



## EXECUTIVE SUMMARY

If you find that the maintenance and replacement of deteriorated tile grout in your restaurant business has become an expensive hassle, you aren't alone. Based on industry averages, high performance restaurants spend approximately \$24 to \$36 dollars per square foot over a 10-year period on tile grout replacement and restoration for cook lines and kitchen areas. Not only does the process have hard costs associated, but most restaurants experience significant downtime during the procedure. It's no wonder that the industry has been demanding a new solution, acknowledging the negative impact of grout deterioration. This paper presents the key drivers behind this ongoing tile grout problem affecting the restaurant industry, and highlights the elements of a new solution that presents cost, time and hassle savings to the restaurant owner.

## BACKGROUND

Many restaurant business owners are beginning to realize that by addressing the issue of grout deterioration head-on and prolonging the life of grout material can create a critical cost-savings in the long run. Finding a solution that minimizes impact on daily operations and that will stand up to the constant pressures of a restaurant environment is essential.

### **Grout: A Definition**

Grout is a binding or structural agent used in construction used to fill voids and seal joints, like those between tiles. Grout is generally composed of a mixture of water, cement, sand and sometimes fine aggregate.<sup>1</sup>

The type most commonly specified in construction and engineering is cementitious grout. Cementitious grouts are used to fill voids and cracks in pavements, building and dam foundations, and brick and concrete masonry wall assemblies.<sup>2</sup> Most applicable to this paper is the use of grout to construct floor toppings, provide flooring underlayment or to place ceramic tile.

Grout can be formulated from a variety of cements and minerals and proportioned for specific applications. Neat cement grout refers to formulations without aggregate, containing only hydraulic cement, water and possibly admixtures. Sanded grout is any mix containing fine aggregate and it is formulated much like masonry mortar. This is the type of grout typically found in kitchens, floors and bathrooms. Whether neat or sanded, cementitious grouts derive their strength and other properties from the same calcium silicate-based binding chemistry as concrete.<sup>3</sup>

## Grout Deterioration in a Restaurant Environment

Sanded grout, which is the most commonly specified grout in cook lines and production kitchens, has a typical life of two to three years. It is easy to determine whether or not tile is jointed with sanded grout—it is rough to the touch and usually needs to be regouted at some point. Grout deterioration can be accelerated in the restaurant environment for several reasons including heavy traffic, moisture, food by-products, cleaning agents and grease present in a commercial kitchen.<sup>4</sup>

In restaurants, a high standard of cleanliness and regular disinfection is essential to ensure that food is protected from physical and microbial contamination.<sup>5</sup> This constant cleaning, sometimes with harsh cleaning products and solutions, causes the grout to dry out, crack and eventually fall out of the joint.

Even cooking by-products from the “cook line” at restaurants can have a negative impact on grout. Oleic acid is a mono-unsaturated omega-9 fatty acid found in various animal and vegetable sources. Oxidation at the double bond in the oleic acid molecule occurs slowly in air and is known to create a breakdown of tile grout by yielding oleyl alcohol and stearic acid.<sup>6</sup> Oleic acid is nearly always present in the kitchen area.

Breakdown of grout leaves spaces for the buildup of mold, mildew, grease, food soil, and millions of dead or dying bacteria.<sup>7</sup> If grout is not properly repaired or replaced, damaged areas can support mold growth, force ceramic tiles free of grout holdings and even cause more widespread decay.<sup>8</sup> When grout is missing, water can pool during cleanings, taking longer to dry out. This can eventually pose a health risk by allowing swift growth of bacteria and mold.

Departments of Public Health are responsible for ensuring that the community is provided with safe food and reducing the potential for food borne illnesses and the spread of communicable disease. Restaurant inspectors with the health department may apply point deductions on restaurant scores based on missing floor tiles and missing grout between floor tiles.<sup>9</sup>

## Grout Replacement and Restoration “Solutions”

The average high performance restaurant chain replaces grout every two to four years depending on volume, spending \$10 to \$12 dollars per square foot. The average kitchen in this type of operation ranges from 1,200 to 2,000 square feet. This maintenance cost is astronomical.

New grout cannot simply be placed over the old damaged grout. The new grout will not bond, because one of the major influences on binding is the grout’s ability to “grab” onto the sides of a piece of tile. When these spaces are filled with old grout, the new grout just barely holds onto the surface of the old grout, not the tile.<sup>10</sup>

The only real solution is to remove the old grout, which is typically a slow, laborious and tedious process that fills the air with particulates. New grout is installed, often taking 72-hours to fully cure and becoming damaged again within a couple of years. Then the cycle begins again.

## MARCOAT EPOXY GROUT FLOOR SYSTEM

It's time to consider a breakthrough product that has been proven in the field to stand up to the rigors of daily wear and tear of the high performance restaurant kitchen. The cost-effective **Marcoat Epoxy Grout Floor System** is a replacement for sanded grout and eliminates the grout corrosion problem for the long term.

### Product Features

The Marcoat Epoxy Grout Floor System is based on revolutionary technology to address grout issues in cook lines, prep lines, bar backsides, walk-in coolers and other important kitchen areas.

This cost-effective product eliminates pockets in traditional grout where food particles, liquid and grease can accumulate and cause health hazards. It is impervious to oleic acid and enzyme cleaners that are present in the kitchen environment, while also protecting tile from breaking and chipping. Additionally, its special formulation is impervious against mold and mildew.

The Marcoat Epoxy Grout Floor System comes with a limited two-year warranty on workmanship and an additional manufacturer warranty against product failure of three years. This equals a total of five full years of coverage against product breakdown under normal restaurant conditions.

Marcoat has been used as a solution in the hotel and restaurant industry for the last several years. The product is NSF-certified for the use in the food service industry; designed to be a long-lasting solution in the restoration and new construction of restaurant kitchens.

Results of an installation in a high performance, national chain restaurant location have been impressive. Marcoat Epoxy has shown no evidence of product failure, breakdown or corrosion. It is holding strength, not sinking and retaining its waterproof seal. The national chain has experienced ongoing problems with cook lines due to deterioration caused by oleic acid.<sup>11</sup> This acid has not had any effect on the caulk in the test location, creating a strong interest in implementing the solution nationwide at significant long-term cost savings.

The only product that representatives from this national chain have ever seen standup for years is the special formulation used in the Marcoat Epoxy Grout Floor System.

### The Process

The process used to install the Marcoat system was developed with the special needs of the restaurant in mind. Precision cutting tools are used to remove old grout with a dustless method, eliminating the need to protect food preparation areas from particulate contamination.

After old grout is removed, the Marcoat product is applied. The product is odorless during both application and curing, providing a pollution-free situation. With a short three-hour curing time, restaurants do not need to close early or experience downtime in order to address damaged, deteriorated grout issues.

Because of the product's singular formula, no plywood or masonite protection or masking is required, providing an even greater reduction in overall job time. Marcoat Epoxy Grout is ready to go by the next shift. This is a system that can be installed after the restaurant closes and be ready to use when the prep cooks enter the kitchen the next morning.

**STUART DEAN:  
YOUR RESTORATION EXPERTS**

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The technicians that provide service using the Marcoat Epoxy Grout Floor System are backed by 75 years of expertise and excellence. They are part of the Stuart Dean family, a pioneer in the field of building restoration and maintenance services. This family-owned business provides critical services that extend the life, increase the value and enhance the beauty of architectural assets.

Stuart Dean offers customized solutions for each client in the restoration and maintenance of tile grout in restaurant environments, specializing in ongoing contracts and project-based work. A national team of experts is able to offer professional and cost-effective services using the Marcoat system from coast to coast. This provides ease of service to companies with multiple locations who need solutions that deliver consistent outcomes across the board.

**References**

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