



CHOOSING THE RIGHT GROUT

A TECHNICAL GUIDE TO PERFORMANCE, AESTHETICS, AND DURABILITY

CHOOSING THE RIGHT GROUT

In modern construction and design, grout selection plays a critical role in the durability, aesthetics, and performance of tile and natural stone installations. With a vast array of grout products available, it is essential to understand their characteristics, performance standards, and suitability for different environments. This white paper offers an in-depth overview of grout options based on their specifications, performance characteristics, and ideal applications. The goal is to equip contractors, builders, architects and design professionals with the knowledge required to make informed grout specifications for both residential and commercial projects.



INTRODUCTION

Grout serves not only as a filler between tiles but also as a crucial component in ensuring the longevity and functionality of tile and stone installations. With the increasing variety of grouts available, including color-matched silicone sealants for movement joints, designers face a challenge in selecting the appropriate grout for each project. While aesthetic considerations such as color consistency are important, grout performance remains paramount for achieving durable and long-lasting results. The following outlines the primary grout categories, their performance standards, and practical considerations for their application.

GROUT CATEGORIES

Grouts are classified into four primary categories, each suited to different service conditions and environmental requirements. The following sections provide a detailed analysis of each category.

1. STANDARD CEMENT GROUT

Standard cement grout is the most used and cost-effective option available. It meets the performance requirements of ANSI A118.6 and is suitable for a wide range of residential and commercial applications. It is formulated using Portland cement, aggregates and polymers making it economical and easy to apply.

TYPES OF STANDARD CEMENT GROUT:

- **Sanded Grout:** Suitable for joints ranging from 1/8" to 1/2". Sand is added to improve compressive strength and reduce shrinkage in wide joints.
- **Non-Sanded Grout:** Used for joints 1/8" or smaller and for delicate tiles such as glass or polished stone. It is more like traditional pure cement grout.

- **Saltillio/Coarse Grout:** Formulated for larger joints, such as those between pavers or thin brick (1/2" to 1-1/4").

While cement grout is economical, it is recommended to seal due to its high porosity. Sealing helps protect the grout from stains and prolongs its lifespan. However, reapplication of sealers is necessary every 2 to 3 years depending on cleaning methods and traffic.

Discoloration during curing can be an issue with cement-based grouts due to variations in hydration rates. Factors such as over-watering, sunlight exposure and air movement can cause uneven curing, leading to color inconsistencies. This is an inherent challenge of cement grouts that must be managed through proper installation techniques.



Product Example: SikaTile®-800 Sanded Grout and SikaTile®-800 Unsanded Grout, which both exceed the performance requirements in the ANSI A118.6 category, offer a durable, non-shrinking, dustless grout solution for standard applications.

2. HIGH-PERFORMANCE CEMENT GROUT

High-performance cement grout meets the stricter requirements of ANSI A118.7, offering higher strengths, reduced porosity, faster setting, and greater consistency in color. These grouts are formulated with advanced cements, such as calcium aluminate, which provide greater stain resistance, color consistency and are less prone to efflorescence (white mineral deposits).



CHOOSING THE RIGHT GROUT

KEY ADVANTAGES:

- **Improved Stain Resistance:** The grout is harder and denser, resulting in enhanced stain resistance compared to standard cement grout.
- **Consistent Color:** High-performance grouts are designed to ensure more consistent color, even in environments with varying humidity and temperature.
- **No Efflorescence:** The advanced chemistry of these grouts minimizes the risk of efflorescence, which can mar the appearance of the tile assembly.
- **Fast Setting:** The rapid setting formula results in high early strength and dense joints for added durability and stain resistance in grout joints up to 1/2".

These grouts are suitable for joints ranging from 1/16" to 1/2" and are ideal for high-traffic areas and commercial projects where durability and consistent color are critical.



Product Example: SikaTile®-815 Secure Grout, which incorporates calcium aluminate cement and is known for its performance and color consistency. SikaTile®-815 Secure Grout also contains No-Slake for quicker installations and DUSTLESS technology providing significantly less dust during mixing and cleanup.

3. PREMIUM READY-TO-USE GROUT

Premium, ready-to-use grouts combine the benefits of both cement and epoxy-based products, offering ease of use with enhanced performance. These grouts meet the performance characteristics of new, ANSI A118.19, making them suitable for both commercial and residential applications, especially in areas subject to heavy traffic or high humidity.

KEY ADVANTAGES:

- **Stain Resistance:** Premium, ready-to-use grouts are inherently stain-resistant and maintain consistent color throughout the curing process.
- **Crack Resistance:** These grouts have inherent flexibility, making them resistant to cracking, especially in high-stress areas.
- **No Sealing Required:** Unlike cement-based grouts, ready-to-use grouts do not require sealing, making them low-maintenance.



Product Example: SikaTile®-Ultima Grout is a prominent option that guarantees color consistency and stain resistance. Its advanced formula provides both aesthetic and performance benefits, making it ideal for high-visibility areas.

4. CHEMICAL-RESISTANT, WATER-CLEANABLE EPOXY GROUT

Epoxy grouts, meeting the ANSI A118.3 standard, are the most chemically resistant grout option available. These grouts are suitable for projects requiring resistance to harsh chemicals, biological contaminants, and food-related substances. The multi-component systems typically require mixing before application.

KEY ADVANTAGES:

- **Chemical Resistance:** Epoxy grouts are highly resistant to acids, alkalis, and other harsh chemicals, making them ideal for industrial and laboratory environments.
- **Stain Resistance:** These grouts offer superior stain resistance, especially in environments prone to exposure to grease, oils, or food residues.

Epoxy grouts are also known for their durability in high-temperature environments, such as commercial kitchens or food processing facilities, where both chemical and heat resistance are necessary.



Product Example: SikaTile®-825 Epoxy Grout offers enhanced stain and chemical resistance and is easier to apply and clean than most epoxy grouts.

CHOOSING THE RIGHT GROUT

SEALANTS AND CAULKS

Appropriate sealants and caulks for tile installations include materials based on silicone, urethane, and polysulfide. These materials must comply with ASTM C-920 specifications, specifically Type S or M, Grade P or NS, Class 25 or 12.5, and Use T or NT, M, and G. For applications in traffic areas, the selected sealant or caulk must exhibit a Shore hardness of at least 35 to ensure durability and performance under load.

Proper installation of soft movement joints is a critical component of a complete tile system. Structural movement occurs in all floor and wall assemblies due to factors such as the curing process of cement and concrete substrates, thermal expansion and contraction, and structural settling. To accommodate these movements and prevent cracking within the tile assembly, movement joint placement must adhere to the guidelines outlined in ANSI standards and the TCNA Handbook. Soft joints should be incorporated at all changes in plane and at locations where independent movement of adjoining surfaces is expected.

Product Example: SikaTile®-885 Secure Silicone Caulk meets these criteria, offering a Shore hardness exceeding 35, making it an optimal choice for high-traffic applications.



SELECTION CRITERIA

When selecting grout, designers should consider the following factors to ensure compatibility with the intended environment:

- **Traffic and Load:** High-traffic areas, such as commercial spaces, may require higher performance grout with greater stain and crack resistance.
- **Exposure to Chemicals:** Areas prone to chemical exposure, such as kitchens or laboratories, should be specified with epoxy or high-performance grouts.
- **Appearance and Maintenance:** For aesthetically sensitive projects, premium ready-to-use grouts or high-performance grouts provide consistent color and lower maintenance needs.
- **Environmental Conditions:** Consider temperature extremes, humidity, and exposure to water when specifying grouts for commercial or residential installations, especially in wet areas or outdoor environments.
- **Color:** Choosing the right tile grout color enhances the overall aesthetic by either blending seamlessly with the tiles for a cohesive look or creating contrast for a bold, stylish effect. It also plays a crucial role in maintenance, as darker grouts can help hide stains, while lighter shades can make a space feel brighter and more open.

ANSI STANDARDS:

ANSI Standard	Description	Sika Product	Interior (Commercial/R residential)	Exterior (Commercial/R residential)	Industrial	Chemical Resistance	Full Water Immersion	Rapid Setting	Polished Stone/Marble
A118.3	100% Solids Epoxy Grout	SikaTile®-825 Epoxy Grout	•	•	•	•	•		•
A118.6	Standard Sanded Cement Grout	SikaTile®-800 Sanded Grout	•	•			•		
A118.6	Standard Unsanded Cement Grout	SikaTile®-800 Unsanded Grout	•	•			•		•
A118.7	High Performance Sanded Grout	SikaTile®-815 Secure Grout	•	•			•	•	•
A118.19	Ready-to-Use Grout	SikaTile®-Ultima Grout*	•	•		•			•



CONCLUSION

Selecting the appropriate grout is a critical component of any tile or stone installation. Each grout category offers distinct advantages based on performance, aesthetics, and environmental conditions. Understanding the nuances of grout types—ranging from standard cement grout to chemical-resistant epoxy—ensures that designers can specify the best grout for their projects, balancing both function and form. The evolution of grout technology, with innovations such as dustless, no-slake and high-performance grouts, offers versatile solutions for a wide variety of applications, making it easier for designers to meet the unique needs of each installation.



By carefully evaluating the requirements of the project, decision makers can make informed grout choices that will not only enhance the aesthetic appeal of the installation but also ensure its durability and long-term performance.

NEED MORE INFORMATION?

Sika's renowned support is available for any SikaTile® tiling and grout situation. For additional assistance, contact Sika's Technical Department at 1-800-933-7452.

GROUTING BEYOND THE EXPECTED.



FOR MORE PRODUCT INFORMATION, VISIT WWW.SIKATILE.COM.

WE ARE SIKA:

The SikaTile® Secure System delivers the best Sika solution to meet project needs and overcome everyday challenges. With a portfolio spanning moisture mitigation, underlayments, patching and skimming, waterproofing, crack isolation, and tile adhesives and grouts, Sika provides a total system package.

Our most current General Sales Conditions shall apply. Please consult the Product Data Sheets prior to any use and processing.

SIKA CORPORATION
201 Polito Avenue
Lyndhurst, NJ 07071
Phone: 201-933-8800
Fax: 201-933-6225

BUILDING TRUST

