

## General information on cleaning and care

With ceramic floors a distinction should be made between general care and initial cleaning.

### Basic cleaning / Final cleaning after tiling

Basic or initial cleaning after completion of tiling work falls within the tiler's remit and serves to remove any building dirt and cement film. Cleaning agents with abrasive additives have proved best for

this purpose. The localised application of alkaline cleaning agents may be necessary for other types of soiling at the construction site, such as paint stains.

### Regular cleaning / General care

Regular cleaning is carried out to remove dirt resulting from use of the surfaces. Water on its own is often sufficient for slightly soiled tiles and paving without texturing or slip-resistant properties. To

remove stubborn dirt, a cleaning agent appropriate to the type of dirt should be used (generally neutral or weak alkaline cleaners).

## Cleaning methods

### Two methods are customarily used:

- Manual cleaning using water, a broom, scrubbing brush and rubber squeegee.
- Machine cleaning using a scrubbing suction machine or high-pressure cleaner with spray injection.

The procedure to be used will depend on the space available, the type of dirt and the surfaces to be cleaned (e.g. slip-resistant and textured surfaces), the chemical properties of the cleaning agent, and the area to be cleaned.

Manual cleaning is advisable where there is only little dirt. In these cases, a damp wipe with water alone (i.e. without cleaning agent) should be sufficient. When machines are used, the surface is cleaned mechanically; three-disc machines or brush/scrubber dryers have proved most effective for this purpose.

High-pressure cleaners with spray injection are particularly suitable for very dirty slip-resistant surfaces. This is also the most rational method for such surfaces.

### Advantages are:

- rapid and economical cleanser application
- rapid working and economical water consumption
- dirt "levered" off through water pressure
- highly effective for textured or profiled slip-resistant ceramic surfaces as the water jet reaches otherwise hidden areas
- comfortable work posture

With high-pressure cleaners there is a slight danger of washing out and destroying cement joints if the machine is not used correctly (pressure too high because water jet is too close to surface). This effect is exacerbated through the use of unsuitable cleaning agents, e.g. acid cleansers for regular cleaning.

Irrespective of the method chosen, care must be taken that the dirt is removed and not simply allowed to dry onto the surface. The most economical and reliable method is to use a powerful water suction machine.

The tiled surface should be dry after completing the cleaning process.

## Cleaning agents

The type and chemical composition of the appropriate cleaning agent is determined by the type of soiling to be removed and the type of surface to be cleaned (material).

The pH value of the cleaning agent is of particular importance as it reveals whether it is alkaline, neutral or acidic. The pH scale ranges from 0-14 (see the following table).

Values of individual types of cleaning agent	pH-value of concentrate in the range of
Strongly alkaline cleaner, e.g. with sodium or potassium hydroxide solution base	> 10,5
Weakly alkaline cleaner	8,0 to ≤ 10,5
So-called neutral cleaners	6,0 to ≤ 8,0
Weakly acidic cleaner, e.g. with citric acid base	3,0 to ≤ 6,0
Strongly acidic cleaner, e.g. with hydrochloric, phosphoric or sulphuric acid base	< 3,0

**The concentration specified on the container in which the agents are supplied must be observed precisely!**

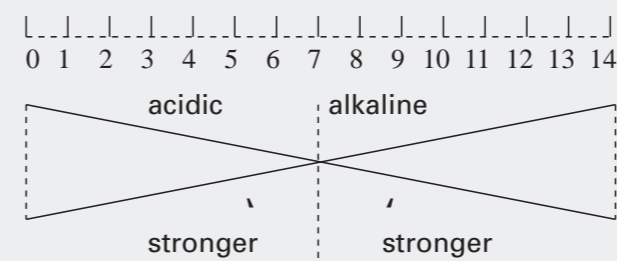


Fig. : pH values of cleaning agent groups in accordance with the information leaflet from the "Deutsche Gesellschaft für das Badewesen" ("German Association for the Recreational and Medicinal Bath Industry"): "Hygiene, cleaning and disinfection in pools".

**Strong alkaline cleaning agents** are not used for regular cleaning and only in exceptional cases for initial cleaning because they are highly aggressive. If such cleaners are left for long periods on aluminium, glass or plastics, they will attack and destroy the surfaces. Painted surfaces are attacked even more quickly; such surfaces or inserts must be masked.

**Weak alkaline cleaning agents** can normally be used without problem. They are mainly employed for cleaning sanitary areas, showers, etc.. Correctly diluted with water, they will remove body fats, cosmetics, grease and dirt deposits.

**Neutral cleaning agents**, are suitable for regular cleaning of dry areas (standard use ceramic floors, WC installations, changing rooms, etc.). Their grease-removing potential is limited.

**Weak acidic cleaning agents** remove limescale deposits (e.g. calcium scale), urine deposits and other mineral precipitates and deposits. They are also used for initial cleaning to remove cement film remaining after grouting. If used over long periods they will attack cement joints; to prevent this, the surfaces should be thoroughly wetted before cleaning in order to reduce absorption by the joints. The effectiveness of weak acidic cleaning agents also depends on the hardness of the water.

**Strong acidic cleaning agents** are only recommended for initial cleaning where there is a lot of cement film; the surfaces should be covered with water beforehand and neutralised after cleaning with a weak alkaline product.

**Cleaning agents containing hydrofluoric acid must not be used as ceramic materials are attacked rapidly and massively and will be permanently damaged!**

A continuously updated and extended list of suitable tested cleaning agents for ceramic surfaces in swimming pools, the so-called "Liste RK", is provided by the Deutsche Gesellschaft für das Badewesen.

Film-forming cleaning agents should not be used on ceramic surfaces as they can considerably reduce or even neutralise the slip resistance of ceramic coverings, and can also produce unsightly effects (e.g. smearing) or cause cleaning problems..

Where underfloor heating systems are installed, it is particularly important to ensure that the detached dirt (dirty water) is removed before it is able to dry again.

Please observe the manufacturers' instructions carefully, as incorrect application of cleaning agents may attack and damage the tile covering, joints and elastic sealants.

Nonvitreous tiles are dry-pressed ceramic tiles with high water absorption that comply with the quality requirements of the European quality standards in accordance with DIN EN 14411 - Ceramic tiles and

slabs – terminology, classification, quality characteristics and markings Group BIII (water absorption  $E \leq 10\%$ ).

**Laying / jointing**

Nonvitreous tiles are usually laid in compliance with DIN 18157 according to the thin-bed method using thin-bed mortar in compliance with DIN EN 12004 or, in rarer cases, laid according to the conventional method in a mortar bed in compliance with ATV DIN 18352.

The dimensions of nonvitreous tiles always vary to a minimal extent. In order to compensate these tolerances resulting from the manufacturing process, it is advisable to include corresponding joints when laying the tiles, according to the size of the tiles and the desired appearance. Information on joint widths is to be found in DIN 18 157, Part 3. For aesthetic reasons, we recommend laying rectified (cut to a precise size) nonvitreous tiles with very narrow joints. In addition

to compensating the above-mentioned tolerances, joints also have the advantage of preventing water and dirt from penetrating into the tile covering. The finished tiling is generally grouted according to the slurry method with the aid of cementitious (mineral) joint mortar. The quartz sand-free (non-abrasive) hydraulic ready-mixed grouts which are used for high-quality tiles with precious metal coatings should also be used when jointing nonvitreous tiles. Materials containing quartz sand may produce an undesired roughening of the surface, thus impairing the hydrophobic (water-repellent) effect.

Silicone sealants should be used to produce elastic edge, connection or field limitation joints. These can be either alkoxy- or acetic-acid cured.

**Cleaning and care, Final cleaning after tiling / Basic cleaning**

Once the tiling work has been finished, cement residue and cement film must be removed so that the characteristic tile colours can be shown to their full advantage. This cleaning falls within the scope of the tile layer and represents the completion of a professional job.

Immediately after grouting the cement is not yet hardened. Left-over mortar and cement milk can still be removed for the most part with standard jointing aids (a damp sponge for example) and water.

The cement film is reduced considerably on ceramic-plus tiles due to the reduced surface energy and the hydrophobic (water repellent) property associated with it. Any remaining cement residue can usually be

removed with a little water immediately after jointing. If it is necessary to remove a cement film, residues can be cleaned off a using weak acid cement film remover and a sponge or cloth. Use plenty of clean water to rinse off the cleaning agent afterwards. All residues of the basic cleaning agent must be removed completely.

Tiles bearing the symbol x "Precious metal plating, not scratchproof" should be cleaned with water and washing up liquid only.

**Maintenance cleaning – normal and stubborn dirt**

**General procedure**

Nonvitreous tiles (with and without the ceramicplus finish) can be cleaned by applying an adequate quantity of cleaning liquid (water + cleaning agent in acc. with manufacturer's instructions) with a soft sponge or cloth. The tiled surface should be washed well with clean water afterwards.

Strongly alkaline or strongly acid cleaning agents can attack or destroy the surface of nonvitreous tiles and joints and must therefore not be used! Abrasive cleaning agents and sponges can impair the surface properties and damage the glaze. Cleaning agents which form films (gloss cleaners, cleaners containing soap), wipe care agents, combined care and cleaning agents and products contain-

ing wax or oil should not be used for ceramic coverings. Such products may impair the appearance of the tiles (streaking, build-up of a protective surface layer) and lead to cleaning problems. Please observe the manufacturers' instructions, as

incorrect application may attack and damage the tile covering, joints and elastic sealants. Villeroy & Boch will not accept any liability for incorrectly used cleaning agents.

Type of dirt	Cleaning agents	Cleaning equipment
Some water and a soft, non-abrasive sponge or cloth should normally be sufficient		
Normal level of dirt, dust, light dirt in dry and wet areas	General purpose cleaner, vinegar-based cleaner, bathroom cleaner cleaner	Soft, non-abrasive sponge or microfibre cloth
Soap residue, lime scale deposits urine scale	Weak acid cleaner Bathroom cleaner, lime scale cleaner	Soft, non-abrasive sponge or microfibre cloth
Grease, oils, cosmetics	Weakly alkaline cleaner / bathroom cleaner	Soft, non-abrasive sponge or microfibre cloth

vilbostone-porcelain stoneware (unglazed) and glazed vitreous and porcelain stoneware from Villeroy & Boch are ceramic tiles, that comply with the quality requirements of the European quality standards in accordance with DIN EN 14411 - Ceramic tiles and slabs :

- Group B Ia** - Dry-pressed ceramic tiles and slabs with low water absorption  $E \leq 0.5\%$
- unglazed porcelain stoneware (unpolished, polished, rough-polished, lustro) and glazed porcelain stoneware
- Group B Ib** - Dry-pressed ceramic tiles and slabs with low water absorption  $E \leq 0.5\% < E \leq 3\%$
- glazed vitreous

#### Laying / jointing

Porcelain stoneware and glazed vitreous are usually laid according to the thin-bed method in compliance with DIN 18 157. For bedding mortar we recommend using a plastic-modified tile adhesive in accordance with DIN EN 12004 – Group C2.

When tiling outdoors, a suitable method of laying should be chosen to avoid cavities forming, e.g. the combined “buttering – floating method” and plastic-modified C2 adhesives used in accordance with DIN EN 12004. If a suitable floating bed mortar is used it should be possible to lay the tiles according to the basic floating method without cavities forming.

The dimensions of porcelain stoneware and vitreous tiles, whether glazed or unglazed, always vary to a minimal extent. In order to compensate these tolerances resulting from the manufacturing process, it is recommendable to include corresponding joints when laying the tiles, according to the size of the tiles and the desired appearance. Information on

joint widths is to be found in DIN 18 157, Part 3. Joint widths of 1.5 – 5 mm are to be recommended for edge lengths up to 150 mm, and 2 – 8 mm for tiles larger than 150 mm. For aesthetic reasons, we recommend laying rectified (cut to a precise size) porcelain stoneware tiles with very narrow joints.

In addition to compensating the above-mentioned tolerances, joints also have the advantage of preventing water and dirt from penetrating into the tile covering. A cement-based joint will prevent bacteria, mould, etc. from entering into the tile covering. The alkaline cement-based environment in the joint impedes the growth of such organisms.

*In special areas such as rooms exposed to chemicals, industrial kitchens, swimming pools etc. special purpose adhesives / grouting materials may be required. In such cases it is best to contact the Deutsche Bauchemie organisation first.*

#### Cutting / Drilling – Special points

Dry cutting of vilbostone porcelain stoneware tiles from Villeroy & Boch is generally possible by scoring with a Widia wheel, applying even pressure. Glazed vitreous and porcelain stoneware tiles are high-glaze products whose dry cutting properties may vary. Hard glazes possess varying stress curves. Consequently, scoring applying high, even pressure with a new Widia wheel may be sufficient to cause splintering of the glaze due to the cutting wheel penetrating too deep into the glaze, resulting in splintering induced by displacement of the glaze. So-called fine cutting wheels for dry cutting are available from dealers to counter this problem. Special dia-

mond-tipped wet tile cutters should generally be used to ensure a clean cut in critical cutting work.

Due to the technical properties involved, more time should be allowed for drilling holes and producing openings in porcelain stoneware and glazed vitreous tiles. Exact holes in standard diameters can be produced in all substrates by wet drilling with a hollow drill with a diamond bit.

#### Cleaning and care of unglazed porcelain stoneware

An unglazed floor covering, irrespective of whether it has a smooth or structured surface, naturally tends to soil more and therefore needs to be more intensi-

vely cleaned. This is also true for vilbostoneplus ceramically sealed or impregnated floors, because the tiles still have limited residual porosity even

though they have low water absorption. Oils, grease and staining liquids as well as silicone and sealants can leave traces behind. The standard does not call for stain protection. Generally, dirt and stain causing substances are easier to remove the fresher they are. Owing to their high resistance to chemicals and their pronounced wear resistance, porcelain stoneware

tiles are suitable for use in areas subject to extremely high levels of stress. Only hydrofluoric acid and related substances are able to attack or destroy the surface of porcelain stoneware tiles. **For this reason, cleaning agents containing hydrofluoric acid are NOT to be used!**

#### Final cleaning after tiling / Basic cleaning

Once the tiling work has been finished, cement residue and cement film must be removed so that the characteristic tile colours can be shown to full advantage. This cleaning falls within the scope of the tile layer and represents the completion of a professional job.

Immediately after grouting the cement is not yet hardened. Left-over mortar and cement milk can still be removed for the most part with standard jointing tools (a damp sponge for example) and water. Hardened cement residues and cement film can only be removed by chemical means. They dissolve in special agents containing acid, so-called cement film removers. In view of the cement grouting these agents should be diluted sufficiently according to the

manufacturer's instructions and rinsed off as quickly as possible. Otherwise there is the danger that cement silicic acid produced during the dissolving process will dry on the tiles and lead to a greying which is hard to remove.

For the final cleaning after tiling, Villeroy & Boch recommends the tile cleaner INOLIT, a quartz sand-free acid cleaning powder which is reactive when used in conjunction with water and has a high cleaning power. To protect the grouting the floor should be sufficiently wetted beforehand. The cleaner should be allowed to soak in sufficiently and then treated with a scrubbing brush and/or removed with a scrubbing suction machine. The dirty water must be removed completely.

#### Basic cleaning

After laying and jointing the tile covering, any construction site dirt must be removed. This can be done best as follows:

Type of dirt	Cleaning agents	Cleaning equipment
Loose dirt		Broom
Grease / oils	Alkaline cleaner	Scrubber / cleaning machine / microfibre mop
Paints / Lacquers	Organic cleaner	Scrubber / cleaning machine / microfibre mop
Cement film / left-over mortar	Acid cleaner / cement film remover – <b>Inolit</b> (recommended by V&B)	Scrubber / cleaning machine / microfibre mop

The acceptance process for a new project should always begin with basic cleaning, duly carried out in the correct manner. This establishes the essential basis for subsequent maintenance cleaning.

An appropriate cleaning method and cleaning agent should be recommended when handing over the project.

#### vilbostoneplus – sealant for matt vilbostone porcelain stoneware

The high-quality sealant vilbostoneplus is applied to the surfaces of the matt vitreous tiles at the factory, leading to a marked improvement in resistance to staining and soiling. A subsequent treatment of matt

porcelain stoneware tiles with an impregnating agent is unnecessary!

**Sealing of polished vibostone porcelain stoneware tiles**

Polished vibostone porcelain stoneware tiles (including lustro and rough-polished finishes) are to be sealed with a suitable stain preventer after basic cleaning. We recommend using the **Carrogard** stain

preventer. **Carrogard** is an oil-, grease- and water-repellent (solvent-containing) stain preventer which affords polished porcelain stoneware tiles lasting protection.

**Maintenance cleaning – General procedure**

**Important:**

Never use cleaning agents containing surfactants, wax or oil. Always remove the dirty water completely

Type of dirt	Cleaning agents	Cleaning equipment
Normal level of dirt, dust, light dirt in dry and wet areas, street dirt etc.	General purpose cleaner, vinegar-based cleaner	Glazed porcelain stoneware / vitreous: Scrubber / cloth / microfibre cloth vibostone porcelain stoneware: Microfibre mop
Soap residue, lime scale deposits, urine scale, rust, grouting materials etc.	Acid cleaner – e.g. lime scale cleaner / bathroom cleaner	
Grease, oils, waxes, cosmetics	Alkaline cleaner - e.g. Grease remover / bathroom cleaner	

The cleaned covering should be left in a completely dry state.

Where underfloor heating systems are installed, it is particularly important to ensure that the detached dirt (dirty water) is removed before it is able to dry again.

Cleaning agents which form films (gloss cleaners, cleaners containing soap), wipe care agents, combined care and cleaning agents and products contain-

ing wax or oil should not be used on ceramic coverings. Such products may impair the appearance of the tiles (streaking, build-up of a protective surface layer) and lead to cleaning problems. Please observe the manufacturers' instructions, as incorrect application may attack and damage the tile covering, joints and elastic sealants. Villeroy & Boch will not accept any liability for incorrectly used cleaning agents.

Slip-resistant ceramic tiles from Villeroy & Boch comply with the quality requirements of the European quality standards in accordance with DIN EN 14411 - Ceramic tiles and slabs – terminology, classification, quality characteristics and markings

- Group B Ia** - Dry-pressed ceramic tiles and slabs with low water absorption  $E \leq 0.5\%$
- unglazed porcelain stoneware (polished, unpolished, rough-polished, lustro) and glazed porcelain stoneware
- Group B Ib** - Dry-pressed ceramic tiles and slabs with low water absorption  $0.5\% < E \leq 3\%$
- glazed vitreous

**Laying / jointing**

Porcelain stoneware and glazed vitreous tiles are usually laid in compliance with DIN 18157 according to the thin-bed method. For bedding mortar we recommend using a plastic-modified tile adhesive in accordance with DIN EN 12004 – Group C2. When tiling outdoors, a suitable method of laying should be chosen to avoid cavities forming, e.g. the combined “buttering – floating method” and plastic-modified C2 adhesives used in accordance with DIN EN 12004. If a suitable floating bed mortar is used it should be possible to lay the tiles according to the basic floating method without cavities forming.

The dimensions of porcelain stoneware and vitreous tiles, whether glazed or unglazed, always vary to a minimal extent. In order to compensate these tolerances resulting from the manufacturing process, it is recommendable to include corresponding joints when laying the tiles, according to the size of the tiles and the desired appearance. Information on

joint widths is to be found in DIN 18 157, Part 3. Joint widths of 1.5 – 5 mm are to be recommended for edge lengths up to 150 mm, and 2 – 8 mm for tiles larger than 150 mm. For aesthetic reasons, we recommend laying rectified (cut to a precise size) porcelain stoneware tiles with very narrow joints.

In addition to compensating the above-mentioned tolerances, joints also have the advantage of preventing water and dirt from penetrating into the tile covering. A cement-based joint will prevent bacteria, mould, etc. from entering into the tile covering. The alkaline cement-based environment in the joint impedes the growth of such organisms.

*In special areas such as rooms exposed to chemicals, industrial kitchens, swimming pools etc. special purpose adhesives / grouting materials may be required. In such cases it is best to contact the Deutsche Bauchemie organisation first.*

**Special technical features**

Dry cutting of vibostone porcelain stoneware tiles from Villeroy & Boch is generally possible by scoring with a Widia wheel, applying even pressure. Glazed vitreous and porcelain stoneware tiles are high-glaze products whose dry cutting properties may vary. Hard glazes possess varying stress curves. Consequently, scoring applying high, even pressure with a new Widia wheel may be sufficient to cause splintering of the glaze due to the cutting wheel penetrating too deep into the glaze, resulting in splintering induced by displacement of the glaze. So-called fine cutting wheels for dry cutting are available from dealers to counter this problem. Special dia-

mond-tipped wet tile cutters should generally be used to ensure a clean cut in critical cutting work.

Due to the technical properties involved, more time should be allowed for drilling holes and producing openings in porcelain stoneware and glazed vitreous tiles. Exact holes in standard diameters can be produced in all substrates by wet drilling with a hollow drill with a diamond bit.

**Cleaning and care**

On account of their properties, tiles are generally considered to be easy to clean. Practical experience shows that the required scope of cleaning work natu-

rally increases as the slip-resistance class and, consequently, the roughness of the tiles rises, however. Cleaning methods and cleaning agents must be

selected in accordance with the type of floor covering concerned and the prevailing local conditions, i.e. the type and frequency of cleaning depends on the type and extent of soiling.

Owing to their high resistance to chemicals and their pronounced wear resistance, porcelain stoneware tiles are predominantly used in areas subject to high levels of stress. Only hydrofluoric acid and related substances are able to attack or destroy the surface of porcelain stoneware tiles. Consequently, no cleaning agents containing hydrofluoric acid are to be used!

The slip-resistant properties are achieved through the roughness of the tile's surface or by means of

relief-type profiling. Dirt particles adhere more readily to these contact surfaces, necessitating a greater scope of cleaning work than is required for smooth, glazed surfaces. Depending on the form of use, severe soiling may occur. This can be removed by means of a cleaning method and cleaning agents tailored to the prevailing conditions and the type of covering concerned. Apart from ensuring use of the appropriate cleaning agent, the mechanics of the cleaning process must also receive due consideration.

Removal of the dirt should restore the tiles to their original appearance and preserve the tiles' service properties.

#### Final cleaning after tiling / Basic cleaning

Once the tiling work has been finished, cement residue and cement film must be removed from all slip-resistant tiles so that the characteristic tile colours can be shown to their full advantage and the technical properties of the product are not affected. This cleaning falls within the scope of the tile layer and represents the completion of a professional job.

When epoxy resin adhesives are used, the manufacturer's instructions are to be observed.

Immediately after tiling the cement is not yet hardened. Left-over mortar and cement milk can still be removed for the most part with standard jointing tools (a damp sponge for example) and water.

Hardened cement residue and cement film can only be removed by chemical means. They dissolve in special agents containing acid, so-called cement film removers. In view of the cement grouting these

agents should be diluted sufficiently according to the manufacturer's instructions and rinsed off as quickly as possible. Otherwise there is the danger that cement silicic acid produced during the dissolving process will dry on the tiles and lead to a greying which is hard to remove.

For the final cleaning after tiling, Villeroy & Boch recommends the tile cleaner INOLIT, a quartz sand-free acid cleaning powder which is reactive when used in conjunction with water and has a high cleaning power. To protect the grouting the floor should be sufficiently wetted beforehand. The cleaner should be allowed to soak in sufficiently and then treated with a scrubbing brush and/or removed with a scrubbing suction machine. The dirty water must be removed completely.

#### Basic cleaning

After laying and jointing the tile covering, any construction site dirt must be removed. This can be done best as follows:

Type of dirt	Cleaning agents	Cleaning equipment
Loose dirt		Broom
Grease, oils, cosmetics	Alkaline cleaner	Scrubber / microfibre mop / cleaning machine
Paints / Lacquers	Organic cleaner	Scrubber / microfibre mop / cleaning machine
Cement film / left-over mortar	Acid cleaner / cement film remover – <b>Inolit</b> (recommended by V&B)	Scrubber / microfibre mop / cleaning machine

The acceptance process for a new project should always begin with basic cleaning, duly carried out in the correct manner. This establishes the essential basis for subsequent maintenance cleaning.

An appropriate cleaning method and cleaning agent should be recommended when handing over the project.

#### vilbostoneplus – sealant for matt vilbostone porcelain stoneware

The high-quality sealant vilbostoneplus is applied to the surfaces of the matt vilbostone porcelain stoneware tiles at the factory, leading to a marked improvement in resistance to staining and soiling.

A subsequent treatment of matt porcelain stoneware tiles with an impregnating agent is unnecessary!

#### Procedure according to area of application:

##### Basic and routine cleaning

##### Kitchens

in the cooking area, sink area, transportation area › safety tiles (R11- R12 / V4 – V6)  
in canteens and dining areas ? safety tiles R9 – R10

Type of dirt	Cleaning methods	Cleaning agents	Type of cleaning	Accessories
Animal and vegetable oils and fats, food residues, sugary and starchy residues	Maintenance cleaning/ basic cleaning	Alkaline cleaner or very mild scouring agent	Manual	Scrubber
			Mechanical	High pressure machine, disc brushes or brush roller machine
Pigment dirt/ rubber marks	Maintenance cleaning/ basic cleaning	Alkaline general purpose cleaner or machine cleaning agent	Manual	Scrubber, squeegee
			Mechanical	High pressure machine, scrubber suction or brush roller machine

##### Meat and fish processing industry

in slaughter houses, meat boning, sausage kitchens › safety tiles (R12- R13 / V8 – V10)  
in sales rooms, butchers' › safety tiles R9 – R11

Type of dirt	Cleaning methods	Cleaning agents	Type of cleaning	Accessories
Animal and vegetable oils and fats, starchy residues	Maintenance cleaning/ basic cleaning	Alkaline cleaner, possibly with added chlorine bleach	Manual	Scrubber
			Mechanical	High pressure machine, foam machine
Pigment dirt	Maintenance cleaning/ basic cleaning	Alkaline cleaner or machine cleaning agent	Manual	Mop,
			Mechanical	Scrubbing suction or brush roller machine

# Installation, cleaning and care:

## Slip-resistant tiles

### Basic and routine cleaning

#### Workshops

in working pits, wash rooms, grinding shops, paint shops › safety tiles (R11- R12 / V4)

in showrooms and servicing and maintenance areas › safety tiles R11 – R12

Type of dirt	Cleaning methods	Cleaning agents	Type of cleaning	Accessories
Mineral oils and grease, silicone, rubber marks	Maintenance cleaning/ basic cleaning	Alkaline cleaners with good separating properties	Manual	Scrubber
		Mild scouring agent	Mechanical	High pressure machine, scrubber suction or brush roller machine
Metal oxides	Maintenance cleaning/ basic cleaning	Alkaline cleaners with good separating properties	Manual	Scrubber
			Mechanical	High pressure machine, scrubber suction or brush roller machine
Street dirt, rubber additives	Maintenance cleaning/ basic cleaning	Alkaline general purpose cleaner, machine cleaning agent	Manual	Scrubber
			Mechanical	High pressure machine, scrubber suction or brush roller machine

#### Sanitary areas /social rooms

in changing rooms, toilets and showers › safety tiles R9 – R11/ barefoot A-B

Type of dirt	Cleaning methods	Cleaning agents	Type of cleaning	Accessories
Oils, cosmetics, skin grease, pigment dirt	Maintenance cleaning/ basic cleaning	Alkaline cleaners	Manual	Mop, microfibre mop Microfasermop
			Mechanical	Scrubbing suction or brush roller machine
Kalk, Urin, Kalkseife	Maintenance cleaning/ basic cleaning	Acidic sanitary cleaning agent or	Manual	Mop, microfibre mop, scrubber
		machine cleaning agent	Mechanical	Scrubbing suction or brush roller machine

#### Swimming pool area

in swimming pool areas, changing rooms, toilets and showers › safety tiles R9 – R11/ barefoot A-C

Cleaning agents from the list "Approved cleaning agents for ceramic swimming pools", the so-called "RK list".

The following information is to be observed: The information in the leaflet "Bodenbeläge für nassbelastete Barfußbereiche" ("Floor coverings for wet barefoot areas"), July 1999 edition (previously GUV 26.17), published by: Bundesverband der Unfallkassen, Munich

The information in the leaflet „Hygiene, Reinigung und Desinfektion in Bädern“ („Hygiene, cleaning and disinfection in swimming baths“) published by the Deutsche Gesellschaft für das Badewesen

Where underfloor heating systems are installed, it is particularly important to ensure that the detached dirt (dirty water) is removed before it is able to dry again.

Cleaning agents which form films (gloss cleaners, cleaners containing soap), wipe care agents, combined care and cleaning agents and products containing wax or oil should not be used on ceramic

coverings. Such products may impair the appearance of the tiles (streaking, build-up of a protective surface layer) and lead to cleaning problems. Please observe the manufacturers' instructions, as incorrect application may attack and damage the tile covering, joints and elastic sealants. Villeroy & Boch will not accept any liability for incorrectly used cleaning agents.