

DIFFUSING THE LEAD DEBATE

Issue:

Much of the concern regarding the end-of-life disposition of electronic products focuses on the presence of certain metals, particularly lead. While lead may pose health or environmental risks in certain applications – such as an ingredient in paints or gasoline or as solder for drinking water pipes (where it may be readily ingested by humans or otherwise released into the environment) – it is safely used in electronic equipment and can be responsibly managed at end-of-life.

Background:

Lead is a critical component in virtually all electronics because it is uniquely capable of meeting high technology performance standards in a cost efficient manner. The primary uses of lead in most electronics is as solder (a tin-lead solder alloy is usually used to join computer components to printed circuit boards). In addition, displays or picture tubes found in televisions, computer monitors, and other products (known as cathode ray tubes or CRTs) contain lead to protect users from potentially harmful exposure to ultra-violet radiation.

EIA Position:

The disposal of electronic products has raised concerns regarding the potential release of lead from electronic products during disposal. This concern is misplaced for many reasons. Although lead is a critical substance for most electronics, electronic uses comprise a very small amount of the total lead used by society (approximately 0.5%). Moreover, electronic products comprise a small percentage of the total volume of solid waste. Since lead constitutes such a small percentage of electronics, which, in turn, constitute such a small percentage of the solid waste stream, concerns regarding potential lead releases during disposal are overstated.

Furthermore, the lead used in electronic products is effectively sealed within the product and is unlikely to migrate into the environment. For example, the lead in CRTs is bound in a glass matrix, is stable and immobile, and likely remains in the product even when landfilled. Given this physical form, there is little likelihood that the lead will “leach” from the glass. Concerns about lead in landfills, therefore, should not focus on electronics.

Finally, even if small amounts of lead were to be released from an electronic product in a landfill, there is little prospect for human exposure or environmental injury. Studies have demonstrated (and EPA has acknowledged) that lead is not transported through soil to any significant degree. Thus, any lead released from a product in a landfill would be contained within the landfill. Although the incineration of electronic products may result in ash, which could leach lead, these concerns can be addressed through proper disposal of incinerator ash.

Rather than posing an environmental risk, some uses of lead in electronic products protect against serious health effects. Because of its absorbency properties, lead has been used in protective materials to reduce exposure to ultra-violet radiation from sources such as x-rays. As stated above, the leaded glass in CRTs found in computer monitors and television screens performs this important shielding function.

In an effort to reduce the amount of lead used in electronics, EIA member companies conducted a major research project with the National Center for Manufacturing Sciences (NCMS) to evaluate lead-free solder substitutes. This four-year \$19 million collaborative R&D program concluded that substitutes for tin-lead solder are not readily available or meet necessary performance requirements. EIA and members are also working with the National Electronics Manufacturing Initiative (NEMI), which is working on the development of a lead-free solder. Several electronics manufacturers are also conducting their own research into alternatives to using lead solder in their products.

Outlook:

EIA is committed to reducing the presence of materials in electronic products that may pose risks to the environment. However, EIA opposes any proposed legislation that would ban the use of lead in electronics if it is not based on a scientific finding that lead poses environmental risks when used in electronics or that alternative materials pose fewer environmental impacts.