

## EGOLF RECOMMENDATION 065-2025

Subject of Recommendation (max. 65 characters)	Use of Virtual layers for PCS calculation
Related test standard	EN ISO 1716, EN 13501-1
Date of issue	2025-04-08
Reference original query	EGOLF TC1 N762
Previous publication number (if applicable)	N778
Keywords (max. 20)	Virtual layer, PCS, virtual density, virtual thickness, EN ISO 1716
If Recommendation to be forwarded to CEN TC 127, please state WG and TG	CEN TC 127 WG4, CEN TC 127 WG7, SH02

### Problem

How to deal with PCS calculation for multilayer products, when the layers are made of materials with a discrete distribution along the surface, like threads, adhesives, brackets, gaskets, seals, or any other materials that cover only the edge of the product.

### Recommendation

#### Definition of Virtual Layer:

A1/A2 Classification EN 13501-1 is based on results from EN ISO 1716, and for multilayer products, the schematic approach is to calculate the PCS of the whole product starting from The PCS of each PARALLEL layer and the respective surface density.



PICTURE 1

The final classification depends also on the “status” of the layer, since there are substantial Layers and Non-Substantial Layers, depending on the thickness and surface density of such material.

When the layers are made of materials with a discrete distribution along the surface, like threads, adhesives, brackets, gaskets, Seals, or any other materials that cover only the edge of the product, a **virtual layer** shall be created by transforming this discrete distribution of the products in a virtual continuous distribution along the entire surface of the product.

The final new Virtual product shall be in the form of the “standard” item described in pictures 1 and 2, with continuous parallel layers

e.g.



PICTURE 2

- The new **Virtual surface density** will be the amount of material for each square meter of product [kg/m<sup>2</sup>].

- The new **Virtual thickness** is derived from this new virtual surface density [ $\text{kg}/\text{m}^2$ ] and the real density [ $\text{kg}/\text{m}^3$ ] of the product.

The virtual layer shall be treated as any other layer finding if it falls within the definition of Substantial or Non Substantial component.

Sometimes it is not so easy to relocate this layer in the new stratigraphy.

If the material is in contact with another Non-Substantial layer, and it could be transformed into a Non-Substantial virtual layer, then it should be placed over that real Non-substantial layer.

If the material is normally applied only along the edge of the product from the top to the bottom, never covered on both sides by at least one substantial component, this edging material shall be transformed in only one EXTERNAL virtual layer, placing it against any other Non-substantial layer, if present in the product.

If both surfaces are covered by NON-substantial layers, to choose the side where to collocate this virtual layer, the most critical side shall be chosen and the sum of the PCS (virtual layer+real layer) [ $\text{MJ}/\text{m}^2$ ] shall be used.

The most critical side will depend:

1. first of all, on the thickness or surface density, if the sum of the new virtual layer + the real layer will be greater than 1,0 mm or 1,0  $\text{kg}/\text{m}^2$ , this layer is to be considered the most critical place
2. If the new thickness or surface density is not critical for the definition of Substantial or NON-substantial layer, then, the most critical side will be the one with the highest PCS [ $\text{MJ}/\text{m}^2$ ]

The following picture shows a multilayer product with NON-substantial layers on each face and an edging material (in orange). The Virtual layer is placed over the yellow layer since it has a higher PCS [ $\text{MJ}/\text{m}^2$ ] compared to the black layer.



PICTURE 3