

Wear-resistance

Wear-resistance properties of glazed vitreous and porcelain stoneware tiles in accordance with EN ISO 10545-7

All floor coverings are exposed to wear. The extent of wear is primarily dependent on the following factors:

- Frequency of use
- Degree of soiling and cleaning conditions
- Type of mechanical stress through manner in which the floor is walked, driven upon
- The hardness of the glaze
- The thickness of the glaze layer
- The glaze finish (matt, semi-matt, gloss)
- The colour and brightness of the glaze

As a rule, floor covering material is worn down by sand and dirt particles that adhere to the soles of shoes and act like sandpaper high pressure during walking and turning movements.

Glazed vitreous and porcelain stoneware tiles are characterised by a particularly easy-care finish. Glazed vitreous or porcelain stoneware tiles which are selected according to the area of application concerned and cleaned on a regular basis are highly durable.

If abrasive materials, such as dirt contained in quartz sand, are allowed to act on the glaze for long periods of time, a loss of gloss and gradual increase in roughness of the surface may result. However, as the serviceability of the floor covering remains unimpaired, this does not constitute a justifiable ground for complaints.

Scratches in the glaze are caused by materials of at least equal hardness, such as quartz grains (7 Mohs), sand, dirt or similar in conjunction with a load and movements over the covering. They can, for example, be caused when moving heavy items (including pieces of furniture).

To prevent premature surface wear, it is recommended that large cleaning zones be provided at all entrances.

Wear-resistance

Wear-resistance groups

Wear-resistance group 0 lightest stress

Unsuitable for the floor area. Villeroy & Boch does not manufacture products in wear-resistance group 0!

Wear-resistance group 1 very light stress

For floors in areas subject to very infrequent use, (soft-soled shoes) and no abrasive contamination. Examples: Bedrooms and bathrooms in private homes.

Wear-resistance group 2 light stress

For floors in areas subject to infrequent use, (normal street shoes) and small amounts of abrasive contamination.

Examples: Private homes, with the exception of kitchens, stairs, terraces, loggias.

Wear-resistance group 3 medium stress

For floors in areas subject to frequent use, (normal street shoes) and abrasive contamination. Examples: all rooms in the home, including bathrooms, hallways, corridors, balconies, loggias, apart from kitchens; hotel rooms and bathrooms; sanitary and therapy rooms in hospitals.

Wear-resistance group 4 medium-heavy stress

For floors in areas subject to frequent use (normal street shoes) and frequent, intense soiling. Examples: private entrances and kitchens, terraces, sales rooms and utility rooms, offices, hotels etc.; floors in schools, administration buildings, hospitals etc.

Wear-resistance group 5 heavy stress

The tiles of the wear-resistance group 5, which provide a very high wear resistance, are available for areas subjected to intense public use. Examples: bakeries, snack bars, entrance halls of hotels and banks, restaurants.

Maximum stress

For heavily frequented application areas or those subjected to extreme surface wear, for example, in the areas surrounding cash tills or entrance areas to passage ways, we recommend the use of unglazed porcelain stoneware, which has an unusually high degree of wear resistance.

At points that are subject to extreme wear – and this applies to all areas of application – deviations from the overall appearance of the surface are possible. In borderline cases, it is therefore recommendable to choose the next-highest wear-resistance group. Tiles belonging to higher wear-resistance groups can, of course, be used in areas subject to lower requirements.

Wear-resistance properties of unglazed porcelain stoneware tiles

Unglazed porcelain stoneware tiles, as described in standard EN 14411, Group B1a water absorption $E \leq 0.5\%$, are considered to have some of the highest wear-resistance properties (deep abrasion) of all floor covering materials. This homogeneous material reveals virtually no signs of wear, even after decades of intensive use.

Deep abrasion is the abrasion of the biscuit on unglazed porcelain stoneware tiles as a result of wear. The permissible tolerances are specified as minimum requirements in the relevant standard (DIN EN ISO 10545-6 – resistance to the deep abrasion of unglazed tiles and slabs, volume loss – max 175 mm³).

At points that are subject to extreme wear – and this applies to all areas of application – deviations from the overall appearance of the surface are possible.