

Requirements for the Recycling of Hazardous Waste

Background: The regulatory status of materials destined to be recycled is not always clear. There have been numerous questions from DOE Field Elements regarding the applicability of the Resource Conservation and Recovery Act (RCRA) to certain materials that can be recycled. The Office of Environmental Guidance, RCRA/CERCLA Division, has responded to questions relating to the RCRA regulations as they apply to materials that are recycled or are destined for recycling. Additional regulatory requirements for these materials may be promulgated upon the reauthorization of RCRA (e.g. regulation of used oil). Additional EH-23 Information Briefs will be issued as these regulations develop. The Office of Environment, Safety and Health has convened a workshop to establish DOE's position on a number of issues associated with mixed waste and materials management, several relative to recycling.

Statute: The Resource Conservation and Recovery Act (RCRA).

Regulations: 40 CFR 250, 251, 262, 263, 265, 266 & 268.

Reference: Environmental Guidance Program Reference Book (RCRA); memorandum dated August 3, 1990—"Mixed Waste and Materials Management Compliance Issues" (EH-22).

What is the definition of a hazardous waste?

In order for a waste to be a hazardous waste, it must first meet the definition of a solid waste. A solid waste is any material that is discarded by being abandoned (disposed of, burned or incinerated, or accumulated or treated prior to disposal or incineration), recycled (or accumulated, treated, or stored prior to recycling), or considered inherently waste-like as defined in 40 CFR 261.2(d). Furthermore, to be a hazardous waste, a solid waste must:

- exhibit one or more of the characteristics of hazardous waste identified under 40 CFR 261.20 through 261.24 (ignitability, corrosivity, reactivity, or toxicity) or
- be listed as a hazardous waste under 40 CFR 261.31 through 261.33 or
- be a mixture that contains a nonhazardous solid waste and a listed or characteristic hazardous waste [40 CFR 261.3 (a)(2)(iii) & (iv)].

What is a secondary material?

Secondary material is defined in 50 FR 616 (January 4, 1985) as "material that potentially can be a solid and hazardous waste when recycled."

When is a material considered to be "recycled"?

Under 40 CFR 261.1, a material is *recycled* if it is used, reused, or reclaimed. A material is "used or reused" if it is employed as an ingredient in an industrial process to make a product (e.g., distillation bottoms from one process used as feedback in another process). However, a material will not satisfy this condition if distinct components of the material are recovered as separate end products (as when metals are recovered from metal-containing secondary materials). A material is also "used or reused" if it is employed as an effective substitute for a commercial product (e.g., spent pickle liquor used as phosphorous precipitant and sludge conditioner in wastewater treatment).

A material is "reclaimed" if it is *processed* to recover a usable product, or if it's regenerated. Examples are recovery of lead from spent batteries and regeneration of spent solvents.

What is a speculative accumulation?

The 40 CFR 261.1(c)(8) regulation states that materials are "accumulated speculatively" if they are accumulated before being recycled. Materials are *not* considered to be "accumulated speculatively" if the person accumulating the material can demonstrate that (1) it can be feasibly recycled *and* (2) during one calendar year, the amount recycled or transferred to another location for recycling is at least 75% of the amount accumulated at the beginning of the year. This is of particular importance to persons, including Federal facilities, storing secondary materials in anticipation of possible recycling. Unless otherwise exempt from regulation, such materials *are* subject to RCRA.

When is a recycled material a solid waste?

A recycled material, or a material destined for recycling, is a solid waste when it is used in a manner constituting disposal [40 CFR 261.2(c)(1)], burned for energy recovery to produce a fuel [40 CFR 261.2(c)(2)], reclaimed [40 CFR 261.2(c)(3)], or accumulated speculatively [40 CFR 261.2(c)(4)]. The following table, which is provided in 40 CFR 261.2, identifies when secondary materials are solid wastes when recycled, or destined for recycling, in one of the four manners mentioned above.

Material	Use constituting disposal	Energy Recovery Fuel	Reclamation	Speculative accumulation
Spent materials	Yes	Yes	Yes	Yes
Sludges (listed in 40 CFR 261.31 or 261.32)	Yes	Yes	Yes	Yes
Sludges exhibiting a hazardous characteristic	Yes	Yes	No	Yes
By-products (listed in 40 CFR 261.31 or 261.32)	Yes	Yes	Yes	Yes
By-products exhibiting a hazardous characteristic	Yes	Yes	No	Yes
Commercial chemical products listed in 40 CFR 261.33	Yes	Yes	No	No
Scrap metal	Yes	Yes	Yes	Yes

Note: "Spent materials", "by-products", and "scrap metal" are defined in 40 CFR 261.1.

What are the requirements for handling recyclable materials that are hazardous wastes?

If a recyclable material is a hazardous waste subject to RCRA, the requirements applicable to hazardous waste handlers apply. They are summarized as follows:

- *Generators and transporters* of these materials are subject to the applicable requirements of 40 CFR 262 and 40 CFR 263, which cover the recordkeeping, reporting, pre-transport, and manifest requirements for generators and transporters, and responses to discharges for transporters. They are also subject to the notification requirements of RCRA Sect. 3010.
- *Facilities that store* these materials are subject to 40 CFR 264 & 265, Subparts A-L, which cover facility standards, closure/post-closure and financial requirements, emergency preparedness, recordkeeping, reporting and manifest requirements, design and maintenance of various solid waste management units, and releases from such units. They are also subject to the notification requirements under Sect. 3010 of RCRA. In addition, they are subject to the permitting requirements of 40 CFR 124 & 270, and the Land Disposal Restrictions regulations of 40 CFR 268.

- *Recyclers* who do not store these materials are subject to the notification requirements under Sect. 3010 of RCRA and the manifest requirements of 40 CFR 265.71 & 265.72.

The regulation in 40 CFR 261.6(a)(2) states that in lieu of the above requirements, facilities that handle certain materials must comply with 40 CFR 266, which establishes standards, prohibitions, and requirements applicable to the management of these materials. The regulations in 40 CFR 266 apply to the following:

- recyclable materials used in a manner constituting disposal, as defined in 40 CFR 261.2(c)(1);
- hazardous waste burned for energy recovery in boilers and industrial furnaces;
- used oil that exhibits one or more of the characteristics of hazardous waste and is burned for energy recovery;
- spent lead acid batteries being reclaimed; and
- recyclable materials utilized for precious metal recovery.

Handlers of the above materials are required to have a permit pursuant to 40 CFR 270 & 124.

Pursuant to 40 CFR 260.40 & 260.41, the Regional Administrator may decide on a case-by-case basis that handlers of recyclable materials from which precious metals are reclaimed should be subject to some of the more substantive requirements to which generators, transporters and storers of other hazardous wastes are subject, rather than only 40 CFR 266 Subpart F. Such a decision would be based on a determination that the materials are being stored in a manner that is not protective of human health and the environment.

What materials are not solid waste when recycled or may otherwise be exempt from regulation?

Materials identified with a "No" in the table above are not solid wastes when recycled in the manner specified. Also, 40 CFR 261.2(e) states that materials are not solid wastes when they *can be shown* to be recycled by being:

- "used or reused" as defined above (provided they have not been reclaimed) or
- returned to the original process from which they are generated, without first being reclaimed. (The material must be returned as a substitute for raw material feedstock, and the process must use raw materials as principal feedstocks)

Regulations in 40 CFR 261.2(e)(2) state that materials recycled by the above methods are solid wastes if "used and reused" constitutes land application, production of products that are applied to land, burning for energy recovery, producing a fuel, or contained in fuels. Furthermore, if the material is accumulated speculatively or is listed in 40 CFR 261.2(d)(1), it is a solid waste.

Regulations in 40 CFR 261.4 identify secondary materials that are not solid wastes (e.g, domestic sewage and industrial waste water discharges subject to Clean Water Act regulations) and solid wastes that are not hazardous wastes (e.g., household waste). These materials are not regulated as hazardous wastes under RCRA.

Certain recyclable materials (hazardous wastes that are recycled) are not subject to the hazardous waste regulations in 40 CFR 262-266, 268, 270, or 124. These materials are identified in 40 CFR 261.6(a)(3) and include:

- industrial ethyl alcohol being reclaimed, except in cases where it is being exported for reclamation, in which case export requirements of 40 CFR 262.53, 262.56 & 262.57 apply;
- used batteries returned to the manufacturer for regeneration;
- used oil that exhibits one or more hazardous waste characteristics, but is being recycled in some manner other than burning for energy recovery [note: the use of used oil contaminated with hazardous waste for dust suppression or road treatment is prohibited in 40 CFR 266.23 (b)];
- scrap metal; and
- other materials associated with the petroleum refining, iron, and steel industries.

Under 40 CFR 261.2(f), respondents to enforcement actions (implementing RCRA Subtitle C requirements) who claim that the wastes they handle are not a solid waste or are conditionally exempt from regulation must provide appropriate documentation to demonstrate the claim.

Specific to recyclable materials, is it possible to apply for an exclusion from the regulatory requirements for hazardous waste?

According to 40 CFR 260.30 & 260.31, the EPA Regional Administrator may determine, on a case-by-case basis, that certain recyclable materials are not solid wastes, and are not subject to regulation under RCRA. These variances are limited to materials recycled, or destined for recycling, in the following manner:

- materials accumulated speculatively without sufficient amounts being recycled [e.g., a variance from classification may be granted for materials that are accumulated speculatively, without sufficient amounts being recycled, if market factors indicate that recycling will be feasible at a later time (i.e., precious metal recovery) 40 CFR 260.31(a)(1)];
- materials that are reclaimed and then reused within the original primary production process in which they were generated; and
- materials that have been reclaimed but must be reclaimed further before the materials are completely recovered.

It is also possible, under 40 CFR 260.22, to petition the EPA Administrator to exclude from regulation a waste that is identified in Subpart D of 40 CFR 261 (listed wastes). However, a waste so excluded may still be a hazardous waste under Subpart C of 40 CFR 261 (characteristic hazardous waste).

What is the difference between a "co-product" and a "by-product"?

The distinction between "co-product" and "by-product" is important because co-products are not intended to be covered by the hazardous and solid regulations.

- "Co-products" are defined in the Definition of Solid Waste Final Rule (January 4, 1985; 50 FR 625), as materials produced intentionally for use by the general product, and that is suitable for such use in their existing state.

- "By-product" is defined in 40 CFR 261.1(c)(3) as 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. Examples are process residues such as slags or distillation column bottoms.

Questions of policy or questions requiring policy decisions will not be dealt with in EH-231 Information Briefs unless that policy has already been established through appropriate documentation. Please refer any questions concerning the subject material covered in this Information Brief to Mark Petts, RCRA/CERCLA Division, EH-231, FTS 896-2609.