# PAINTLINES

## PPG High Performance Coatings™ blending guide


| PRODUCT NAME | SERIES | PRODUCT CODES | PART B CURE | SHEEN | MIX RATIO | POT LIFE | DRY TIME | THINNERS | ACCELERATORS/ DRY TIME ACCELERATED | CLEAN UP | TINT | INDUCTION TIME |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Epoxies - Waterbased** | | | | | | | | | | | | |
| PITT-GLAZE® WB Water Borne Acrylic | 16-551 | 16-551, 16-556, 16-558 | 16-598 (High Gloss) 16-599 (Semi-Gloss) | High Gloss Semi-Gloss | 7:1 | 36 hours | Touch: 30 minutes Handle: 5.0 hours Recoat: 5.0 hours | Water | Not Applicable | Soap & Water | Component "A" Only | Not required |
| AQUAPON® WB Epoxy Finish | 98-1 | 98-1, 98-10, 98-11, 98-12, 98-13, 98-2, 98-3, 98-4, 98-9, 98-51, 98-56 | 98-98 (Gloss) 98-100 (Semi-Gloss) 98-101 (Gloss, Low VOC) | Gloss and Semi-Gloss | 1:1 | 6 hours | Touch: 1.0 hour Handle: 7.0 hours Recoat: 16 hours | Water | Not Applicable | Soap & Water | Component "A" Only | Not required |
| *Aquapon* WB Epoxy Primer | 98-46 | 98-46, light grey | 98-99 | Matte | 1:1 | 6 hours | Touch: 3.0 hours Handle: 14 hours Recoat: 18 hours | Water | Not Applicable | Soap & Water | Not Applicable | 15 minutes |
| *Aquapon* WB Interior Floor Coatings, Clear | 98-57 | 98-57 | 98-58 | Semi-Gloss | 4:1 | 3 hours | Touch: 1.5 hours Handle: 8.0 hours Recoat: 16 hours | Water | Not Applicable | Soap & Water | Not Applicable | Not required |
| MEGASEAL™ WBPC - Primer Clear | 99-128 | 99-12800 | 99-12833 | Low Gloss | 4:1 | 2 hours | Touch: 2.0 hours Handle: 24 hours Recoat: 6.0 hours | Water | Not Applicable | Soap & Water | Not Applicable | Not required |
| **Epoxies** | | | | | | | | | | | | |
| HPC HIGH GLOSS EPOXY | 95-501 | 95-502, 95-503, 95-505 | 95-506 | High Gloss | 4:1 | 4 hours | Touch: 6.0 hours Handle: 18 hours Recoat: 16 hours | Thinner 21-06 (97-727) or Thinner 21-25 | Not Applicable | Thinner 90-58 | Component "A" Only | 15 minutes |
| *Aquapon* LT Epoxy | 95-172 | 95-172, 95-173 | 95-178 | Semi-Gloss | 1:1 | 4 hours | Touch: 8.0 hours Handle: 16 hours Recoat: 3.0 hours | Thinner 21-06 (97-727) or Thinner 91-31 (97-734) | Not Applicable | Thinner 90-58 | Not Applicable | 10 minutes |
| *Aquapon* Polyamide Epoxy | 97-53 | 97-53, 97-54 (tint bases) | 97-97 | Gloss | 1:1 | 4 hours | Touch: 3.0 hours Handle: 8.0 hours Recoat: 8.0 hours | Thinner 91-25 (97-725) or Thinner 91-31 (97-734) | Not Applicable | Thinner 90-58 | Component "A" Only | 30 minutes |
| *Aquapon* High Build Polyamide Epoxy | 97-130 | 97-130, 97-131, 97-1200, 97-1212 | 97-137 (Tint bases) 97-139 (Ready-mix colors) | Semi-Gloss | 1:1 | 4 hours | Touch: 2.5 hours Handle: 12 hours Recoat: 24 hours | Thinner 21-06 (97-727) or Thinner 91-31 (97-734) | Not Applicable | Thinner 90-58 | Component "A" Only | 30 minutes |
| PITT-GUARD® Rapid-Coat DTR Epoxy | 95-245 | 95-2400, 95-2402, 95-2412, 95-242, 95-245, 95-247, 95-248 | 95-249 | Semi-Gloss | 1:1 | 1.5 hours | Touch: 4.0 hours Handle: 8.0 hours Recoat: 8.0 hours | Thinner 21-06 (97-727) or Thinner 91-31 (97-734) | Not Applicable | Thinner 90-58 or Thinner 21-06 (97-727) | Component "A" Only | 15 minutes |
| *Pitt-Guard* DTR Epoxy Mastic | 97-145 | 97-144, 97-145, 97-147, 97-148, 97-1500, 97-1512 | 97-149 (Ready-mix colors) 97-158 (Tint bases) | Semi-Gloss | 1:1 | 4 hours | Touch: 8.0 hours Handle: 16 hours Recoat: 16 hours | Thinner 21-06 (97-727) or Thinner 91-31 (97-734) | 861 Epoxy Accelerator (97-723) Touch: 4.0 hours @ 70°F (21°C) Handle: 9.0 hour @ 70°F (21°C) | Thinner 90-58 or Thinner 21-06 (97-727) | Component "A" Only | 30 minutes |
| *Pitt-Guard* All Weather DTR Epoxy | 97-946 | 97-946, 97-948 | 97-949 | Semi-Gloss | 1:1 | 4 hours | Touch: 4.0 hours Handle: 8.0 hours Recoat: 3.0 hours | Thinner 21-06 (97-727) or Thinner 91-31 (97-734) | Not Applicable | Thinner 90-58 or Thinner 21-06 (97-727) | Not Applicable | 10 minutes |
| *MegaSeal* SL - Self Leveling | 99-126 | 99-12600, 99-12603, 99-12604, 99-12612, 99-12614 | 99-12633 | Gloss | 2:1 | 40 minutes | Touch: 6.0 hours Handle: 24.0 hours Recoat: 8.0 hours | Not applicable | Not Applicable | Thinner 90-58 | Not Applicable | Not required |
| COAL CAT™ Polyamide Coal Tar | 97-640 | 97-640 | 97-641 | Gloss | 4:1 | 9 hours | Touch: 4.0 hours Handle: 8.0 hours Recoat: 18 hours | Thinner 91-25 (97-725) | Not Applicable | Thinner 90-58 | Not Applicable | 30 minutes |
| **Urethane** | | | | | | | | | | | | |
| DURETHANE® DTM | 95-3300 | 95-3300, 95-3301, 95-3302 | 95-339 | Gloss | 5:1 | 3 hours | Touch: 2.0 hours Handle: 9.0 hours Recoat: 9.0 hours | Thinner 21-85 (97-739) or Thinner 91-30 (97-730) or Thinner 21-06 (97-727) | 866 Urethane Accelerator (97-722) Touch: 40 mins @ 70°F (21°C) Handle: 1.0 hour @ 70°F (21°C) | Thinner 90-58 | Component "A" Only | Not required |
| PITTHANE® Ultra Gloss Urethane | 95-812 | 95-8000, 95-8001, 95-8002, 95-8003, 95-801, 95-802, 95-805, 95-812, 95-814 | 95-819 | Gloss | 5:1 | 3 hours | Touch: 2.5 hours Handle: 5.0 hours Recoat: 5.0 hours | Thinner 21-85 (97-739) or Thinner 21-06 (97-727) or Thinner 21-25 for > 90°F (32°C) | 866 Urethane Accelerator (97-722) Touch: 20 mins @ 70°F (21°C) Handle: 40 mins @ 70°F (21°C) | Thinner 90-58 or Thinner 21-06 (97-727) | Component "A" Only | Not required |
| *Pitthane* 35 Gloss Urethane | 95-850 | 95-850, 95-853, 95-8500, 95-8502, 95-8512 | 95-859 | Gloss | 7:1 | 2.5 hours | Touch: 1.5 hours Handle: 4.0 hours Recoat: 4.0 hours | Thinner 21-06 (97-727) or Thinner 91-30 (97-730) | 866 Urethane Accelerator (97-722) Touch: 0.5 hours @ 70°F (21°C) Handle: 1.0 hours @ 70°F (21°C) | Thinner 90-58 or Thinner 21-06 (97-727) | Component "A" Only | Not required |
| *Pitthane* High Build Semi-Gloss Urethane | 95-8800 | 95-8800, 95-8801 | 95-859 | Semi-Gloss | 7:1 | 2.5 hours | Touch: 2.5 hours Handle: 5.0 hours Recoat: 5.0 hours | Thinner 21-06 (97-727) or Thinner 91-30 (97-730) | 866 Urethane Accelerator (97-722) Touch: 1.5 hours @ 70°F (21°C) Handle: 4.0 hours @ 70°F (21°C) | Thinner 90-58 or Thinner 21-06 (97-727) | Component "A" Only | Not required |
| **Specialty** | | | | | | | | | | | | |
| *Aquapon* Zinc Rich Epoxy Primer | 97-670 | 97-670, 97-670A | 97-670B + 97-670Z | Matte | Supplied as 3 component in kit | 24 hours | Touch: 1.0 hour Handle: 4.0 hours Recoat: 4.0 hours | Thinner 91-25 (97-725) | Not Applicable | Thinner 90-58 | Do not tint | Not required |
| *Durethane* MCZ | 97-699 | 97-699 GR, 97-699 RD | 97-699P | Matte | Supplied as 2 component in kit | 6 hours | Touch: 1.5 hours Handle: 4.0 hours Recoat: 6.0 hours | Thinner 21-06 (97-727) or Thinner 21-25 for > 90°F (32°C) | Not Applicable | Thinner 90-58 or Thinner 21-06 (97-727) | Do not tint | Not required |

*Updated: September 2017*

# TABLE OF CONVERSION FACTORS

| To Convert | From | To | Multiply By |
|---|---|---|---|
| **Area** | square feet ($ft^2$) | square meters ($m^2$) | 0.0929 |
| | $m^2$ | $ft^2$ | 10.764 |
| **Volume** | Imperial gallons | liters | 4.55 |
| | Imperial gallons | U.S. gallons | 1.20 |
| | liter | Imperial gallons | 0.22 |
| | liter | U.S. gallons | 0.264 |
| | U.S. gallons | Imperial gallons | 0.833 |
| | U.S. gallons | liters | 3.785 |
| **Area/Volume** | $ft^2$/Imp. gallon | $m^2$/liter | 0.0204 |
| | $ft^2$/U.S. gallon | $m^2$/Imp. gallon | 0.112 |
| | $ft^2$/U.S. gallon | $m^2$/liter | 0.0245 |
| | $m^2$/Imp. gallon | $m^2$/liter | 0.2197 |
| | $m^2$/Imp. gallon | $ft^2$/U.S. gallon | 8.97 |
| | $m^2$/liter | $ft^2$/Imp. gallon | 48.93 |
| | $m^2$/liter | $ft^2$/U.S. gallon | 40.76 |
| **Length** | centimeters | inches | 0.394 |
| | centimeters | feet | 0.0328 |
| | feet | centimeters | 30.48 |
| | feet | meters | 0.3048 |
| | inches | centimeters | 2.54 |
| | meters | feet | 3.2808 |
| | microns | mils | 0.04 |
| | mils | microns | 25.0 |
| **Weight** | kilograms | pounds | 2.2046 |
| | pounds | kilograms | 0.4536 |
| **Pressure** | kilograms/square centimeter | pounds/square inch | 14.22 |
| | pounds/square inch | kilograms/square centimeter | 0.0703 |
| **Temperature** | Celsius | Fahrenheit | (°C x 1.8) + 32 |
| | Fahrenheit | Celsius | (°F - 32) / 1.8 |
| **Film Thickness** | wet | dry | wet film thickness x percent solids by volume/100 |
| | dry | wet | dry film thickness x percent solids by volume/100 |

# COST PER MIL PER SQUARE FOOT

In order to evaluate the true cost of our one paint system versus another or one supplier's prices on a product versus another's, the cost per mil of paint per square foot must be calculated. To accomplish this, the cost per gallon and the volume solids (SBV) must be known.

Assume a job consisting of 10,000 square feet and 5.0 mils dry film thickness (DFT) of a polyimide epoxy is specified. Supplier "A" quotes $25.00 per gallon for a 45% volume solids epoxy. Supplier "B" quotes $28.00 per gallon for a 65% volume solids epoxy. The initial reaction may be that Supplier "A" is substantially lower cost. However, when the true cost is calculated based on the cost per mil per square foot, the opposite is true.

| Cost/Gallon<br>SBV x 1604 | = | Cost in Dollars For 1.0 sq. ft. At 1.0 Dry Mil<br>(cost per mil per square foot) | | |
|---|---|---|---|---|
| Total cost of paint for 5.0 mils DFT on 10,000 sq. ft. | | | | |
| Supplier "A"<br>$\frac{\$\ 25.00}{0.45 \times 1604}$ | x | 5.0 mils DFT x 10,000 Sq. Ft.<br>(cost per 5.0 mil per 10,000 sq.ft.) | = | $1,731.78 |
| Supplier "B"<br>$\frac{\$\ 28.00}{0.65 \times 1604}$ | x | 5.0 mils DFT x 10,000 sq. ft. | = | $1,342.80 |

Even though supplier "A" was $3.00 per gallon less on a cost per gallon basis, for this job at 5.0 mils DFT and 10,000 square feet, it would actually cost $388.98 (29%) more to use the lower cost per gallon paint. Supplier "B" has lowest total paint cost even though it is more expensive on a per gallon basis due to the higher volumes solids.

# COST PER MICRON PER SQUARE METER

In order to evaluate the true cost of one paint system versus another or one supplier's prices on a product versus another's, the cost per micron of paint per square meter must be calculated. To accomplish this, the cost per litre and the volume solids (SBV) must be known.

Assume a job consisting of 1,000 $m^2$ and 125 microns dry film thichkness (DFT) of a polyamide epoxy is specified. Supplier A quotes $6.60 per liter for a 45% volume solids epoxy. Supplier B quotes $7.40 per liter for a 65% volume solids epoxy. The initial reaction may be that Supplier A is substantially lower cost. However, when the true cost is calculated based on the cost per micron per square meter, the opposite is true.

| Cost/Litre<br>SBV x 1000 | = | Cost in US Dollars for 1 $m^2$ at 1 dry micron<br>(cost per micron per $m^2$) | | |
|---|---|---|---|---|
| Total cost of paint for 125 microns DFT on 1,000 square meters | | | | |
| **Supplier "A"**<br>$\frac{\$\ 6.60}{0.45 \times 1000}$ | x | 125 microns DFT x 1,000 $m^2$<br>(cost per 125 micron per 1,000 $m^2$) | = | $1,833.33 |
| **Supplier "B"**<br>$\frac{\$\ 7.40}{0.65 \times 1000}$ | x | 125 microns DFT x 1,000 $m^2$<br>(cost per 125 micron per 1,000 $m^2$) | = | $1,423.08 |

Even though supplier A was $0.80 per liter less on a cost per liter basis, for this job at 125 microns and 1,000 square meter, it would actually cost $410.25 (29%) more to use the lower cost per liter paint. Supplier B has lowest total paint cost even though it is more expensive on a per liter basis due to higher volume solids.

# THEORETICAL SPREADING RATE/COVERAGE

The Theoretical spreading rate or coverage of a coating is a function of the volume solids. The volume solids is the percentage of the coating consisting of binder and pigments which remain on the substrate, forming the final paint film after the volatile components or solvents evaporate.

In the U.S. measurements, one U.S. gallon of paint with 100% solids by volume will cover 1,604 square feet of surface area at a dry film thickness of 1 mil. The theoretical coverage of any coating can be calculated from the following formula, knowing the solids by volume (SBV) and the dry film thickness (DFT) desired:

| $\frac{1604}{\text{DFT (mils)}}$ | x | SBV | = | Theoretical Coverage |
|---|---|---|---|---|
| Example:<br>65% solids by volume coating applied at 5.0 mils dry film thickness | | | | |
| $\frac{1604}{5}$ | x | (O.65) | = | 208.52 square feet per gallon |

In metric measurement, one liter of paint with 100% solids by volume will cover 1,000 square meters of surface area at a dry film thickness of 1 micron. To calculate the theoretical coverage of a coating in metric units, utilize the following formula:

| $\frac{100}{\text{DFT (microns)}}$ | x | SBV | = | Theoretical Coverage |
|---|---|---|---|---|
| Example:<br>65% solids by volume coating applied at 125 microns dry film thickness | | | | |
| $\frac{1000}{125}$ | x | (O.65) | = | 5.2 square meters per liter |

# PRACTICAL SPREADING RATE/COVERAGE

The theoretical formulas above assume that all of the coatings (except solvents) is uniformly applied to the substrate with no over spray or application loss. The theoretical coverage is used in calculating cost comparisons between coatings systems and suppliers and establishes a factual starting point from which the practical spreading rate/coverage can be estimated. The practical coverage makes allowances for application losses and is a more reliable indicator of what will be experienced in the field. Application losses are affected by many factors, including wind, application technique, application equipment and type/profile of the substrate to be coated. Loss factors will vary depending on the specific situation.

| $\frac{1604}{\text{DFT (mils)}}$ | x | SBV | = | Theoretical Coverage |
|---|---|---|---|---|
| Example:<br>65% solids by volume coating applied at 5.0 mils dry film thickness | | | | |
| $\frac{1604}{5}$ | x | (O.65) | = | 208.52 square feet per gallon |

The practical coverage/spreading rate of a coating is calculated as follows:

| Theoretical Coverage | x | (1-loss factor) | = | Practical Coverage |
|---|---|---|---|---|
| Example:<br>Theoretical coverage of 200 square feet per gallon at recommended dry film thickness – loss factor of 30% | | | | |
| 200 sq. ft./gal | x | (1-0.30) | = | 140 square feet/gallon |

# PAINT CONSUMPTION

In order to estimate the total number of gallons necessary for a specific job, it is necessary to know the total area to be painted. Theoretical and/or practical paint consumption estimates can then be calculated using the following formulas: Assume the project is 3000 square feet:

| Project Area (sq. ft) | ÷ | Theoretical Coverage<br>(sq. ft/gal or $m^2$/L) | = | Theoretical Consumption |
|---|---|---|---|---|
| 3000 sq. ft | ÷ | 208.52 sq. ft/gal | = | 14.4 Gal |
| and | | | | |
| Project Area (sq. ft) | ÷ | Practical Coverage<br>(sq. ft/gal or $m^2$/L) | = | Practical Consumption |
| 3000 sq. ft | ÷ | 140 sq. ft/gal | = | 21.4 Gal |