

exhibit the hazardous characteristic of toxicity.

It is possible, though, that the use of a hazardous secondary material as an ingredient could cause a product to exhibit a hazardous characteristic, such as corrosivity, that is not exhibited by analogous products. We seek comments as to how often this test might be relevant to making legitimacy determinations, and information as to any specific recycling processes that might be affected by this test.

In evaluating this criterion for a particular recycling process, regulators and the regulated community may frequently need to assess what amount of a hazardous constituent is a "significant amount" or a "significantly elevated level." EPA is not proposing a specific formula or method for defining "significant" in this context. Given the exceptional diversity and variability of potentially recyclable materials, we believe that this issue is best addressed on a case-by-case basis, instead of imposing a generic limit that could apply to all recycling and all recyclable materials.

The following examples are offered to illustrate how "significant" might be evaluated for certain recycled products. In one example, if zinc galvanizing metal made from recycled hazardous secondary materials contains 500 parts per million (ppm) of lead, while the same zinc product made from raw materials typically contains 475 ppm, this difference in concentration would likely not be considered "significant" in evaluating this legitimacy criterion. If, on the other hand, in this example the lead levels in the recycled zinc product were 1,000 ppm, it would likely indicate discard of significant amounts of lead. To offer another example, if a "virgin" solvent contains no detectable amount of barium, while spent solvent that has been reclaimed contains a minimal amount of barium (e.g., 1 ppm), this difference might not be considered significant. If, however, the barium in the reclaimed solvent were at much higher levels (e.g., 50 ppm), it would likely indicate discard of the barium.

Evaluating the "significance" of levels of hazardous constituents in recycled products for the purpose of this criterion may involve taking into account several factors, such as the type of product, how it is used and by whom, whether or not elevated levels of hazardous constituents compromise in any way the efficacy of the product, and other factors. To illustrate one such situation, if a recycled plastic product contains low but detectable levels of vinyl chloride (a human carcinogen) that analogous plastics do not contain,

and the plastic could be used to make children's teething toys, a more rigorous evaluation of the "significance" of the vinyl chloride in the recycled product would be called for than if the product were used for some type of industrial application.

#### How Does This Criterion Compare to Existing Guidance?

The 1989 guidance and the preamble statements that support it have addressed the question of "toxics along for the ride" in a more general way than today's proposed criterion. The 1989 guidance, for example, places emphasis on examining the presence of toxic constituents in the secondary material destined for recycling, rather than focusing primarily on the presence of such constituents in the recycled product. As noted above, today's criterion is intended to primarily address the question of "toxics along for the ride" in the products of recycling. We believe that the presence of toxic constituents in recyclable secondary materials is less relevant to assessing the legitimacy of recycling, primarily because much if not most recycling (as well as manufacturing) involves removing or destroying such harmful materials. As reflected in this proposed criterion, the central question is whether or not (and in what amount) hazardous constituents pass through the recycling process and become incorporated into the products of recycling.

We do not believe that this shift in emphasis will substantially affect the outcome of legitimacy determinations. In fact, the approach in today's proposal (i.e., focusing on toxic constituents in recycled products) may be somewhat less restrictive than the guidance it would replace. It is possible, however, that by focusing the proposed criterion on toxics in recycled products, some recycling that may have previously been considered legitimate might not be under today's proposal. We invite comment on this issue, and specifically solicit examples where existing legitimacy determinations could change if today's proposed criterion were finalized.

#### Alternatives Considered

The Agency examined two main alternative approaches to addressing the issue of "toxics along for the ride" that would have provided greater specificity in assessing the "significance" of elevated levels of toxic constituents in recycled products. These regulatory alternatives are discussed below.

"Bright Line" Approach. One alternative approach would be to

establish a specific numerical limit to define "significant" for the purpose of evaluating this legitimacy criterion. This approach would in effect establish a "bright line" for defining "significant amounts" and "significantly elevated levels" under today's proposal. Under such an approach, this criterion might specify that the amount of hazardous constituents in a recycled product could be present at levels no greater than one or two standard deviations above those in an analogous product made from raw materials. The limit could also be expressed as a percentage (e.g., "no greater than 5 percent more \* \* \*").

Such a bright line approach could provide greater clarity and predictability to the regulated community and state and federal agencies overseeing new regulations for legitimate recycling. On the other hand, this alternative, in establishing a specific quantitative test for whether hazardous constituents are along for the ride in a recycled product, could be somewhat arbitrary, and depending on the particular constituents of concern and product use, could result in either over-regulation or under-regulation, or both.

Risk-based Approach. The "bright line" approach described above would only function to compare levels of constituents in recycled products with those in analogous products. That approach would not, therefore, directly address the issue of the potential risks posed by those hazardous constituents. Depending on the hazardous constituents of concern and the uses of the recycled product, some increased levels of hazardous constituents may not pose any risk to workers (where the recycled product is a process intermediate) or the public (where the recycled product is a consumer product). It is also possible that such hazardous constituents could pose unacceptable risks, even if they are present at levels below a statistical "cutoff" limit that might be established under the option described above. Thus, in developing this proposed criterion, we considered an alternative approach that would more explicitly address the risks posed by toxic constituents in recycled products.

One possible approach could be to specify that if a recycled product contains hazardous constituents at higher levels than those in an analogous product made with raw materials, the recycler would need to assess the risks to human health and the environment posed by those increased levels. This criterion would be met if the risks were acceptable ("acceptable" risks would presumably also be defined under such an approach).