

The Illusion of Precision:

Why the GEV refuses to indicate individual emission values

In order to enable consumers and architects to properly assess and compare the emission behavior of building products, the GEV offers the manufacturers of these products the possibility to refer to the emission classes of the EMICODE® certification system (EC 2, EC 1 and EC 1^{PLUS}). These classes provide information about the emission values of a great variety of building products: the higher the class, the lower the emission of harmful substances. Based on the emission class, manufacturers can then advertise their products accordingly.

The results of emission measurements – even of those carried out by authorized laboratories – deviate from each other by 20 to 50 %¹, but this in fact reflects the state of the art. Measurement data that specify no error limits or even indicate several decimal places (e.g. 85.34 µg/m³) are highly dubious and give the impression of precision that does not exist.

The GEV has therefore introduced classes for assessing the emission behavior of building products. These classes of measured values have been defined in such a way that they include and "buffer" the unavoidable measurement uncertainty. As a result, they allow very low-emission products to be reliably distinguished from those whose emissions are not so low – despite the measurement inaccuracy of individual results.

The declaration of individual measurement values as a product characteristic is as nonsensical as it is misleading and therefore prohibited to GEV members as expressly stated in the GEV's Trademark Rules.

However, it sometimes happens that customers or organizations request product manufacturers to provide test certificates or indicate exact emission values. These are required, for example, to assess the sustainability of buildings as a whole. In these cases, the GEV recommends specifying the limit values for the respective EMICODE® class (EC 2, EC 1 or EC 1^{PLUS}) under which the product falls.

Why are emission measurements of building products subject to such variations?

1. Emission tests consist of several steps, from sampling and measurement to the final interpretation of results, where the deviations add up and influence the measurement result.
2. Emissions from today's building products are becoming lower and lower. The measured values are therefore approaching the absolute detection limit of the analysis method. But: The lower the absolute measured value, the higher the relative measurement error it contains.
3. If several substances are just above the detection limit (LOD) of 5 µg/m³, they are included in the total emission value (TVOC). If, in a second measurement, the values are below the LOD, they will be no longer considered. Thus, small measurement deviations within the typical variation range can lead to large differences in the results.
4. Storage and ageing of the products have a direct impact on their emission behavior.

For these reasons, the GEV rejects the advertisement of products where emission values for individual substances are claimed. Such an approach would be highly dubious and misleading for the consumer.

Please note that the GEV does not restrict the declaration of the solvent content or of the VOC content. For some products, this information is even required by law. However, the VOC content says nothing about which substances are emitted from a product.