

In a similar vein, there may be instances where more than one secondary material is used in a single recycling process, and the materials are mixed or blended as part of the process. In such cases, each of the recyclable materials used would need to satisfy the "useful contribution" criterion. This is to avoid situations where a relatively worthless secondary material could be mixed with a more valuable or useful material in an attempt to disguise and dispose of it, which is sham recycling.

Given the wide variety of possible recycling practices that may be subject to legitimacy determinations under today's proposed criteria, and the many different ways materials may be "useful" to those practices, the following examples are offered to clarify what we mean by "useful contribution" under this criterion.

The secondary material contributes valuable ingredients to a product of the recycling process. Secondary materials often contribute to a recycling process by becoming ingredients in a product. For example, spent solvents from a paint spray booth can often be used directly as ingredients in manufacturing paint. In some cases, secondary materials will need to be reclaimed first to remove contaminants or to make them otherwise suitable for use as ingredients in making a product. An example would be a zinc-bearing sludge that is first processed (*i.e.*, reclaimed) into zinc oxide, which is used as a feedstock in an electrolytic zinc refinery that manufactures zinc metal.

The secondary material replaces a catalyst or carrier in the process. In some cases, secondary materials can be reused (either directly, or after being reclaimed) in production processes, but are not incorporated as ingredients in the resulting products. This includes catalysts and chemicals that act as carriers or synthesis media for other chemicals in a production process. In either case, the secondary material must be useful for that purpose.

The secondary material is the source of a valuable constituent(s) recovered in the recycling process. Many legitimate recycling operations involve reclamation of a secondary material primarily to recover a specific, valuable component of the material. A common example is mineral processing, where metal-bearing secondary materials such as baghouse dusts and other sludges are reclaimed to extract valuable minerals.

The secondary material is regenerated by the recycling process. Regeneration is a type of "useful contribution," where a spent material is reclaimed to restore its original useful properties so that it can be reused. Regeneration of spent

solvents through distillation is one example of this type of recycling. Another example is regeneration of acid baths used to "pickle" steel by removing impurities and restoring their acidic properties.

The secondary material is used as an effective substitute for a commercial product. In many cases, a secondary material can be used directly as a substitute for a commercial product without reclamation. This type of recycling is perhaps the clearest example of "useful contribution," in that the secondary material is used productively, and it replaces a commercial product that would otherwise have to be purchased. Use of spent pickling acid as a conditioning agent in wastewater treatment plants is an example of such a practice.

How Does This Criterion Compare to Existing Guidance?

This proposed criterion addressing "useful contribution" has been distilled from and clarifies concepts in the Agency's existing guidance for legitimate recycling. For example, the preamble to the January 4, 1985 recycling regulations noted that if a secondary material is "ineffective or only marginally effective for the claimed use, the activity is not recycling but surrogate disposal." Similarly, the January 8, 1988 proposed rule discussed as a legitimacy concept "how much energy or material value each waste contributes to the recycling purpose." In the 1989 legitimacy guidance, the issue of effectiveness was addressed by the questions: "Is much more of the secondary material used as compared with the analogous raw material/product it replaces?"; "Is only a nominal amount used?"; and "Is the secondary material as effective as the raw material or product it replaces?" The guidance also addressed the value of the secondary material by posing the questions, "Is it (the secondary material) listed in industry news letters, trade journals, etc.?" and "Does the secondary material have economic value comparable to the raw material that normally enters the process?"

3. Criterion #3: "The recycling process yields a valuable product or intermediate that is:

- (i) Sold to a third party; or
- (ii) Used by the recycler or the generator as an effective substitute for a commercial product or as a useful ingredient in an industrial process."

This proposed criterion is intended to capture the fundamental precept that legitimate recycling must produce something of value. If a "recycling" process creates a material that no one

wants or will use, it can be presumed that the process is conducted to dispose of the material; *i.e.*, it is sham recycling.

For the purpose of this criterion, a recycled product may be considered "valuable" if it can be shown to have either economic value, or a value that is more intrinsic (*i.e.*, it is useful to the end user, though it may not be salable as a product or commodity in the marketplace). One relatively simple way to demonstrate that the recycling process yields a valuable product would be the documented sale of a recycled product to a third party. Such documentation could be in the form of receipts, as well as contracts or agreements establishing the terms of sale or transaction. A recycler that has not yet arranged for sale of its product to a third party could establish the value of the recycled product by demonstrating that it can replace another product or intermediate (process input) that is available in the marketplace. It is also possible that in some situations a recycled product could be sold at a loss (*e.g.*, as a "loss leader" to attract customers, or because of normal market fluctuations), and nevertheless be considered a "valuable product" under this criterion. In such cases, however, the recycler would need to demonstrate how selling the product at a loss is economically beneficial to the seller, and that the product is actually valuable to the person who uses it.

Many recycling processes produce outputs that are not sold to another party, but are instead used by the generator or recycler. For example, some recycled products or intermediates may be very useful as feedstocks in a specific manufacturing process, but may have no established monetary value in the marketplace. Such recycled products or intermediates would be considered to have "intrinsic" value, though demonstrating that value may be less straightforward than for products that are sold in the marketplace.

Demonstrating the value of recycled products that are not sold to third parties could involve showing that the recycled product replaces an alternative product or material that would otherwise have to be purchased. In other cases, the recycler could show that the product or intermediate meets certain specific product specifications, or meets established industry standards. Another approach to demonstrating the value of these types of recycled products or intermediates could be to compare their characteristics (*e.g.*, their physical/chemical properties, or their efficacy for certain uses or applications) with