



**EPEAT Clarification #5-1
regarding glass filler and recycled resin calculations**

This Clarification applies to the following IEEE Standards and criteria:

Applicable Standards:	Applicable Criteria
<input checked="" type="checkbox"/> IEEE 1680.1 – Computers and Displays	4.2.1.1, 4.2.1.2 & 4.2.1.3
<input checked="" type="checkbox"/> IEEE 1680.2 – Imaging Equipment	4.2.1.1, 4.2.1.2 & 4.2.1.3
<input checked="" type="checkbox"/> IEEE 1680.3 – Televisions	4.2.1.1, 4.2.1.2 & 4.2.1.3

PVC Clarification:

- *The denominator – weight of plastic in the product* – The weight of the glass filler, and all other additives that are blended to formulate the plastic used to make the component, shall be included in the calculation of the total weight of the plastic for the purpose of calculating postconsumer recycled content.

Rationale: Glass filler is an integral part of the plastic used to make the component and, when blended with the resin and other additives has the characteristics of a plastic material.

- *The numerator – weight of recycled plastic in the product* – Glass filler that is added as glass to the plastic, regardless of whether it is recycled or virgin glass shall not be included in the calculation of the amount of recycled plastic (the numerator). However, if the source of the glass filler is from postconsumer recycled plastic that contains glass filler, it shall then be included in the calculation of the amount of recycled plastic. The same applies to other additives.

Rationale: The criteria address plastics only. As noted, the definition of plastic references its physical characteristics. Therefore, it is the physical characteristics of the source material that determines whether it is recycled plastic. In the form of glass, it is not a plastic. However, when the source of the glass is from recycled plastic that contains glass filler, it is then in the form of plastic.

Example 1: Start with a 100g part that is made of a glass filled plastic. This part is ground and formed into pellets, and reformed into a new 100g part. Even though this part has a glass content, because I have recycled the entire glass filled plastic part into a new glass filled plastic part, the postconsumer recycled content would be 100%.

$$\frac{\text{Total Weight of Recycled Plastic Content in Part}}{\text{Total Weight of Plastic Part}} = \frac{100\text{g of recycled plastic}}{100\text{g of total weight of}} = 1 \times 100 = 100\%$$

part

Example 2: Start with 20g of glass fill (either virgin or recycled glass) and 80g of plastic resin. This plastic resin is 50% by weight postconsumer recycled plastic and 50% by weight virgin plastic giving a total of 40 g of recycled plastic. The glass fill is blended with the plastic resin (containing 50% recycled resin) to create a 100 g part.

$$\frac{\text{Total Weight of Recycled Plastic Content in Part}}{\text{Total Weight of Plastic Part}} = \frac{40\text{g of recycled plastic}}{100\text{g of total weight of part}} = .4 \times 100 = 40\%$$

Background:

Shall glass filler in plastic components be included, or not included, in the calculation of the weight of plastic in the component? Should the weight of the glass filler be added into the denominator along with the weight of the other plastic?

A corollary question is whether glass filler should be included in the numerator as part of the recycled plastic.

Glass filler is blended with resin to form a plastic with special characteristics that is used in certain internal electronic components. Other materials may also be added, including, but not limited to, flame retardants or plasticizers.

The post-consumer recycled plastic content for the product as a whole is calculated as a percentage, whereby the total amount of postconsumer plastic in all the components is divided by the total amount of plastic in the product, and multiplied by 100. PCBs and packaging are excluded from the calculation.

Note that the criterion uses the term “plastic”, versus “resin” or some equivalent. The clarification hinges on this. The term plastic (the noun) is defined as “a plastic substance”, and plastic (the adjective) is defined as “capable of being molded or modeled”. Plastic is therefore defined by its physical characteristics.

Change History:

Created: June 2008

Updated: February 2013