

ENVIRONMENTAL PROTECTION AGENCY

[SWH-FRL-6524-3]

Recovered Materials Advisory Notice III

AGENCY: Environmental Protection Agency.

ACTION: Notice of Availability of Final Document.

SUMMARY: The Environmental Protection Agency is providing notice of the availability of the final Recovered Materials Advisory Notice III (RMAN III) and supporting materials. The final RMAN III contains EPA's recommendations for purchasing 18 items designated in the final Comprehensive Procurement Guideline III, which is published elsewhere in today's **Federal Register**. This action will help use government purchasing power to stimulate the use of recovered materials in the manufacture of new products and expand markets for those recovered materials. EPA designates items that are or can be made with recovered materials and provides recommendations for the procurement of these items under section 6002 of the Resource Conservation and Recovery Act of 1976 (RCRA). The 18 items EPA is making recommendations for include: Carpet cushion; flowable fill; railroad grade crossing surfaces; park benches and picnic tables; 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; sorbents (*i.e.*, absorbents and adsorbents); awards and plaques; industrial drums; mats; signage; and manual-grade strapping. The final RMAN III contains recommended recovered materials content levels for these items and provides other purchasing recommendations. RMAN III also contains revised recovered materials content recommendations for steel shower and restroom dividers/partitions, steel recycling containers and waste receptacles, and the steel components of traffic barricades and delineators. These items were previously designated in CPG I and II with recommendations provided in RMAN I and II. The revised recommended recovered materials content levels for these previously designated items are based on comments submitted on the draft RMAN III for all items containing recovered steel.

EFFECTIVE DATES: The recommendations for purchasing the 18 newly-designated items are effective January 19, 2001. The recommendations for previously designated items (*i.e.*, steel shower and restroom dividers/partitions, steel recycling containers and waste receptacles, and steel components of traffic barricades and delineators) are effective January 19, 2000.

ADDRESSES: The public docket for this notice is Docket F-1999-CP3F-FFFFF. Documents related to today's notice are available for viewing in the RCRA Information Center (RIC), which is located at U.S. Environmental Protection Agency, Crystal Gateway One, 1235 Jefferson Davis Highway, Ground Floor, Arlington, VA 22202. The RIC is open from 9 a.m. to 4 p.m., Monday through Friday, except for Federal holidays. To review docket materials, it is recommended that the public make an appointment by calling (703) 603-9230. Copies cost \$0.15/page. The index and some supporting materials are available electronically. For information on accessing the documents electronically, see Section V of the **SUPPLEMENTARY INFORMATION** section below.

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:

Preamble Outline

- I. What is the statutory authority for this action?
- II. Why is EPA taking this action?
- III. What are the definitions of terms used in this action?
- V. What did commenters say about the recommendations in the draft RMAN III?
 - A. Comments on Proposed Items Containing Recovered Steel
 - B. Comments on Specifications for Flowable Fill
- V. Supporting Information and Accessing Internet

I. What Is the Statutory Authority for This Action?

The Recovered Materials Advisory Notice III (RMAN III) is published 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 6962; and Executive Order (E.O.) 13101 (63 FR 49643, September 14, 1998).

II. Why Is EPA Taking This Action?

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 produced 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 designates an item, section 6002 requires that each procuring agency that procures the designated item using appropriated Federal funds, must procure that item containing 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; and (3) any contractors with these agencies (with respect to work performed under the contract). The requirements of section 6002 apply to procuring agencies only when procuring a designated item where the price of the item exceeds \$10,000 or when the quantity of the item, or functionally equivalent items, purchased in the previous year exceeded \$10,000.

Executive Order 13101 (63 FR 49643, September 14, 1998) requires EPA to designate items in a Comprehensive Procurement Guideline (CPG) and publish guidance that contains EPA's recommended recovered materials content levels for the designated items in Recovered Materials Advisory Notices (RMAN). The Executive Order (E.O.) also requires EPA to update the CPG every two years and the RMAN 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 RMAN is not codified in the CFR. This process allows EPA to revise its recommendations in a timely manner and in response to changes in a product's availability or recovered materials content.

EPA promulgated the CPG I and issued notice of RMAN I on May 1, 1995 (60 FR 21370 and 21386, respectively). CPG I designated 19 items and consolidated five previous item designations made in earlier EPA procurement guidelines, and RMAN I recommended purchasing practices for these 24 items. On November 13, 1997, EPA published CPG II (62 FR 60962), which designated an additional 12 items and concurrently published an RMAN II (62 FR 60975). The final RMAN II also

provided clarification of EPA's 1995 recommendations for purchasing floor tiles containing recovered materials. Paper Products RMANs were issued on May 29, 1996 (61 FR 26985) and June 8, 1998 (63 FR 31214). On August 26, 1998, EPA proposed CPG III (63 FR 4558), which proposed to designate an additional 19 items. EPA concurrently published a draft RMAN III (63 FR 45580). The 19 items EPA proposed for designation were: nylon carpet with backing containing recovered materials; carpet cushion; flowable fill; railroad grade crossing surfaces; park benches and picnic tables; 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; sorbents (*i.e.*, absorbents and adsorbents); awards and plaques; industrial drums; mats; signage; and manual-grade strapping. Today, EPA is publishing recommendations for 18 of the 19 items. EPA is not designating nylon carpet with backing containing recovered materials at this time and, therefore, is not publishing final recommendations for purchasing this item. The reasons for this decision are discussed in the final CPG III, published in the rules section of today's **Federal Register**.

EPA wants to stress that the recommendations in its RMAN are just that—recommendations and guidance to procuring agencies to help them meet their obligations under section 6002. The designation of an item as one that is or can be manufactured with recovered materials and the inclusions of recommended content levels for an item in an RMAN do not require the procurement of an item when it is not suitable for an agency's intended purpose. Section 6002 is explicit about this 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 final CPG III published elsewhere in today's **Federal Register**, EPA is designating playground equipment as an item that is or can be produced with recovered materials. The Agency's research shows that this item is available in either steel, aluminum, or plastic containing recovered materials. However, the mere fact that this item is available containing recovered materials does not require the procurement of steel, aluminum, or plastic playground equipment in every circumstance. The

choice of appropriate materials may depend on state or local codes. The effect of EPA's designation (and section 6002) is simply to require the purchase of items with recovered materials where consistent with the purpose of how the item is to be used. Procuring agencies remain free to procure playground equipment made of materials other than steel, aluminum, or plastic (*e.g.*, wood) where the design specifications call for other materials.

III. What Are the Definitions of Terms Used in This Action?

Today's final RMAN III recommends postconsumer or recovered materials content levels which EPA believes the designated items are generally available. The RMAN III recommends two different measures of recovered materials: (1) A component of postconsumer recovered materials and (2) a component of total recovered materials for the following items: carpet cushion; railroad-grade crossing surfaces; park benches and picnic tables; playground equipment; plastic lumber landscaping timbers and posts; plastic binders, clipboards, file folders, clip portfolios, and presentation folders; sorbents; industrial drums; awards and plaques; mats; signage; and manual-grade strapping. For these items, EPA found that manufacturers were using both types of materials to manufacture these products. If the Agency recommended only postconsumer content levels it would fail to meet the RCRA mandate to maximize the use of recovered materials, because it would fail to acknowledge the contribution that manufacturers using other manufacturers' byproducts as feedstock have made to solid waste management. EPA defined the terms "recovered materials" and "postconsumer materials" in the CPG and in 40 CFR 247.3. We repeat the definitions for these terms in this notice for the convenience of the reader.

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 the term does not include those materials and byproducts generated from, and commonly used within, an original manufacturing process.

IV. What Did Commenters Say About the Recommendations in the Draft RMAN III?

This section discusses the major public comments on the draft RMAN III. The Agency received a number of significant comments related to flowable fill and the recommended recovered materials content levels for proposed designated items containing recovered steel. These comments are discussed below. A summary of all of the comments and the Agency's response is provided in the document entitled "Background Document for the Final Comprehensive Procurement Guideline (CPG) III and Recovered Materials Advisory Notice (RMAN) III," September 1999, hereafter referred to as the "Background Document for the Final CPG III/RMAN III." A copy of this document has been placed in the docket for the final RMAN III. See **ADDRESSES** above for information about reviewing documents in the public docket. This document is also available electronically on the Internet. See Section V of this notice for information on accessing this document electronically.

A. Comments on Proposed Designated Items Containing Recovered Steel

Comment: The Steel Recycling Institute (SRI) submitted comments noting that all items proposed for designation (with the exception of industrial drums) could be manufactured with steel made by both Basic Oxygen Furnace (BOF) and Electric Arc Furnace (EAF) processes. SRI noted that items made by the BOF process typically contain 25 to 30 percent recovered materials including more than 15 percent postconsumer steel. When these items are made out of steel manufactured by the EAF process they may contain up to 100 percent recovered materials, including 67 percent postconsumer steel. SRI suggested EPA recommend recycled content levels of 16 percent postconsumer and 25 percent total recovered content for all items made from BOF steel and 67 percent postconsumer and 100 percent total recovered content when items are made from EAF steel. SRI pointed out that currently, industrial drums are only being made from BOF steel and, therefore, contain a total of 25 percent total recovered steel, including 16 percent postconsumer steel. SRI requested that, for all items proposed in CPG III containing steel, the final RMAN III should reflect these recovered materials content levels.

Response: EPA included the recommended recovered materials content levels for steel in this final RMAN notice to reflect SRI's comments regarding BOF and EAF manufactured steel for the items designated in the CPG, with one exception. Rather than recommend a single total recovered materials content level of 25 percent for items made from BOF steel, the Agency is recommending a range of 25–30 percent. The use of a recovered materials content range in this instance reflects both the information provided by SRI and the requirements of E.O. 13101 for making recommendations. EPA is also revising the content level recommendations for the steel component of traffic barricades and delineators, steel recycling containers and waste receptacles, and for steel shower and restroom dividers/partitions to reflect this new information. These items were designated in CPG I and CPG II. No other revisions to the recommendations for items previously designated in CPG I and CPG II are being made at this time.

B. Comments on Specifications for Flowable Fill

Comment: The FIRST Project (Foundry Industry Recycling Starts Today), an industry consortium, suggested that there is an inconsistency with two of the specifications listed in the RMAN for flowable fill. ASTM's C33–93 Concrete Aggregate specification limits the use of some spent sands that have fines content greater than 3 to 5 percent, while ACI 229R–94 indicates that foundry sands with up to 20 percent fines were successfully utilized in flowable fill mix designs. The commenter believes that recommending ASTM C33–93 effectively limits the use of this material without taking into account whether the performance specification is clearly met. The commenter suggests that the mix design specification should be based on performance, not simply on the aggregate.

Response: EPA has learned that ASTM C33–93 was developed to optimize the strength and compactability of concrete and was not meant to be used with controlled low-strength material or flowable fill. The Agency, therefore, recognizes that ASTM C33–93 may not be an appropriate specification for sands used in flowable fill. Procuring agencies may wish to use this specification's physical tests as a measure to assure the quality and uniformity of the sands used in flowable fill; however, the agency now believes this specification should not be referred to for gradation requirements.

Based on this information, the final RMAN III for flowable fill has been revised to delete any reference to the use of ASTM C33–93 for gradation purposes. The RMAN recommends that procuring agencies "refer to ASTM C33–93, "Standard Specification for Concrete," to assure the quality and uniformity of the ferrous foundry sands in flowable fill * * *."

V. Supporting Information and Accessing Internet

The index of supporting materials for today's final RMAN III is available in the RCRA Information Center (RIC) and on the Internet. The address and telephone number of the RIC are provided in the **ADDRESSES** section above. The index and the following supporting materials are available on the Internet:

"Background Document for the Final CPG III/RMAN III," U.S. EPA, Office of Solid Waste and Emergency Response, September 1999.

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

"Telephone Notes, Flowable Fill Specifications, Between Lynne Gilbert, Eastern Research Group and Paul Tikalsky, Penn State University, May 12, 1999."

To access information on the Internet go to <www.epa.gov/cpg>.

Dated: January 10, 2000.

Carol M. Browner,
Administrator.

Recovered Materials Advisory Notice III

The following represents EPA's recommendations to procuring agencies for purchasing the items designated today in the Comprehensive Procurement Guideline III in compliance with section 6002 of the Resource Conservation and Recovery Act (RCRA) and section 502(b) of E.O. 13101. These recommendations are intended to be used in conjunction with the RMANs issued on May 1, 1995 (60 FR 21386) and November 13, 1997 (62 FR 60975) and the Paper Products RMANs issued on May 29, 1996 (61 FR 26985) and June 8, 1998 (63 FR 31214). Refer to May 1, 1995 and November 13, 1997 RMANs for definitions, general recommendations for affirmative procurement programs, and recommendations for previously designated items. In the case of traffic barricades, delineators, recycling containers and waste receptacles, and shower and restroom dividers/partitions, the recommendations published today revise the previous

recommendations issued in RMAN I and RMAN II.

Contents

- I. General Recommendations
- II. Specific Recommendations for Procurement of Designated Items
- Part C. Construction Products
 - Section C–6 (Revised). Shower and Restroom Dividers/Partitions Containing Recovered Plastic or Steel
 - Section C–8. Carpet Cushion Made from Bonded Polyurethane, Jute, Synthetic Fibers, or Rubber Containing Recovered Materials.
 - Section C–9. Flowable Fill Containing Coal Fly Ash and/or Ferrous Foundry Sands.
 - Section C–10. Railroad Grade Crossing Surfaces Containing Coal Fly Ash, Recovered Rubber, or Recovered Steel
- Part D. Transportation Products
 - Section D–1 (Revised). Temporary Traffic Control Devices
 - Section D–3 (Revised). Channelizers, Delineators, and Flexible Delineators Containing Recovered Plastic, Rubber, or Steel
- Part E. Park and Recreation Products
 - Section E–3. Park Benches and Picnic Tables Containing Recovered Steel, Aluminum, Plastic, or Concrete.
 - Section E–4. Playground Equipment Containing Recovered Plastic, Steel, or Aluminum.
- Part F. Landscaping Products
 - Section F–2. Compost Made From Yard Trimmings, Leaves, Grass Clippings, and/or Food Waste.
 - Section F–5. Plastic Lumber Landscaping Timbers and Posts Containing Recovered Materials.
- Part G. Non-Paper Office Products
 - Section G–1 (Revised). Office Recycling Containers and Office Waste Receptacles Containing Recovered Paper, Plastic, or Steel
 - Section G–8. Solid Plastic Binders, Plastic Clipboards, Plastic File Folders, Plastic Clip Portfolios, and Plastic Presentation Folders Containing Recovered Plastic
- Part H. Miscellaneous Products
 - Section H–2. Sorbents Containing Recovered Materials for Use in Oil and Solvent Clean-Ups and as Animal Bedding.
 - Section H–3. Industrial Drums Containing Recovered Steel, Plastic, or Paper.
 - Section H–4. Awards and Plaques Containing Recovered Glass, Wood, Paper, or Plastic.
 - Section H–5. Mats Containing Recovered Rubber and/or Plastic.
 - Section H–6. Manual-grade Strapping Containing Recovered Steel or Plastic.
 - Section H–7. Non-Road Signs Containing Recovered Plastic or Aluminum and Road Signs Containing Recovered Aluminum.

I. General Recommendations

General recommendations for definitions, specifications, and affirmative procurement programs can be found in the May 1, 1995 RMAN (60 FR 21386).

II. Specific Recommendations for Procurement of Designated Items

Recommendations for purchasing previously-designated items can be found in the May 1, 1995 and November 13, 1997 RMANs and the May 29, 1996 and June 8, 1998 Paper Products RMANs. Revised recovered materials content level recommendations for the steel components of traffic barricades and delineators, steel shower and restroom dividers/partitions, and steel office recycling containers and waste receptacles are included in today's notice.

Part C—Construction Products

Note: Refer to Section E—2—Plastic Fencing Containing Recovered Plastic for Specified Uses and to Part F—Landscaping Products for additional items that can be used in construction applications.

Section C-6 (Revised). Shower and Restroom Dividers/Partitions Containing Recovered Plastic or Steel

Preference Program: EPA recommends that, based on the recovered materials content levels shown in Table C-6, procuring agencies establish minimum content standards for use in purchasing shower and restroom dividers/partitions.

TABLE C-6 (REVISED).—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR SHOWER AND RESTROOM DIVIDERS/PARTITIONS CONTAINING RECOVERED PLASTIC OR STEEL

Material	Postconsumer materials (%)	Total recovered materials content (%)
Steel	16 67	25–30 100
Plastic	20–100	20–100

NOTES: EPA's recommendation does not preclude agencies from purchasing shower and restroom dividers/partitions manufactured from another material, such as wood. It simply recommends that procuring agencies, when purchasing shower and restroom dividers/partitions made from plastic or steel, purchase these items made from recovered materials when these items meet applicable specifications and performance requirements.

The 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.

Specifications: EPA recommends that procuring agencies use the following specifications when procuring shower and restroom dividers/partitions:

(1) The American Institute of Architects (AIA) has issued guidance for specifying construction materials, including plastic and steel dividers/partitions. The AIA guidance is known throughout the construction industry as the "Masterspec" and is available through the U.S. General Services Administration (GSA).

(2) U.S. Army Corps of Engineers' Guide Specification CEGS-10160, Toilet Partitions.

Section C-8. 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-8, procuring agencies establish minimum content standards for use in purchasing bonded polyurethane, jute, synthetic fiber, or rubber carpet cushion containing recovered materials.

TABLE C-8.—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR BONDED POLYURETHANE, JUTE, SYNTHETIC FIBER, AND RUBBER CARPET CUSHION

Product	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
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 any appropriate 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-9. 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 depends 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-9a and C-9b 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-9a.—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-9b.—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-9c provides the recommended trial mixture from this specification.

TABLE C-9c.—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	2,850
Water	500

- Materials specifications and test methods. EPA recommends that procuring agencies use ACI229R-94 and the ASTM standards listed in Table C-9d 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," to assure the quality and uniformity of the ferrous foundry sands used as aggregates in flowable fills.

TABLE C-9d.—RECOMMENDED TEST METHODS FOR FLOWABLE FILLS (CONTROLLED LOW STRENGTH MATERIALS)

ASTM specification Number	Title
D4832-95e1	Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders.
D5239-92	Standard Practice for Characterizing Fly Ash for Use in Soil Stabilization.
D5971-96	Standard Practice for Sampling Freshly Mixed Controlled Low Strength Material.
D6103-07	Standard Test Method for Flow Consistency of Controlled Low Strength Material.
D6023-96	Standard Test Method for Unit Weight, Yield, Cement Content and Air Content (Gravimetric) of Controlled Low Strength Material (CLSM).
D5971-96	Standard Practice for Sampling Freshly Mixed Controlled Low Strength Material.
d6024-96	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-10. 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-10a, 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-10a.—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR CONCRETE, RUBBER, AND STEEL RAILROAD GRADE CROSSING SURFACES

Surface material	Recovered material	Postconsumer content (%)	Total recovered materials content (%)
Concrete	fly ash	.....	15-20
Rubber	Tire rubber	.....	85-95
Steel	Steel	16	25-30
		67	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.

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 other 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.

The 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.

Specifications: EPA recommends that procuring agencies use the ASTM standards listed in Table C-10b when

purchasing rubber railroad grade crossing surfaces. EPA recommends that procuring agencies use the ASTM and

AASHTO standards listed in Table C-10c when purchasing concrete railroad grade crossing surfaces.

TABLE C-10b.—RECOMMENDED SPECIFICATIONS FOR RUBBER RAILROAD GRADE CROSSINGS

ASTM specification number	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.
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.

TABLE C-10b.—RECOMMENDED SPECIFICATIONS FOR RUBBER RAILROAD GRADE CROSSINGS—Continued

ASTM specification number	Title
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-10c.—RECOMMENDED SPECIFICATIONS FOR CEMENT AND CONCRETE CONTAINING RECOVERED MATERIALS

Specification number	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.

TABLE C-10c.—RECOMMENDED SPECIFICATIONS FOR CEMENT AND CONCRETE CONTAINING RECOVERED MATERIALS—Continued

Specification number	Title
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 D. Transportation Products

Section D-1 (Revised). Temporary Traffic Control Devices

Preference Program: EPA recommends that, based on the recovered materials content levels shown in Table D-1, procuring agencies establish minimum content standards for use in purchasing traffic cones and traffic barricades.

TABLE D-1 (REVISED).—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR TRAFFIC CONES AND TRAFFIC BARRICADES

Product	Material	Postconsumer materials (%)	Total recovered materials (%)
Traffic Cones	PVC, LDPE, Crumb Rubber	—	50–100
Traffic Barricades	HDPE, LDPE, PET	80–100	100
	Steel	16	25–30
		67	100
	Fiberglass	—	100

NOTES: The 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.

The 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.

Section D-3 (Revised). Channelizers, Delineators, and Flexible Delineators Containing Recovered Plastic, Rubber, or Steel

Preference Program: EPA recommends that, based on the

recovered materials content levels shown in Table D-3 (Revised), procuring agencies establish minimum content standards for use in purchasing channelizers, delineators, and flexible delineators.

TABLE D-3 (REVISED).—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR CHANNELIZERS, DELINEATORS, AND FLEXIBLE DELINEATORS CONTAINING RECOVERED PLASTIC, RUBBER, OR STEEL

Product	Material	Postconsumer content (%)
Channelizers	Plastic	25–95
	Rubber (base only)	100
Delineators	Plastic	25–90
	Rubber (base only)	100
	Steel (base only)	16% postconsumer and 25–30% total recovered materials or 67% postconsumer and 100% total recovered materials.
Flexible delineators	Plastic	25–85

Notes: EPA'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.

The 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.

Specifications: EPA recommends that procuring agencies use the following specifications when procuring channelizers, delineators, and flexible delineators:

(1) The Federal Highway Administration's *Manual on Uniform Traffic Control Devices* contains specifications for the size, shape, mounting, and placement of temporary traffic control devices.

(2) The States of Florida and North Carolina have specifications that require the use of recovered materials in their flexible delineators. The California Department of Transportation (CALTRANS) has specifications for "Drivable Flexible Plastic Guide Marker and Clearance Marker Posts." A copy of these specifications are available from the RCRA Hotline at 1-800-424-9346.

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 PARK BENCHES AND PICNIC TABLES CONTAINING RECOVERED ALUMINUM, STEEL, CONCRETE OR PLASTIC

Material	Postconsumer content (%)	Total recovered materials content (%)
Plastics	90–100	100
Plastic composites	50–100	00
Aluminum	25	25
Concrete .....	.....	15–40
Steel	67	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.

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

Material	Postconsumer content (%)	Total recovered materials content (%)
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The 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.

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, concrete, or aluminum. EPA recommends that procuring agencies ensure that there is no language in their specifications for park benches or picnic tables that would preclude or discourage the use of products containing recovered materials.

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	Postconsumer content (%)	Total recovered materials content (%)
Plastics	90–100	100
Plastic Composites	50–75	95–100
Steel	16	25–30
	67	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.

The 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.

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.

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

ASTM Specification Number	Title
D 6117-97 ...	Standard Test Method for Mechanical Fasteners in Plastic Lumber and Shapes.

Part F. Landscaping Products

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

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. Procuring agencies should substitute these recommendations 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 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 G. Non-Paper Office Products

Section G-1 (Revised). Office Recycling Containers and Office Waste Receptacles

Preference Program: EPA recommends that, based on the

recovered materials content levels shown in Table G-1 (Revised), procuring agencies establish minimum content standards for use in purchasing office recycling containers and office waste receptacles.

TABLE G-1 (REVISED)—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR OFFICE RECYCLING CONTAINERS AND OFFICE WASTE RECEPTACLES

Product	Recovered materials (materials and percent)
Office Recycling Containers and Office Waste Receptacles.	Plastic: 20-100 Postconsumer Recovered Materials. Paper: Refer to the Paper Products Recommendations in Part A of RMAN. Steel: 16% postconsumer and 25%-30% total recovered materials.

Notes: EPA's recommendations for office recycling containers and office waste receptacles containing recovered plastic, paper, or steel do not preclude a procuring agency from purchasing containers or receptacles manufactured from another material, such as wood. They simply require that procuring agencies, when purchasing office recycling containers or office waste receptacles manufactured from plastic, paper, or steel, purchase these items made with recovered materials when the items meet applicable specifications and performance requirements.

TABLE G-1 (REVISED)—RECOMMENDED RECOVERED MATERIALS CONTENT LEVELS FOR OFFICE RECYCLING CONTAINERS AND OFFICE WASTE RECEPTACLES—Continued

Product	Recovered materials (materials and percent)
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The 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.

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
	HDPE	90	90
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.

EPA recommends that procuring agencies ensure that there is no language in their specifications for these items that would preclude or discourage

the use of products containing recovered materials.

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	Postconsumer content (%)	Total recovered materials content (%)
Paper	90–100	100
Textiles	95–100	95–100
Plastics .....	.....	25–100
Wood .....	.....	100

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

Material	Postconsumer content (%)	Total recovered materials content (%)
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 number	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	Postconsumer content (%)	Total recovered materials content (%)
Steel drums	Steel	16	25–30
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.

The 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.

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	Postconsumer content (%)	Total recovered materials content (%)
Glass	75–100	100
Wood .....	.....	100
Paper	40–100	40–100

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

Material	Postconsumer content (%)	Total recovered materials content (%)
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. EPA recommends that procuring agencies ensure that there is no language in their specifications for awards and plaques that would preclude or discourage the use of products containing recovered materials.

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	Postconsumer 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. When purchasing mats with steel or aluminum linkages, the Agency recommends that these linkages also contain recovered materials.

Specifications: EPA is not aware of specifications or standards for mats containing recovered materials. EPA recommends that procuring agencies ensure that there is no language in their specifications for mats that would preclude or discourage the use of products containing recovered materials. 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	Postconsumer content (%)	Total recovered materials content (%)
Polyester strapping	PET	50–85	50–85
Polypropylene strapping	PP	10–40	10–40
Steel strapping	Steel	16	25–30
		67	100

Notes: 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.

The 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.

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 number	Title
ASTM 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	Postconsumer content (%)	Total recovered materials content (%)
Plastic signs	80–100	80–100
Aluminum signs	25	25
Plastic sign posts/supports	80–100	80–100
Steel sign posts/supports	16	25–30
	67	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.

The 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.

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. Applicable portions of this manual have been placed in the RCRA public docket for the proposed CPG/RMAN III notices.

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