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EUROPEAN RESILIENT FLOORING MANUFACTURERS' INSTITUTE

Wear resistance for PVC-floorings just according to EN ISO 10581/ 10582

Since February 2014, only the new standards EN ISO 10581/10582 have been approved for classifying wear classes of polyvinyl chloride floor coverings (homogeneous / heterogeneous). They replace the European product standard EN 649. Prior to this, a transition phase had been in place since September 2011, in which the use of both standards was tolerated.

Background

Since 1997, the abrasion resistance and the related wear class of homogeneous and heterogeneous PVC floor coverings has been jointly standardized in the European product standard EN 649 (resilient floor coverings - homogeneous and heterogeneous polyvinyl chloride floor coverings - specifications). EN 649 classifies the floor coverings into four different wear classes (T, P, M, F) and characterized the wear behavior of the resilient floor covering.

Illustration/ techn. Illustration:

Wear resistance of old EN 649				
Property/ abrasion class:	*T*	*P*	*M*	*F*
Volume loss in mm³(Fv):	*Fv ≤ 2,0*	*2,0 ≤ Fv ≤ 4,0*	*4,0 ≤ Fv ≤ 7,5*	*7,5 ≤ Fv ≤ 15,0*

No suitable measurement method

However, the mechanical measuring method, the so-called Frick-Taber test according to EN 660, did not provide reproducible results and suffered from precision problems. For this reason, a new method was developed for the determination of the wear resistance of PVC floor coverings. The aim was to determine accurate and reproducible data to determine the wear of PVC floor coverings.

The new standards

Why are two new standards replacing one old one? Because a homogeneous PVC floor covering has to meet other quality criteria by composition and construction of the floor covering in terms of daily use and stress than a heterogeneous multi-layered PVC floor covering. Therefore, in September 2011, two new international product standards for PVC floor coverings were published and introduced as national standards in all EU countries.

EN ISO 10581:2011 Resilient Floor Coverings - Homogeneous (polyvinyl chloride) floor coverings

EN ISO 10582:2012 Resilient Floor Coverings - Heterogeneous (polyvinyl chloride) floor coverings

Binder content is the basis of evaluation

The mass proportion of the PVC binder (plastisol) content in the product composition is the base for wear evaluation in both standards. This proportion is decisive for many qualitative properties of PVC floor coverings and consists of:

-Polyvinyl chloride
-Resin
-Plasticizer
-Stabilizers

Three classes for homogeneous floor coverings

Depending on the percentage of the binder content, the homogeneous floor coverings are divided into three types. Type I being the highest content of binders of more than 55% and means the best wear behavior.

Illustration / techn. Illustration:

Type-classes for homogeneous PVC-floorings according to EN ISO 10581	
Type	Binder content
I	≥ 55 %
II	≥ 35 % up to 55 %
III	≥ 25 % up to < 35 %

Two classes for heterogeneous floor coverings

For realistic evaluation of heterogeneous floor coverings only the wear layer is analyzed with regard to the binder content, and two quality grades are shown:

Illustration / techn. Illustration:

Type-classes for heterogeneous PVC-flooring according to EN ISO 10582	
Type	Proportion of binder in the wear layer
I	> 80 % mass content
II	> 30 % mass content

Also for the heterogeneous floor coverings Type I is the better abrasion resistance.

Specifications which are not written according to new standard should be criticised

Since February 2014 - after a 30-month transition period - EN 649 has been completely replaced by EN ISO 10581 and 10582. It is therefore not correct to refer to the withdrawn standard EN 649. All market partners (manufacturers, architects, planners, etc.) should only communicate with the type specifications of the new standards when evaluating and specifying the wear class of PVC floor coverings.

ERFMI Managing Director, Ton Pluijmert