

CLEANING UP

News & Views on Our Industry

The Science Behind Floor Finish

Have you ever wondered what types of products go into a floor finish to make it work? Or, maybe you have wondered how floor finishes work once they are applied to the floor. Or, you might have wondered what went wrong when a floor finish didn't perform properly. We hope to answer those questions in this article. The ingredients in a typical floor finish fall into one of the following seven categories.

1. Water – This is the solvent in which all of the other ingredients are suspended and it is the product that carries the ingredients onto the floor. The volume of water in a finish will vary based upon the solids percent of that particular formulation.

2. Coalescent – These are solvents used in small quantities that aid in film formation. Different coalescents are used based upon a number of considerations. For example, a finish manufacturer would use a different coalescent in a green formulation than they

would use in a conventional formulation. There are also cost differences to consider, but most importantly, the manufacturer needs to choose a coalescent that is compatible with the polymer that is in the finish.

3. Additives – These are ingredients that are typically used in very small quantities such as a wetting agent or defoamer or biocide. The wetting agent allows the finish to spread evenly across the floor. The defoamer allows the application to proceed without trapping bubbles in the finish and the biocide keeps the product free of living organisms.

4. Polymer – This is the main ingredient to the finish and it is the item with which all other ingredients must be compatible. The polymer provides most of the performance properties of the finish, such as hardness, gloss, flexibility, durability, etc., so the selection of the polymer is the most important component in developing a floor finish. The characteristics of polymers can determine whether or not a finish is ideal for UHS burnishing applications, or low traffic/low maintenance scenarios, or whether or not a finish is considered "green".

5. Wax Emulsion – These ingredients modify the scuff resistance, black mark resistance, slip resistance and burnish response. A blend of one to three waxes could be used to tune the desired performance.

6. Alkali Soluble Resin – This ingredient modifies the leveling, gloss and removability.

7. Plasticizer – This ingredient also aids in flexibility, durability and film formation.

The ingredients are carefully selected and their levels are fine tuned to meet the performance requirements of each individual product. There are many variables that can be manipulated to design the performance response of a floor finish. To see how these variables come together in one product, let's take a closer look at the floor finish, Glacier Frost by Regard Performance.

Glacier Frost was formulated to exhibit superior durability characteristics in high traffic areas which are maintained frequently with the use of UHS burnishers. In order to achieve the desired performance, we selected a specially designed zinc-catalyzed polymer with high durability and dirt resistant capabilities. We then added a high performance coalescent to the formula to ensure that the product would form a strong film, even in areas where floor level temperatures may vary (i.e. grocery stores). To give the finish a high level of gloss, slip resistance, scuff resistance, black mark resistance, and durability, we blended two waxes and two plasticizers together to give us the desired results. We completed the formulation with a compatible wetting agent, defoamer, and alkali soluble resin to give us a high performance UHS floor finish.

So what happens once the finish is applied to the floor? We are going to use a series of

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illustrations to show the transition that occurs within the floor finish as it dries and forms a tight, protective film on the floor.

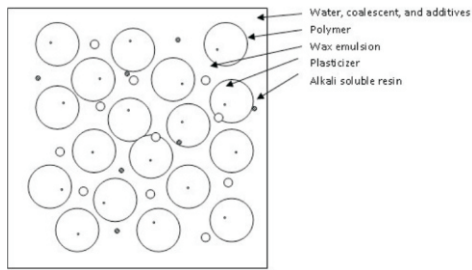


Figure 1 shows the finish immediately after the finish has been properly applied to the floor. The ingredients in the floor finish are uniformly dispersed through the film. The wetting agent has allowed the film to completely cover the floor and the defoamer has allowed any bubbles to break.

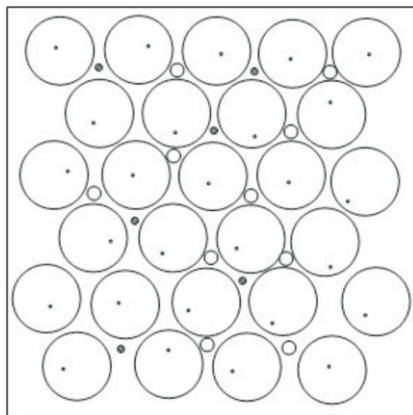


Figure 2 shows the finish when it has been on the floor for a few minutes. The water is beginning to evaporate and all of the ingredients have packed closer together to fill in the voids left by the evaporating water. During this time the coalescent solvent is concentrating along the polymer molecules and the plasticizer has completed its migration into the polymer molecules (a process which begins in the bottle). Both actions cause the polymer molecules to soften and become more pliable.

In Figure 3, the water is almost gone (depending on conditions and the specific finish, this will occur 30-45 minutes after the product has been applied to the floor). The particles have migrated into a hexagonal close packing orientation. The voids between particles form capillaries and as the water evaporates through the capillaries, a vacuum is created that pulls the particles as close as possible.

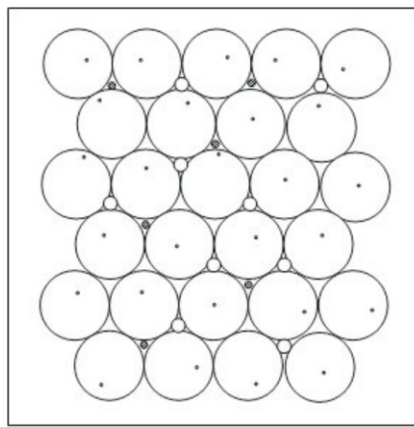
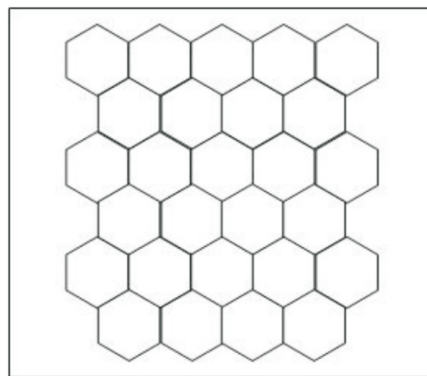


Figure 4 shows the resulting film formation after the vacuum created by the evaporating water has drawn the pliable polymer particles together and trapped the wax and resin particles in place. At this state, the softened edges fuse together and the metal catalyst begins chemically bonding the polymer particles. The coalescent evaporates allowing the polymer to regain its original rigidity. After 30 – 45 minutes you will be ready to apply another coat. The process repeats until you have the desired number of coats.



While these illustrations are idealized representations of the film formation and curing process that should take place on the floor, we know that our job sites aren't identical to the controlled conditions of a chemical lab. Below we describe some of the chemical processes that occur when the application process does not go as planned.

If the finish is applied too thickly, the surface will dry before the water and coalescent has completely evaporated. This action will trap water and coalescent inside the film, which will greatly extend the drying time. In this scenario, if the applicator doesn't realize that a longer drying time is needed, he/she will tend to apply the next coat too soon. When this happens, the second coat partially dissolves the first coat and a haze typically

forms. A small amount of haze can sometimes be eliminated by burnishing, but in the worst case scenario the second coat dissolves the surface of the first coat, which exposes the trapped water and coalescent which then creates a noticeable crater in the film. This defect may require stripping to resolve, so it is always best to apply finish at the ideal coverage rate as stated in the product literature.

The reverse case is where the applicator applies the finish too thin, causing the finish to dry too quickly. In this case, the wetting agent doesn't allow the coating to level which traps the mop marks into the surface. Also, drying too quickly prevents the polymer from being pulled into a tight formation, which results in a weaker film. Again, it is always best to apply finish at the ideal coverage rate as stated in the product literature.

A lack of good climate control and ventilation could also lead to application problems. High humidity, cool temperature and no air circulation will require longer dry time between coats, in some cases extending the dry time to an hour or longer. A good way to be certain the film is dry enough for the next coat is to firmly press your thumb into the film. If you do not feel the film move and no print remains, then the finish is dry enough to accept the next coat. If you feel the film move, then longer dry time is necessary. Low humidity, warm temperature and rapid air movement can cause the coating to dry faster. Always allow 30 minutes minimum between coats. If the conditions cause the coating to dry too fast, poor film formation and poor performance will be the result. If you cannot optimize the ambient conditions, you will achieve better results by rescheduling the application.

Poor film formation will always result in poor performance. Taking the time to apply the finish at the proper coverage rate and with the appropriate drying times between coats (as dictated by the ambient conditions) will go a long way to eliminating problems with the floor finish.

Thank you to Pioneer Eclipse for providing this article. For more information on floor finishes, training, & troubleshooting, please contact your local Wesclean Sales Rep. 1.888.337.2929 • www.wesclean.com



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Why Preventative Maintenance?

Preventive maintenance is predetermined work performed to a schedule with the aim of preventing the wear and tear or sudden failure of equipment components.

- Preventive maintenance helps to:
 - Protect assets and prolong the useful life of cleaning equipment
 - Improve building care reliability
 - Decrease cost of replacement
 - Decreases system downtime
 - Reduce injury
 - Identify lubrication points on equipment

Wesclean works with each partner to ensure you have a customized Planned Maintenance program for your facility. A Planned Maintenance will save you many dollars in the long run. Late summer is the best time to ensure your equipment is in top working condition and ready for demands of our busiest winters. We will recommend when the time is right to trade up to new equipment and in past many Wesclean partners have found that a lease on a new piece of equipment with Weslease is more affordable than keeping the old equipment running.

Make sure you talk to your Wesclean Sales Professional about our Planned Maintenance today and protect your investment.

For more information on these and other products, contact your local Wesclean branch at 1-888-337-2929 or visit www.wesclean.com

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Lengthen the Life of Your Equipment

Easy tips to keep your cleaning equipment in tip top shape

1. When applying treatment to your mop before use, you should do so at least the night before, and as early as 1 week prior to use. Applying treatment in advance allows the mop time to absorb the treatment.
2. After you apply treatment to your mop, you should always store it rolled up, in plastic, as well as off the floor.
3. When cleaning up your mops, you should wash them with clear water, and then hang them to dry, do not put the mop in the dryer.
4. When cleaning up your auto-scrubber after use, make sure to drain the recovery and solution tanks, rinse out your mops and buckets before storing and hook the machine up to the charger.
5. After spray buffing, you should clean the pads by soaking them in a strip solution then rinsing them under the pressure of a hose. Next wash with a high pressure washer, and launder in tepid water.
6. Keeping your vacuum filter bag empty and clean is essential; having the bag ¼ full will reduce cleaning by 50%.
7. After using a wet/dry vacuum, you should always empty the wet vacuum immediately after use, rinse it out and clean the inside with an all-purpose cleaner. As well, clean the filter after using for dry vacuuming. Never leave your wet vacuum to air dry.

Summer Cleaning 101: Decks & Driveways

The beginning of summer is a great time to do these once-a-year cleaning jobs.

For outdoor decks, use a diluted mixture of Orange-Sol oxygenated cleaner, then use a push broom or stiff brush to scrub the deck clean. Be sure to rinse the deck well.

For asphalt driveways, use one scoop of X400 laundry detergent in one gallon of water.

For concrete driveways, try Wesclean's Crete Clean Plus as per dilution and Orange-Sol ADL for oil spills. Scrub with a push broom, then rinse thoroughly.

Wesclean's Annual Charity Golf Tournaments 2011

We are pleased to announce, together with our valued vendors and our esteemed customers, Wesclean was able to raise a grand total of \$22,500 for Brown Bagging for Calgary's Kids Society and for Edmonton's E4C's School Lunch Program!

Thank you one and all for supporting two such worthy causes!

Wesclean's Burnaby branch will be hosting a tournament September 7, 2011.

OUR MISSION: To deliver in a timely and efficient manner superior cleaning products and excellence of service that meets and exceeds all our customer's requirements helping them perform their roles with efficiency and cost effectiveness. To treat employees and associates with fairness and respect and to be supportive to our suppliers in product and market development which will solidify our position as Western Canada's top distributor.

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Working together for a
cleaner environment