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**Title 40 —Protection of Environment**  
**Chapter I —Environmental Protection Agency**  
**Subchapter I —Solid Wastes**

**Part 241** Solid Wastes Used as Fuels or Ingredients in Combustion Units

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## **PART 241—SOLID WASTES USED AS FUELS OR INGREDIENTS IN COMBUSTION UNITS**

**Authority:** 42 U.S.C. 6903, 6912, 7429.

**Source:** 76 FR 15549, Mar. 21, 2011, unless otherwise noted.

### **Subpart A—General**

#### **§ 241.1 Purpose.**

This part identifies the requirements and procedures for the identification of solid wastes used as fuels or ingredients in combustion units under section 1004 of the Resource Conservation and Recovery Act and section 129 of the Clean Air Act.

#### **§ 241.2 Definitions.**

For the purposes of this subpart:

*Clean cellulosic biomass* means those residuals that are akin to traditional cellulosic biomass, including, but not limited to: Agricultural and forest-derived biomass (e.g., green wood, forest thinnings, clean and unadulterated bark, sawdust, trim, tree harvesting residuals from logging and sawmill materials, hogged fuel, wood pellets, untreated wood pallets); urban wood (e.g., tree trimmings, stumps, and related forest-derived biomass from urban settings); corn stover and other biomass crops used specifically for the production of cellulosic biofuels (e.g., energy cane, other fast growing grasses, byproducts of ethanol natural fermentation processes); bagasse and other crop residues (e.g., peanut shells, vines, orchard trees, hulls, seeds, spent grains, cotton byproducts, corn and peanut production residues, rice milling and

grain elevator operation residues); wood collected from forest fire clearance activities, trees and clean wood found in disaster debris, clean biomass from land clearing operations, and clean construction and demolition wood. These fuels are not secondary materials or solid wastes unless discarded. Clean biomass is biomass that does not contain contaminants at concentrations not normally associated with virgin biomass materials.

**Construction and demolition (C&D) wood** means wood that is generated from the processing of debris from construction and demolition activities for the purposes of recovering wood. C&D wood from construction activities results from wood generated during any installation activity or from purchasing more wood than a project ultimately requires. C&D wood from demolition activities results from dismantling buildings and other structures, removing materials during renovation, or from natural disasters.

**Contaminants** means all pollutants listed in Clean Air Act sections 112(b) or 129(a)(4), with the following three modifications:

- (1) The definition includes the elements chlorine, fluorine, nitrogen, and sulfur in cases where non-hazardous secondary materials are burned as a fuel and combustion will result in the formation of hydrogen chloride (HCl), hydrogen fluoride (HF), nitrogen oxides (NO<sub>x</sub>), or sulfur dioxide (SO<sub>2</sub>). Chlorine, fluorine, nitrogen, and sulfur are not included in the definition in cases where non-hazardous secondary materials are used as an ingredient and not as a fuel.
- (2) The definition does not include the following pollutants that are either unlikely to be found in non-hazardous secondary materials and products made from such materials or are adequately measured by other parts of this definition: hydrogen chloride (HCl), chlorine gas (Cl<sub>2</sub>), hydrogen fluoride (HF), nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), fine mineral fibers, particulate matter, coke oven emissions, opacity, diazomethane, white phosphorus, and titanium tetrachloride.
- (3) The definition does not include m-cresol, o-cresol, p-cresol, m-xylene, o-xylene, and p-xylene as individual contaminants distinct from the grouped pollutants total cresols and total xylenes.

**Contained** means the non-hazardous secondary material is stored in a manner that adequately prevents releases or other hazards to human health and the environment considering the nature and toxicity of the non-hazardous secondary material.

**Control** means the power to direct the policies of the facility, whether by the ownership of stock, voting rights, or otherwise, except that contractors who operate facilities on behalf of a different person as defined in this section shall not be deemed to "control" such facilities.

**Copper naphthenate treated railroad ties** means railroad ties treated with copper naphthenate made from naphthenic acid and copper salt.

**Copper naphthenate-borate treated railroad ties** means railroad ties treated with copper naphthenate and borate, including borate made from disodium octaborate tetrahydrate.

**Creosote treated railroad ties** means railway support ties treated with a wood preservative containing creosols and phenols and made from coal tar oil.

**Creosote-borate treated railroad ties** means railroad ties treated with a wood preservative containing creosols and phenols and made from coal tar oil and borate, including borate made from disodium octaborate tetrahydrate.

**Established tire collection program** means a comprehensive collection system or contractual arrangement that ensures scrap tires are not discarded and are handled as valuable commodities through arrival at the combustion facility. This can include tires that were not abandoned and were received from the general public at collection program events.

**Generating facility** means all contiguous property owned, leased, or otherwise controlled by the non-hazardous secondary material generator.

**Ingredient** means a non-hazardous secondary material that is a component in a compound, process or product.

**Non-hazardous secondary material** means a secondary material that, when discarded, would not be identified as a hazardous waste under Part 261 of this chapter.

**Paper recycling residuals** means the secondary material generated from the recycling of paper, paperboard and corrugated containers composed primarily of fibers that are too small or weak to be used to make new paper and paperboard products. Secondary material from paper recycling processes with a heating value below 6,300 Btu/lb on a dry basis due to excessive non-fiber material content (including polystyrene foam, polyethylene film, other plastics, waxes, adhesives, dyes and inks, clays, starches and other coating and filler material) are not paper recycling residuals for the purposes of this definition.

**Person** is defined as an individual, trust, firm, joint stock company, Federal agency, corporation (including government corporation), partnership, association, State, municipality, commission, political subdivision of a state, or any interstate body.

**Power producer** means a boiler unit producing electricity for sale to the grid. The term does not include units meeting the definition of electricity generating unit under 40 CFR 63.10042.

**Processing** means any operations that transform discarded non-hazardous secondary material into a non-waste fuel or non-waste ingredient product. Processing includes, but is not limited to, operations necessary to: Remove or destroy contaminants; significantly improve the fuel characteristics of the material, e.g., sizing or drying the material in combination with other operations; chemically improve the as-fired energy content; or improve the ingredient characteristics. Minimal operations that result only in modifying the size of the material by shredding do not constitute processing for purposes of this definition.

**Resinated wood** means wood products (containing binders and adhesives) produced by primary and secondary wood products manufacturing. Resinated wood includes residues from the manufacture and use of resinated wood, including materials such as board trim, sander dust, panel trim, and off-specification resinated wood products that do not meet a manufacturing quality or standard.

**Secondary material** means any material that is not the primary product of a manufacturing or commercial process, and can include post-consumer material, off-specification commercial chemical products or manufacturing chemical intermediates, post-industrial material, and scrap.

**Solid waste** means the term solid waste as defined in 40 CFR 258.2.

**Traditional fuels** means materials that are produced as fuels and are unused products that have not been discarded and therefore, are not solid wastes, including:

- (1) Fuels that have been historically managed as valuable fuel products rather than being managed as waste materials, including fossil fuels (e.g., coal, oil and natural gas), their derivatives (e.g., petroleum coke, bituminous coke, coal tar oil, refinery gas, synthetic fuel, heavy recycle, asphalts, blast furnace gas, recovered gaseous butane, and coke oven gas) and cellulosic biomass (virgin wood); and

- (2) alternative fuels developed from virgin materials that can now be used as fuel products, including used oil which meets the specifications outlined in 40 CFR 279.11, currently mined coal refuse that previously had not been usable as coal, and clean cellulosic biomass. These fuels are not secondary materials or solid wastes unless discarded.

*Within control of the generator* means that the non-hazardous secondary material is generated and burned in combustion units at the generating facility; or that such material is generated and burned in combustion units at different facilities, provided the facility combusting the non-hazardous secondary material is controlled by the generator; or both the generating facility and the facility combusting the non-hazardous secondary material are under the control of the same person as defined in this section.

[76 FR 15549, Mar. 21, 2011, as amended at 78 FR 9211, Feb. 7, 2013; 81 FR 6742, Feb. 8, 2016; 83 FR 5340, Feb. 7, 2018; 88 FR 71775, Oct. 18, 2023]

## Subpart B—Identification of Non-Hazardous Secondary Materials That Are Solid Wastes When Used as Fuels or Ingredients in Combustion Units

### § 241.3 Standards and procedures for identification of non-hazardous secondary materials that are solid wastes when used as fuels or ingredients in combustion units.

- (a) Except as provided in paragraph (b) of this section or in § 241.4(a) of this subpart, non-hazardous secondary materials that are combusted are solid wastes, unless a petition is submitted to, and a determination granted by, the EPA pursuant to paragraph (c) of this section. The criteria to be addressed in the petition, as well as the process for making the non-waste determination, are specified in paragraph (c) of this section.
- (b) The following non-hazardous secondary materials are not solid wastes when combusted:
  - (1) Non-hazardous secondary materials used as a fuel in a combustion unit that remain within the control of the generator and that meet the legitimacy criteria specified in paragraph (d)(1) of this section.
  - (2) The following non-hazardous secondary materials that have not been discarded and meet the legitimacy criteria specified in paragraph (d)(1) of this section when used in a combustion unit (by the generator or outside the control of the generator):
    - (i) [Reserved]
    - (ii) [Reserved]
  - (3) Non-hazardous secondary materials used as an ingredient in a combustion unit that meet the legitimacy criteria specified in paragraph (d)(2) of this section.
  - (4) Fuel or ingredient products that are used in a combustion unit, and are produced from the processing of discarded non-hazardous secondary materials and that meet the legitimacy criteria specified in paragraph (d)(1) of this section, with respect to fuels, and paragraph (d)(2) of this section, with respect to ingredients. The legitimacy criteria apply after the non-hazardous secondary material is processed to produce a fuel or ingredient product. Until the discarded non-hazardous secondary material is processed to produce a non-waste fuel or ingredient, the discarded non-hazardous secondary material is considered a solid waste and would be subject to all appropriate federal, state, and local requirements.

- (c) The Regional Administrator may grant a non-waste determination that a non-hazardous secondary material that is used as a fuel, which is not managed within the control of the generator, is not discarded and is not a solid waste when combusted. This responsibility may be retained by the Assistant Administrator for the Office of Land and Emergency Management if combustors are located in multiple EPA Regions and the petitioner requests that the Assistant Administrator process the non-waste determination petition. If multiple combustion units are located in one EPA Region, the application must be submitted to the Regional Administrator for that Region. The criteria and process for making such non-waste determinations includes the following:
- (1) Submittal of an application to the Regional Administrator for the EPA Region where the facility or facilities are located or the Assistant Administrator for the Office of Land and Emergency Management for a determination that the non-hazardous secondary material, even though it has been transferred to a third party, has not been discarded and is indistinguishable in all relevant aspects from a fuel product. The determination will be based on whether the non-hazardous secondary material that has not been discarded is a legitimate fuel as specified in paragraph (d)(1) of this section and on the following criteria:
    - (i) Whether market participants treat the non-hazardous secondary material as a product rather than as a solid waste;
    - (ii) Whether the chemical and physical identity of the non-hazardous secondary material is comparable to commercial fuels;
    - (iii) Whether the non-hazardous secondary material will be used in a reasonable time frame given the state of the market;
    - (iv) Whether the constituents in the non-hazardous secondary material are released to the air, water or land from the point of generation to the point just prior to combustion of the secondary material at levels comparable to what would otherwise be released from traditional fuels; and
    - (v) Other relevant factors.
  - (2) The Regional Administrator or Assistant Administrator for the Office of Land and Emergency Management will evaluate the application pursuant to the following procedures:
    - (i) The applicant must submit an application for the non-waste determination addressing the legitimacy criteria in paragraph (d)(1) of this section and the relevant criteria in paragraphs (c)(1)(i) through (v) of this section. In addition, the applicant must also show that the non-hazardous secondary material has not been discarded in the first instance.
    - (ii) The Regional Administrator or Assistant Administrator for the Office of Land and Emergency Management will evaluate the application and issue a draft notice tentatively granting or denying the application. Notification of this tentative decision will be published in a newspaper advertisement or radio broadcast in the locality where the facility combusting the non-hazardous secondary material is located, and be made available on the EPA's Web site.
    - (iii) The Regional Administrator or the Assistant Administrator for the Office of Land and Emergency Management will accept public comments on the tentative decision for 30 days, and may also hold a public hearing upon request or at his/her discretion. The Regional Administrator or the Assistant Administrator for the Office of Land and Emergency Management will issue a final

decision after receipt of comments and after a hearing (if any). If a determination is made that the non-hazardous secondary material is a non-waste fuel, it will be retroactive and apply on the date the petition was submitted.

- (iv) If a change occurs that affects how a non-hazardous secondary material meets the relevant criteria contained in this paragraph (c) after a formal non-waste determination has been granted, the applicant must re-apply to the Regional Administrator or the Assistant Administrator for the Office of Land and Emergency Management for a formal determination that the non-hazardous secondary material continues to meet the relevant criteria and, thus, is not a solid waste.

(d) Legitimacy criteria for non-hazardous secondary materials.

(1) Legitimacy criteria for non-hazardous secondary materials used as a fuel in combustion units include the following:

- (i) The non-hazardous secondary material must be managed as a valuable commodity based on the following factors:

- (A) The storage of the non-hazardous secondary material prior to use must not exceed reasonable time frames;

- (B) Where there is an analogous fuel, the non-hazardous secondary material must be managed in a manner consistent with the analogous fuel or otherwise be adequately contained to prevent releases to the environment;

- (C) If there is no analogous fuel, the non-hazardous secondary material must be adequately contained so as to prevent releases to the environment;

- (ii) The non-hazardous secondary material must have a meaningful heating value and be used as a fuel in a combustion unit that recovers energy.

- (iii) The non-hazardous secondary material must contain contaminants or groups of contaminants at levels comparable in concentration to or lower than those in traditional fuel(s) that the combustion unit is designed to burn. In determining which traditional fuel(s) a unit is designed to burn, persons may choose a traditional fuel that can be or is burned in the particular type of combustion unit, whether or not the unit is permitted to burn that traditional fuel. In comparing contaminants between traditional fuel(s) and a non-hazardous secondary material, persons can use data for traditional fuel contaminant levels compiled from national surveys, as well as contaminant level data from the specific traditional fuel being replaced. To account for natural variability in contaminant levels, persons can use the full range of traditional fuel contaminant levels, provided such comparisons also consider variability in non-hazardous secondary material contaminant levels. Such comparisons are to be based on a direct comparison of the contaminant levels in both the non-hazardous secondary material and traditional fuel(s) prior to combustion.

(2) Legitimacy criteria for non-hazardous secondary materials used as an ingredient in combustion units include the following:

- (i) The non-hazardous secondary material must be managed as a valuable commodity based on the following factors:

- (A) The storage of the non-hazardous secondary material prior to use must not exceed reasonable time frames;
- (B) Where there is an analogous ingredient, the non-hazardous secondary material must be managed in a manner consistent with the analogous ingredient or otherwise be adequately contained to prevent releases to the environment;
- (C) If there is no analogous ingredient, the non-hazardous secondary material must be adequately contained to prevent releases to the environment;
- (ii) The non-hazardous secondary material must provide a useful contribution to the production or manufacturing process. The non-hazardous secondary material provides a useful contribution if it contributes a valuable ingredient to the product or intermediate or is an effective substitute for a commercial product.
- (iii) The non-hazardous secondary material must be used to produce a valuable product or intermediate. The product or intermediate is valuable if:
  - (A) The non-hazardous secondary material is sold to a third party, or
  - (B) The non-hazardous secondary material is used as an effective substitute for a commercial product or as an ingredient or intermediate in an industrial process.
- (iv) The non-hazardous secondary material must result in products that contain contaminants at levels that are comparable in concentration to or lower than those found in traditional products that are manufactured without the non-hazardous secondary material.

*[76 FR 15549, Mar. 21, 2011, as amended at 78 FR 9212, Feb. 7, 2013; 80 FR 77578, Dec. 15, 2015; 81 FR 6742, Feb. 8, 2016]*

#### **§ 241.4 Non-Waste Determinations for Specific Non-Hazardous Secondary Materials When Used as a Fuel.**

- (a) The following non-hazardous secondary materials are not solid wastes when used as a fuel in a combustion unit:
  - (1) Scrap tires that are not discarded and are managed under the oversight of established tire collection programs, including tires removed from vehicles and off-specification tires.
  - (2) Resinated wood.
  - (3) Coal refuse that has been recovered from legacy piles and processed in the same manner as currently-generated coal refuse.
  - (4) Dewatered pulp and paper sludges that are not discarded and are generated and burned on-site by pulp and paper mills that burn a significant portion of such materials where such dewatered residuals are managed in a manner that preserves the meaningful heating value of the materials.
  - (5) Construction and demolition (C&D) wood processed from C&D debris according to best management practices. Combustors of C&D wood must obtain a written certification from C&D processing facilities that the C&D wood has been processed by trained operators in accordance with best management practices. Best management practices for purposes of this categorical listing must include sorting by trained operators that excludes or removes the following materials from the

final product fuel: non-wood materials (e.g., polyvinyl chloride and other plastics, drywall, concrete, aggregates, dirt, and asbestos), and wood treated with creosote, pentachlorophenol, chromated copper arsenate, or other copper, chromium, or arsenical preservatives. In addition:

- (i) **Positive sorting.** C&D processing facilities that use positive sorting—where operators pick out desirable wood from co-mingled debris—or that receive and process positive sorted C&D wood must either:
    - (A) Exclude all painted wood (to the extent that only de minimis quantities inherent to processing limitations may remain) from the final product fuel,
    - (B) Use X-ray Fluorescence to ensure that painted wood included in the final product fuel does not contain lead-based paint, or
    - (C) Require documentation that a building has been tested for and does not include lead-based paint before accepting demolition debris from that building.
  - (ii) **Negative sorting.** C&D processing facilities that use negative sorting—where operators remove contaminated or otherwise undesirable materials from co-mingled debris—must remove fines (i.e., small-sized particles that may contain relatively high concentrations of lead and other contaminants) and either:
    - (A) Remove all painted wood (to the extent that only de minimis quantities inherent to processing limitations may remain),
    - (B) Use X-ray Fluorescence to detect and remove lead-painted wood, or
    - (C) Require documentation that a building has been tested for and does not include lead-based paint before accepting demolition debris from that building.
  - (iii) **Training.** Processors must train operators to exclude or remove the materials as listed in paragraph (a)(5) of this section from the final product fuel. Records of training must include date of training held and must be maintained on-site for a period of three years.
  - (iv) **Written certification.** A written certification must be obtained by the combustor for every new or modified contract, purchase agreement, or other legally binding document, from each final processor of C&D wood and must include the statement: *the processed C&D wood has been sorted by trained operators in accordance with best management practices.*
- (6) Paper recycling residuals generated from the recycling of recovered paper, paperboard and corrugated containers and combusted by paper recycling mills whose boilers are designed to burn solid fuel.
- (7) Creosote-treated railroad ties that are processed and then combusted in the following types of units. Processing must include, at a minimum, metal removal and shredding or grinding.
- (i) Units designed to burn both biomass and fuel oil as part of normal operations and not solely as part of start-up or shut-down operations, and
  - (ii) Units at major source pulp and paper mills or power producers subject to 40 CFR part 63, subpart DDDDD, that combust CTRTs and had been designed to burn biomass and fuel oil, but are modified (e.g., oil delivery mechanisms are removed) in order to use natural gas instead of fuel oil, as part of normal operations and not solely as part of start-up or shut-down operations.



The CTRTs may continue to be combusted as product fuel under this subparagraph only if the following conditions are met, which are intended to ensure that the CTRTs are not being discarded:

- (A) CTRTs must be burned in existing (*i.e.* commenced construction prior to April 14, 2014) stoker, bubbling bed, fluidized bed, or hybrid suspension grate boilers; and
  - (B) CTRTs can comprise no more than 40 percent of the fuel that is used on an annual heat input basis.
- (8) Creosote-borate treated railroad ties, and mixtures of creosote, borate and/or copper naphthenate treated railroad ties that are processed and then combusted in the following types of units. Processing must include, at a minimum, metal removal and shredding or grinding.
  - (i) Units designed to burn both biomass and fuel oil as part of normal operations and not solely as part of start-up or shut-down operations; and
  - (ii) Units at major source pulp and paper mills or power producers subject to 40 CFR part 63, subpart DDDDD, designed to burn biomass and fuel oil as part of normal operations and not solely as part of start-up or shut-down operations, but are modified (*e.g.*, oil delivery mechanisms are removed) in order to use natural gas instead of fuel oil, The creosote-borate and mixed creosote, borate and copper naphthenate treated railroad ties may continue to be combusted as product fuel under this subparagraph only if the following conditions are met, which are intended to ensure that such railroad ties are not being discarded:
    - (A) Creosote-borate and mixed creosote, borate and copper naphthenate treated railroad ties must be burned in existing (*i.e.*, commenced construction prior to April 14, 2014) stoker, bubbling bed, fluidized bed, or hybrid suspension grate boilers; and
    - (B) Creosote-borate and mixed creosote, borate and copper naphthenate treated railroad ties can comprise no more than 40 percent of the fuel that is used on an annual heat input basis.
  - (iii) Units meeting requirements in paragraph (a)(8)(i) or (ii) of this section that are also designed to burn coal.
- (9) Copper naphthenate treated railroad ties that are processed and then combusted in units designed to burn biomass, biomass and fuel oil, or biomass and coal. Processing must include at a minimum, metal removal, and shredding or grinding.
- (10) Copper naphthenate-borate treated railroad ties that are processed and then combusted in units designed to burn biomass, biomass and fuel oil, or biomass and coal. Processing must include at a minimum, metal removal, and shredding or grinding.
- (b) Any person may submit a rulemaking petition to the Administrator to identify additional non-hazardous secondary materials to be listed in paragraph (a) of this section. Contents and procedures for the submittal of the petitions include the following:
  - (1) Each petition must be submitted to the Administrator by certified mail and must include:
    - (i) The petitioner's name and address;
    - (ii) A statement of the petitioner's interest in the proposed action;

- (iii) A description of the proposed action, including (where appropriate) suggested regulatory language; and
  - (iv) A statement of the need and justification for the proposed action, including any supporting tests, studies, or other information. Where the non-hazardous secondary material does not meet the legitimacy criteria, the applicant must explain why such non-hazardous secondary material should be considered a non-waste fuel, balancing the legitimacy criteria with other relevant factors.
- (2) The Administrator will make a tentative decision to grant or deny a petition and will publish notice of such tentative decision, either in the form of an advanced notice of proposed rulemaking, a proposed rule, or a tentative determination to deny the petition, in the FEDERAL REGISTER for written public comment.
- (3) Upon the written request of any interested person, the Administrator may, at its discretion, hold an informal public hearing to consider oral comments on the tentative decision. A person requesting a hearing must state the issues to be raised and explain why written comments would not suffice to communicate the person's views. The Administrator may in any case decide on its own motion to hold an informal public hearing.
- (4) After evaluating all public comments the Administrator will make a final decision by publishing in the FEDERAL REGISTER a regulatory amendment or a denial of the petition.
- (5) The Administrator will grant or deny a petition based on the weight of evidence showing the following:
  - (i) The non-hazardous secondary material has not been discarded in the first instance and is legitimately used as a fuel in a combustion unit, or if discarded, has been sufficiently processed into a material that is legitimately used as a fuel.
  - (ii) Where any one of the legitimacy criteria in § 241.3(d)(1) is not met, that the use of the non-hazardous secondary material is integrally tied to the industrial production process, that the non-hazardous secondary material is functionally the same as the comparable traditional fuel, or other relevant factors as appropriate.

[78 FR 9213, Feb. 7, 2013, as amended by 81 FR 6743, Feb. 8, 2016; 83 FR 5340, Feb. 7, 2018]