, and Paper

Preference Program: EPA recommends that, based on the recovered materials content levels shown in Table H-3, procuring agencies establish minimum content standards for use in purchasing steel, plastic, or fiber industrial drums containing recovered materials. EPA further recommends that procuring agencies reuse drums, purchase or use reconditioned drums, or procure drum reconditioning services, whenever feasible.

TABLE H-3.—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR STEEL, PLASTIC, AND FIBER INDUSTRIAL DRUMS

Product	Material	Post consumer content (%)	Total recovered materials content (%)
Steel drums.	Steel	16	20-30
Plastic drums.	HDPE	30-100	30-100
Fiber drums.	Paper	100	100

Note: EPA's recommendation does not preclude a procuring agency from purchasing another type of industrial drum. It simply requires that procuring agencies, when purchasing steel, plastic, or fiber industrial drums, purchase these items made with recovered materials when these items meet applicable specifications and performance requirements.

Specifications: EPA is not aware of specifications unique to industrial drums containing recovered materials. EPA notes that industrial drums containing recovered materials can meet applicable U.S. Department of Transportation specifications for packaging hazardous materials. Additionally, the National Motor Freight Traffic Association specifications for containers used to transport goods via truck do not prohibit

the use of industrial drums containing recovered materials.

Section H-4. Awards and Plaques

Preference Program: EPA recommends that, based on the recovered materials content levels shown in Table H-4, procuring agencies establish minimum content standards for use in purchasing awards and plaques containing recovered materials.

TABLE H-4.—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR AWARDS AND PLAQUES CONTAINING RECOVERED MATERIALS

Material	Post-consumer 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

Note: EPA's recommendations do not preclude a procuring agency from purchasing awards or plaques made from other materials. They simply require that procuring agencies, when purchasing awards or plaques made from paper, wood, glass, or plastics/plastic composites, purchase them made with recovered materials when these items meet applicable specifications and performance requirements.

Specifications: EPA is not aware of specifications or standards for awards or plaques containing recovered materials and requests comments on whether any applicable specifications or standards have been developed.

Section H-5. Mats

Preference Program: EPA recommends that, based on the recovered materials content levels shown in Table H-5, procuring agencies establish minimum content standards for use in purchasing mats containing recovered materials.

TABLE H-5.—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR MATS

Material	Post-consumer content (%)	Total recovered materials content (%)
Rubber	75-100	85-100
Plastic	10-100	100
Rubber/Plastic Composite	100	100

Note: EPA'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.

Specifications: EPA is not aware of specifications or standards for mats containing recovered materials and requests comments on whether any applicable specifications or standards have been developed. EPA is aware of one ASTM specification for wrestling mats, but does not believe that this type of mat is purchased in appreciable quantities by procuring agencies.

Section H-6. Manual-Grade Strapping Containing Recovered Steel and Plastic

Preference Program: EPA recommends that, based on the recovered materials content levels shown in Table H-6a, procuring

agencies establish minimum content standards for use in purchasing manual-grade strapping containing recovered materials.

TABLE H-6A.—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR MANUAL-GRADE POLYESTER, POLYPROPYLENE, AND STEEL STRAPPING

Product	Material	Post-consumer content (%)	Total recovered materials content (%)
Polyester strapping.	PET	50-85	50-85
	PP		10-40
Polypropylene strapping.			
Steel strapping.	Steel	10-15	25-100

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

Specifications: EPA is not aware of specifications unique to strapping containing recovered materials. EPA notes that strapping containing recovered materials can meet the ASTM strapping specifications and selection guide listed in Table H-6b.

Table H-6b.—RECOMMENDED ASTM SPECIFICATIONS AND GUIDE FOR STRAPPING

ASTM specification/guide No.	Title
ASTM D 3953 ...	Standard Specification for Strapping, Flat Steel and Seals.
ASTM D 3950 ...	Standard Specification for Strapping, Nonmetallic (and Joining Methods).
ASTM D 4675 ...	Standard Guide for Selection and Use of Flat Strapping Materials.

Section H-7. Signage

Preference Program: EPA recommends that, based on the recovered materials content levels shown in Table H-7, procuring agencies establish minimum content standards for use in purchasing plastic signs for non-road applications (e.g., building signs, trail signs) and aluminum signs for roadway or non-road applications containing recovered materials. EPA also recommends that, based on the recovered materials content levels shown in Table H-7, procuring agencies establish minimum content standards for use in purchasing sign supports and posts containing recovered plastic or steel.

TABLE H-7.—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR SIGNS CONTAINING RECOVERED PLASTIC OR ALUMINUM AND SIGN POSTS/SUPPORTS CONTAINING RECOVERED PLASTIC OR STEEL

Item/material	Post-consumer content (%)	Total recovered materials content (%)
Plastic signs	80-100	80-100
Aluminum signs		25
Plastic sign posts/supports	80-100	80-100
Steel sign posts/supports		25-100

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

EPA's recommendations do not preclude a procuring agency from purchasing signs or sign posts made from other materials. They simply require that procuring agencies, 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.

Specifications: EPA is not aware of specifications for non-road signs containing recovered materials. Standard specifications for road sign size, lettering, color, strength, and performance requirements can be found in the "Manual on Uniform Traffic Control Devices," which is published by the Federal Highway Administration.

[FR Doc. 98-22794 Filed 8-25-98; 8:45 am]

BILLING CODE 6560-50-P