

US EPA ARCHIVE DOCUMENT

Definition of Solid Waste and Recycling



Outline for the Definition of Solid Waste and Recycling Presentation

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- Solid Waste Exclusions
- Four Categories of Discarded Materials
- Classes of Secondary Materials
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- Mechanisms to Ensure Proper Recycling
- Specific Hazardous Waste Recycling Requirements

Statutory Definition of Solid Waste

RCRA Section 1004(27)

“The term “solid waste” means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and ***other discarded material***, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include...”

Regulatory Definition of Solid Waste

40 CFR 261.2

- Any discarded material* that is:
 - 1) Abandoned,
 - 2) Inherently-waste-like,
 - 3) Military munitions, or
 - 4) Recycled.
- Does not include material that is:
 - Excluded under §261.4(a).
 - Granted a variance under §§260.30 and 260.31.
- To determine if a material is a solid waste when recycled, you need to know the type of material and how it is being recycled (explained in more detail further on in this presentation).
- Note, this definition is solely for the purposes of defining wastes that are hazardous for the purposes of implementing RCRA Subtitle C regulations (40 CFR 261.1(b)(1)).

* The term “material” refers to hazardous secondary material throughout this presentation.

Solid Waste Exclusions

40 CFR 261.4(a)

- Domestic sewage and mixtures of domestic sewage (261.4(a)(1))
- Industrial point source discharges (261.4(a)(2))
- Irrigation return flows (261.4(a)(3))
- Certain radioactive secondary materials (261.4(a)(4))
- In-situ mining materials (261.4(a)(5))
- Pulping liquors (261.4(a)(6))
- Spent sulfuric acid (261.4(a)(7))
- Secondary materials reclaimed in a closed-loop process in tanks (261.4(a)(8))
- Spent wood preservatives (261.4(a)(9))
- Coke by-product wastes (261.4(a)(10))
- Splash condenser dross residues (261.4(a)(11))
- Oil-bearing hazardous secondary materials generated and recycled within the petroleum refining industry (261.4(a)(12))
- Excluded scrap metal (261.4(a)(13))
- Shredded circuit boards (261.4(a)(14))

Solid Waste Exclusions (continued)

40 CFR 261.4(a)

- Pulping condensates derived from Kraft mill steam strippers (261.4(a)(15))
- Comparable fuels or syngas fuels (261.4(a)(16))
- Mineral processing spent materials being recycled (261.4(a)(17))
- Petrochemical recovered oil (261.4(a)(18))
- Spent caustic solutions from petroleum refining (261.4(a)(19))
- Hazardous secondary materials used to make zinc fertilizers (261.4(a)(20))
- Zinc fertilizers made from hazardous secondary materials (261.4(a)(21))
- Used cathode ray tubes (CRTs) (261.4(a)(22))
- Hazardous secondary materials generated and reclaimed under the control of the generator (261.2(a)(2)(ii) and 261.4(a)(23))
- Hazardous secondary materials transferred to another person for the purpose of reclamation (261.4(a)(24))
- Hazardous secondary material exported and reclaimed in a foreign country (261.4(a)(25))

Four Categories of Discarded Materials

- 1) Abandoned Materials
- 2) Inherently Waste-like Materials
- 3) Military Munitions
- 4) Recycled Materials

1) Abandoned

40 CFR 261.2(a)(2)(i)

- Disposed of.
- Burned or Incinerated.
- Accumulated, stored, or treated before or in lieu of being abandoned by being disposed of, burned, or incinerated.



2) Inherently Waste-Like

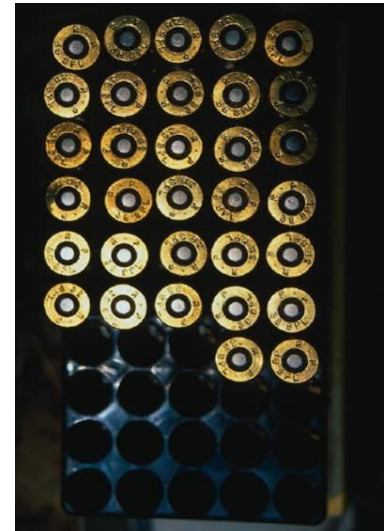
40 CFR 261.2(d)

- Dioxin-containing listed wastes F020, F022, F023, F026, and F028.
- Secondary materials that are characteristic or listed hazardous waste and fed to a halogen acid furnace.
- Criteria for listing as “inherently waste-like”
 - Disposed of, burned or incinerated.
 - Contains hazardous constituents (App.VIII) not normally found in the raw material and not used/reused during recycling.
 - May pose a substantial hazard to human health and the environment when recycled.

3) Military Munitions

40 CFR 266.202

- Military munitions are not solid wastes when:
 - Used for their intended purpose (e.g., lead shot).
 - Recycled (e.g., reused, repaired).
- Military munitions are solid wastes when:
 - Unused munitions
 - Disposed of, removed from storage, deteriorated, declared a solid waste.
 - Used munitions
 - Retrieved & disposed of on-site or sent off-site for treatment or disposal.



4) Recycled Materials

40 CFR 261.2(c)

- Used in a manner constituting disposal.
- Burned for energy recovery or used as a fuel.
- Reclaimed.
- Used/reused.



Use Constituting Disposal (UCD)

40 CFR 261.2(c)(1)

- Applying a material directly to the land.
- Using a material as an ingredient in a product that will be applied to the land.
- All materials that are UCD **are solid wastes**, except commercial chemical products that are ordinarily applied to the land.



Burning For Energy Recovery

40 CFR 261.2(c)(2)

- Burning a material directly as a fuel.
- Using a material as an ingredient in producing a fuel.
- The material is contained in a fuel.
- All materials burned for energy recovery **are solid wastes**, except commercial chemical products that are ordinarily fuels.



Reclamation

40 CFR 261.2(c)(3)

- Processing to recover a usable product.
 - Wastes are processed to recover usable products when distinct components of the material that are of value are recovered.
- Regeneration
 - Wastes are regenerated when they are processed to remove contaminants in a way that restores them to their usable original condition.

Reclamation (continued)

- Some materials being reclaimed are solid wastes, some aren't
 - Spent materials, listed sludges, & listed by-products **are solid wastes** when reclaimed.*
 - Characteristic sludges, characteristic by-products, and commercial chemical products being reclaimed **are not solid wastes**.
 - Scrap metal (other than excluded scrap metal – see §261.1(c)(9)) when reclaimed **is a solid waste**.

* Note, these materials may be excluded under §§261.2(a)(2)(ii), 261.4(a)(23), 261.4(a)(24), or 261.4(a)(25) if the state has adopted these solid waste exclusions.

Use/Reuse Exclusions

40 CFR 261.2(e)

- Directly using or reusing a material:
 - As an ingredient in an industrial process,
 - As an effective substitute for a commercial chemical product,
 - In the original process from which it was generated.
- Materials must be used, reused, or returned to original process directly without first being reclaimed to qualify for this exclusion from being a solid waste.
- These exclusions do not apply to materials used in a manner constituting disposal or burned for energy recovery.

Classes of Secondary Materials

- Spent Materials
- Sludges
- By-products
- Commercial Chemical Products
- Scrap Metal



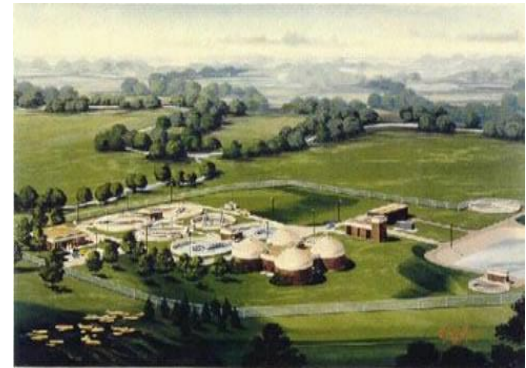
Spent Material

- Any material that has been used and, as a result of contamination, can no longer serve its intended purpose without undergoing regeneration, reclamation or reprocessing.
 - Spent solvents
 - Spent catalysts
 - Spent pickle liquor
 - Spent plating bath solutions

Sludge

“any solid, semisolid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant”

- Wastewater treatment plant sludges
- Electric arc furnace dust (K061)
- Baghouse dusts



By-Product

“a material that is not one of the primary products of a production process and is not solely or separately produced by the production process.”

- Distillation column bottoms
- Heavy ends
- Slag



Co-Product

- A material intentionally produced by the manufacturing process and ordinarily used in its existing state as a commodity in trade by the general public.
- Co-products must have a recognized use, and must be usable without reprocessing.

By-Products differ from Co-Products

By-Product:

- Residual in nature.
- Not intentionally produced
- Not separately produced
- Needs further processing

Co-Product:

- Highly processed
- Intentionally produced
- Ordinarily used as a commodity
- No further processing necessary

Example from a Metal Refining Process:

Copper	Product
Lead	Co-product
Slag	By-product

Commercial Chemical Product

- Unused product (e.g., off-specification chemical)
- Hazardous if 1) listed in §261.33 (P and U wastes), or 2) exhibit a hazardous waste characteristic



Scrap Metal

“bits and pieces of metal parts ...or metal pieces that may be combined together with bolts or soldering ... which when worn or superfluous can be recycled.”

- Sheet metal
- Wire
- Metal tanks and containers
- Scrap automobiles
- Machine shop turnings



Determining if Materials are Solid Wastes, When Recycled

Table 1 of 40 CFR 261.2(c)

	UCD	BFE	Reclamation*	Speculative Accumulation
Spent Material	SW	SW	SW	SW
Listed Sludge	SW	SW	SW	SW
Characteristic Sludge	SW	SW	---	SW
Listed By-product	SW	SW	SW	SW
Characteristic By-product	SW	SW	---	SW
Commercial Chemical Product	SW	SW	---	---
Scrap Metal	SW	SW	SW	SW

*Except as provided in §§261.2(a)(2)(ii), 261.4(a)(17), 261.4(a)(23), 261.4(a)(24), or 261.4(a)(25).

Mechanisms to Ensure Proper Recycling

- Documentation of claims that materials are not solid wastes (§261.2(f)).
 - Demonstrate the presence of a known market.
 - Demonstrate the material is not a waste or is exempt from regulation (i.e., they meet the conditions of the exclusion or exemption).
 - Must show appropriate documentation (e.g., contracts) to demonstrate the material is not a solid waste
 - Recyclers/reclaimers must show they have the necessary equipment to recycle the material.

Mechanisms to Ensure Proper Recycling

- Speculative accumulation (§261.1(c)(8))
 - Materials are not solid waste if:
 - Recycling must be feasible.
 - 75% of material stored at the beginning of the year must actually be recycled or sent for recycling by the end of the year.
 - If materials are speculatively accumulated, they **are solid wastes**.
 - Speculative accumulation does not apply to commercial chemical products.

Mechanisms to Ensure Proper Recycling

Factors for Demonstrating Legitimate Recycling vs. Sham Recycling*

- Legitimate recycling must involve a material that provides a useful contribution to the recycling process or product
- Legitimate recycling must produce a product or intermediate that is valuable
- The generator and recycler should manage the material as a valuable commodity
- The product of recycling should not contain significant concentrations of hazardous constituents that are not found in analogous products (i.e., Toxics-Along-for-the-Ride or TARs)

*Codified at 40 CFR 260.43 for specific exclusions but substantially the same as existing policy for defining legitimate recycling.

Specific Hazardous Waste Recycling Requirements

40 CFR 261.6(a)(2)

- Recyclable materials used in a manner constituting disposal: 40 CFR Part 266, Subpart C
- Hazardous wastes burned for energy recovery in boilers and industrial furnaces: 40 CFR Part 266, Subpart H
- Recyclable materials from which precious metals are reclaimed: 40 CFR Part 266, Subpart F
- Spent lead-acid batteries that are reclaimed: 40 CFR Part 266, Subpart G

Specific Hazardous Waste Recycling Requirements

40 CFR 261.6(a)(3)

Other Materials Not Subject to Regulation When Recycled

- Industrial ethyl alcohol that is reclaimed
- Scrap metal (not already excluded)
- A variety of reclaimed oils and oil-derived fuels associated with oil refining
- Coke and coal tars containing hazardous wastes from the iron and steel production process (K087)



Specific Hazardous Waste Recycling Requirements

40 CFR 261.6(a)(4)

- Used Oil: Special Management Standards in 40 CFR Part 279
 - Includes used oil that is reused, re-refined, reclaimed, burned for energy recovery, or reprocessed



Specific Hazardous Waste Recycling Requirements

40 CFR 261.6(b)&(c)

- Generators and transporters of recyclable materials (not already excluded or subject to other requirements) are fully regulated under 40 CFR Parts 262 and 263.
- Owners/operators of facilities that store recyclable materials before they are recycled are subject to all applicable provisions of 40 CFR 264/265 including subparts AA, BB, and CC.
- Note, the recycling process itself is exempt from regulation (except as provided in §261.6(d)).