

FIELD GUIDE
TRAFFIC PAINT



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SWARCO WATERBORNE TRAFFIC PAINT

SWARCO is 100% acrylic waterborne traffic paint that is an economic solution for pavement markings. This is an extremely fast-drying, durable, and ready-mixed product. SWARCO traffic paint meets the federal clean air act regulation, the dry paint chips are non-toxic, durable, and environmentally friendly. SWARCO offers street/highway, parking lots, airfields, racetracks, and other application uses. SWARCO offers paints that can be applied from temperatures as low as **50°F - 110°F**. All waterborne paints offered are suitable for all applications on asphalt and Portland cement concrete surface roadways and can be sprayed with either airless or conventional air atomized spray equipment.

1140 Series (TT-P-1952F Type I)

- Superior durability, excellent adhesion, fast drying under a wide range of climatic conditions, remains flexible over time
- Optimized temperature **50°F - 110°F**, Above or below will disrupt the quality

1160 Series (TT-P-1952F Type II)

- Superior durability, excellent adhesion, fast drying under a wide range of climatic conditions, remains flexible over time
- Optimized temperature **50°F - 110°F**, Above or below will disrupt the quality

1110 Series High Build (TT-P-1952F Type III)

- Maximum durability, Maximum film build, and multi-layering, improved adhesion for longer life applications, fast-drying under a wide range of conditions, Remains flexible over time
- Optimized temperature **50°F - 110°F**, Above or below will disrupt the quality

1040 Series Standard Dry

- Excellent balance of value and performance, superior durability and adhesion, standard drying allows easier application but still dries fast enough for a quick return to use
- Optimized temperature **50°F - 110°F**, Above or below will disrupt the quality
- 1040 series is available in white, lead-free yellow, black, red, green, and blue

1150 Series Satin Sheen (TT-P-1952F Type II)

- Stays brighter and cleaner longer than traditional traffic paint, has excellent adhesion, and durability, Quick dry (no track in few minutes)
- Optimized temperature **50°F - 110°F**, Above or below will disrupt the quality

1190 Series Low Temp

- Extended striping season for increased productivity, Great performance, Quick dry at low application temperatures, improved adhesion to oily surfaces, exceptionally flexibility
- Optimized temperature **35°F - 100°F**, Above or below will disrupt the quality though we still don't recommend applying at that low temp.
- 1190 series is available in white, lead-free yellow, black, red, green, and blue

2110 Series Super Ultra High Build

- Exceptional durability, Maximum film build, and multi-layering, improved adhesion for longer life application, fast drying under a wide range of climatic conditions, Paint is mostly used on Racetracks
- Optimized temperature 50°F - 110°F, Above or below will disrupt the quality
- 2110 series is available in white, lead-free yellow, black, red, green, and blue

APPLICATION

Weather:

SWARCO waterborne traffic paints are affected by rain, which causes a wet surface and will affect the adhesion of the paints. The temperature will also affect the product as well whether it is too cold or too hot. For the rain, we recommend 24 hours of dry time on the surface before spraying the product onto the surface.

- Surface temperature must be at least 5°F above dew point to prevent condensation
- Do Not paint when the surface is wet to the touch or visually, whether it has rained or not
- Wait a day after rain for the surface to dry
- Do Not paint if it is supposed to rain that day, needs optimized time to dry after painting
- If temperatures are below freezing or going to drop below freezing do not spray the product
- The temperature rule for most SWARCO traffic paint is minimum 50°F maximum 110°F excluding the 1190 Series

Surface Preparation:

In general, coating performance is directly proportional to the quality of surface preparation. Before applying coatings, surfaces must be clean and dry. Remove all grease, oil, gasoline, dirt, grass, loose gravel, old, peeling, or flaking paint, and other contaminants. Previous markings that are thinner than 5 mils (150 µm) and adhere well to the surface may be painted over. New asphalt, concrete, and seal-coated surfaces should be in place for a minimum of 30 days before application, and all residual sealants and curing compounds must be removed. The best pre-work on the surface for cleaning is a truck-mounted blower, hand push blower, and or a sweeper. These are the most common used equipment

SWARCO Paint Cures:

SWARCO's waterborne traffic paints, both normal and high-build, **cured by a two-stage process**. In the first stage, the water evaporates, and the acrylic emulsion coalesces. This evaporation is dependent on temperature and humidity. Low temperature and high humidity result in longer dry times. In the second stage, the acrylic polymer cross-links to provide a durable film. This reaction is dependent on the air and surface temperature. 50° Fahrenheit is the recommended minimum application temperature on minor roads. Below 50° Fahrenheit, the polymer will cross-link (down to 35° Fahrenheit on 1190 series) but the durability of the film will be severely reduced, 2 to 3 months instead of 9 to 12 months. On major roads, the recommended minimum application temperature is 60° Fahrenheit.

1190 Series Low Temp is also dependent on the air and surface temperature. However, due to the formulation of the paint, it is capable of being applied at air and surface temperatures of 35° and Higher.

Application Rates:

SWARCO has field-tested all its paints and has a clear answer for it in the best of conditions. For the 1140(White) and 1146(Yellow) paints with beads and 15 mils wet it will be ≤ 120 seconds. The 1160(W) and 1166(Y) paints with bead and 15 mils wet it will be ≤ 120

seconds. The 1110(W) and 1116(Y) paints with beads and 15 mils wet will be ≤ 120 seconds. For Standard dry 1040(W) and 1046(Y) and other colors after in perfect conditions will have a 20-60-minute dry time. The 1150(W), 1156(Y), and other colors set at 15 mils wet with beads will have a 125-second dry time. The low temp 1190(W), 1196(Y) with other colors setup at 15 mils wet with beads will have a dry time of 125 seconds. The high build 2110(W), 2116(Y), and other colors set at 15 mils wet, and beads will have a 125-second dry time. All these are just basic ideas of what the dry times will be in optimal conditions. The times will all vary based upon the thickness and will cause not optimized results. Make sure your guns are set to the correct mils, so you have the correct thickness needed.

Temperatures:

SWARCO paints have an optimized temperature for their low builds and high builds. These all have the basic temperatures of **50°F - 110°F** but the 1190 series can be applied at **35°F**. All SWARCO paint should never exceed **115°F** and anything above **110°F** can cause the paint to sludge up and will cause damage to your system. By controlling the heat around **100°F** which is a great degree for all SWARCO waterborne paints excluding 1190 Series which should never go above **100°F** and for this series it should be **80°F** for optimum results. Through this controlled temperature, you will see your best dry times and a controlled flow viscosity creating the product's best results.

Constant Variables:

Controlling your speed is a very important factor in your mil thickness. When you are using a long line truck you can go too fast which will cause your mils to be too thin and improper bead embedment. On all trucks and guns, you can only go as much as your equipment has been set up to run by controlling the desired fluid per minute. Also, with the inconsistent speed, you can cause beads to spread out which will fail your retros and will cause you to repeat the whole process.

When using a pushcart or riding cart it's especially important to maintain a consistent speed. Moving too fast will cause thin mils and going too fast can cause buildup which can cause flaking. Either going too fast or slow could cause you to repaint the area.

EQUIPMENT

Airless System

In the airless system, paint is drawn from the paint tanks in which pushes paint down through the system's filter into your paint guns. The higher output has a superior control that ensures the highest quality finish, and here are some examples of tips and equipment.



Airless Tips

The airless tips have different capabilities than other guns, this system will allow you to rotate the tip. For SWARCO products we advise using certain tips with each type of our product and

Tip Charts for Graco																
Orifice Size - Inches (Thousandths)																
Fan Size (inches)	0.013	0.015	0.017	0.019	0.021	0.023	0.025	0.027	0.029	0.031	0.033	0.035	0.037	0.039	0.041	0.043
2-4	113	115	117	119	121									139		
4-6	213	215	217	219	221		225	227	229	231		235		239		
6-8	313	315	317	319	321	323	325	327	329	331	333	335	337	339	341	343
8-10	413	413	417	419	421	423	425	427	429	431	433	435	437	439	441	443
10-12	513	513	517	519	521	523	525	527	529	531	533	535	537	539	541	543
12-14	613	613	617	619	621	623	625	627	629	631	633	635	637	639	641	643
14-16	713	713	717	719	721	723	725	727	729	731	733	735	737	739	741	743
16-18	613	813	817	819	821	823	825	827	829	831	833	835	837	839	841	843
18-20						923		927		931	933	935	937	939		
Flow Rate (gpm)	0.18	0.24	0.31	0.38	0.47	0.57	0.67	0.77	0.9	1.03	1.17	1.31	1.47	1.63	1.8	1.98

Orifice Size - Inches (Thousandths)																
Fan Size (inches)	0.045	0.047	0.049	0.051	0.053	0.055	0.057	0.059	0.061	0.063	0.065	0.067	0.069	0.071	0.075	0.081
2-4																
4-6																
6-8	345	347		351		355										
8-10	445	447	449	451		455		459	461	463	465	467		471	475	481
10-12	545	547	549	551	553	555	557		561		565	567		571	575	
12-14	645	647	649	651		655	657	659	661	663	665	667	669	671	675	
14-16		747	749	751	753	755			761			767		771		
16-18		847		851		855			861	863		867				
18-20																
Flow Rate (gpm)	2.17	2.37	2.58	2.79	3.02	3.25	3.49	3.74	4	4.26	4.53	4.82	5.11	5.41	6.06	7.04

please refer to the excel sheet for our advised tips. The first picture is the official Graco orifice size chart, the second chart is our recommended tips based on field experience.

Air Atomized

This system uses air to push paint from the tanks to the paint gun, and the air is pushed out the tip of the gun to spread out to the line width you desire. This paint is less clean-edged than the first system and when loading product, you must be more cautious about not getting air back into the system. Here are some examples of this system.



Bleeder Gun: This is the solvent flushing gun that will flush by having solvent clean it out, using a three-way air system. This one is done while in motion other is not

Non-Bleeder Gun: When you're flushing this gun you must first shut off the gun and kick it back on which is also known as popping the gun and moving on.

HOSE SELECTION

- Operating Air Hose: Use a 5/16" or 3/8" air hose and connect to the opening port of the paint gun (UPPER SMALLER 1/4" PORT).
- Atomizing Air Hose: Use a 3/8" air hose minimum and connect to the atomizing port of the paint gun (UPPER LARGER 3/8" PORT). NOTE: DO NOT INVERT A & B

Paint Hose: For intermediate machines, the paint hose should be 3/8" to 1/2". For large machines, the paint hose should be 1/2" to 3/4".

Air Atomized

NOZZLE SIZE SELECTION: The size of the machine and the speed of operation, determines the size of the Kamber Spray Gun, material, and air nozzle that will ensure the best performance.

MODEL 38-5 Designed for intermediate size machines operating at speeds of 4 to 8 MPH.

MODEL 38-10 Designed for truck-mounted machines operating at speeds of 6 to 12 MPH.

MODEL 38-15 Designed for truck-mounted machines operating at speeds of 10 to 16 MPH.

Before choosing the set of nozzles for the spray gun, compare the effective output of the compressor on the machine with the consumption for each size nozzle.

GUN MODEL	LINE WIDTH	NOZZLE NUMBER	GUN EXTERIOR NOZZLE HEIGHT FROM ROAD	
38-	4"	160-2.5 or 10-	3 ½"	
	6"	160-	5"	
	8'	160-	7'	
	8"	190-	5'	
	10"	190-	6 ½"	
	12"	190-	8"	
38-	4"	12-15-3 or 25-10	3"	
	6"	12-1	4"	
	8"	12-1	5"	
	8"	20-40-	4 ½"	
	10"	20-40-	6"	
	12"	20-40-	7 ½"	
38-	4"	40-10-16 OR 42-10	With Shroud	Without Shroud
	6"	40-10	2 ½"	3"
	8"	40-10	4"	4 ½"
			5 ¾"	6"
	8"	#44		5"
	10"	#44		6"
	12"	#44		7 ½"

HOW TO CALIBRATE YOUR PAINT GUN

Calibrating your paint guns is one of the most important steps to maintain the quality of work that you're putting down. The calibrations will keep your mil thickness in check throughout the job and it is a straightforward process. These steps can be applied through all your equipment that has a paint gun installed on it and regardless of it being airless or air atomized. Let us talk about the steps you have.

- In the beginning, you will have to make your speed a constant variable, and the purpose of this is to maintain the amount of paint being pushed out like your mil thickness and width. In the air atomized system your gun, air, pressure, volume, and air throughout the system must be enough to test. In the airless system, the pump is high pressure so the tip must be big enough.
- After the basic variables are set you need to choose your line width. You will need to test this by maintaining your chosen speed and testing on a flat piece of anything and repeat this till you have adjusted your guns to the appropriate width. Now adjusting the gun is easy just raise it for width and lower to make it skinner.

INSERT TESTING ON FLAT SHEET PHOTOS

- Now you want to find your desired thickness. Take your flat piece of anything and run it over at that chosen speed.
- Using your SWARCO mil thickness gauge, and you will stick it gently at an angle. This will show you your mil thickness on the gauge. (Must be done right after spraying the product) this will be the most accurate reading.

INSERT SWARCO MIL GAUGES

- Now after the test, if you to thick, you have some choices on what to do
- You could adjust your equipment(Tip size, pressure, height, and other variables) this will change the amount of product being pushed out
- You could increase your speed variable and it would thin the in mils

Once you have picked the first or second option you will repeat up to this point, until desired results

- On this whole process, it is smart to use bead while doing this because if you pick a larger speed variable over 5-7 Mph you can run into the problem of beadroll, bad embedment, and or other issues that will now affect your retros.

This is the entire process of calibrating your paint guns, and this is smart to repeat this process often to make sure you're spraying at the desired mil thickness. These guns can fall out of calibration every day and just running without testing it could random quality product around a job site.

SWARCO GLASS BEADS

Our high-grade glass beads are mixtures of our different beads and thanks to the improved optical properties of the bead surface, they achieve very high levels of retro-reflection. Suitable for thin-layered marking systems with improved visibility in wet conditions

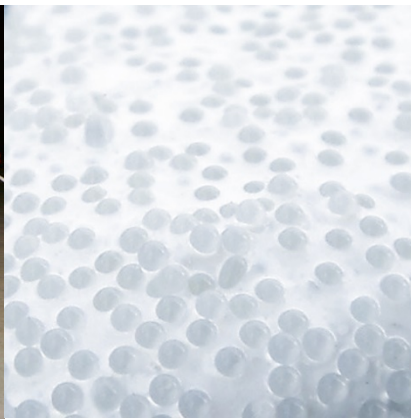
SWARCO Bead Types

These are the 5 optimized products that SWARCO offers. Each has different sieve ranges and its optimal main uses. Each product is produced with the highest regard for maintaining higher visibility. See the SWARCO website to see specs and tech info on each

SWARCOLUX



MEGALUX-BEADS



PLUS9BEADS



SWARCOFLEX



SWARCO DURALUX



www.SWARCO.com/products/road-marking.com
Calibration for beads on the next page

GLASS BEAD GUN CALIBRATION CHARTS

Megalux FP-96 Type III or IV			4-Inch Wide		15-Mil Thick		mL per 10 seconds			
Speed	Drop Rate (mL/10 seconds)									
	6 #/gal	8 #/gal	10 #/gal	12 #/gal	14 #/gal	16 #/gal	18 #/gal	20 #/gal	22 #/gal	24 #/gal
10 MPH	1040	1380	1730	2080	2420	2770	3110	3460	3810	4150
9 MPH	930	1250	1560	1870	2180	2490	2800	3110	3430	3740
8 MPH	830	1110	1380	1660	1940	2220	2490	2770	3050	3320
7 MPH	730	970	1210	1450	1700	1940	2180	2420	2660	2910
6 MPH	620	830	1040	1250	1450	1660	1870	2080	2280	2490
5 MPH	520	690	870	1040	1210	1380	1560	1730	1900	2080
4 MPH	420	550	690	830	970	1110	1250	1380	1520	1660
3 MPH	310	420	520	620	730	830	930	1040	1140	1250
2 MPH	210	280	350	420	480	550	620	690	760	830

Megalux FP-96 Type III or IV			6-Inch Wide		15-Mil Thick		mL per 10 seconds			
Speed	Drop Rate (mL/10 seconds)									
	6 #/gal	8 #/gal	10 #/gal	12 #/gal	14 #/gal	16 #/gal	18 #/gal	20 #/gal	22 #/gal	24 #/gal
10 MPH	1560	2070	2600	3120	3630	4160	4670	5190	5720	6230
9 MPH	1400	1880	2340	2810	3270	3740	4200	4670	5150	5610
8 MPH	1250	1670	2070	2490	2910	3330	3740	4160	4580	4980
7 MPH	1100	1460	1820	2180	2550	2910	3270	3630	3990	4370
6 MPH	930	1250	1560	1880	2180	2490	2810	3120	3420	3740
5 MPH	780	1040	1310	1560	1820	2070	2340	2600	2850	3120
4 MPH	630	830	1040	1250	1460	1670	1880	2070	2280	2490
3 MPH	470	630	780	930	1100	1250	1400	1560	1710	1880
2 MPH	320	420	530	630	720	830	930	1040	1140	1250

Procedure for Calibrating Bead Guns:

1. Mark off a 30-ft section in which the striping vehicle can maintain its striping speed. Install a stripe over this area with no beads.
2. When the spray goes over the starting mark, start a timer. When the spray goes over the stopping mark, stop the timer.

Use the table below to match the time required to travel 30 feet with the corresponding speed in MPH.

Time (seconds)	10.23	6.82	5.11	4.09	3.41	2.92	2.56	2.27	2.05
Speed (MPH)	2	3	4	5	6	7	8	9	10

3. Turn the bead gun on for 10 seconds and allow the beads to flow into a graduated beaker. Measure the volume of the beads.
4. Using the provided charts, match the truck speed (MPH) with the desired drop rate (#/gal) to find the minimum volume.

Adjust the output rate of the bead gun until the minimum volume

5. is reached.

Megalux FP-96 Type III or IV			4-Inch Wide		20-Mil Thick		mL per 10 sec			
Speed	Drop Rate (mL/10 seconds)									
	6 #/gal	8 #/gal	10 #/gal	12 #/gal	14 #/gal	16 #/gal	18 #/gal	20 #/gal	22 #/gal	24 #/gal
10 MPH	1380	1850	2310	2770	3230	3690	4150	4610	5080	5540
9 MPH	1250	1660	2080	2490	2910	3320	3740	4150	4570	4980
8 MPH	1110	1480	1850	2220	2580	2950	3320	3690	4060	4430
7 MPH	970	1290	1620	1940	2260	2580	2910	3230	3550	3880
6 MPH	830	1110	1380	1660	1940	2220	2490	2770	3050	3320
5 MPH	690	920	1150	1380	1620	1850	2080	2310	2540	2770
4 MPH	550	740	920	1110	1290	1480	1660	1850	2030	2220
3 MPH	420	550	690	830	970	1110	1250	1380	1520	1660
2 MPH	280	370	460	550	650	740	830	920	1020	1110

Megalux FP-96 Type III or IV			6-Inch Wide		20-Mil Thick		mL per 10 sec			
Speed	Drop Rate (mL/10 seconds)									
	6 #/gal	8 #/gal	10 #/gal	12 #/gal	14 #/gal	16 #/gal	18 #/gal	20 #/gal	22 #/gal	24 #/gal
10 MPH	2070	2780	3470	4160	4850	5540	6230	6920	7620	8310
9 MPH	1880	2490	3120	3740	4370	4980	5610	6230	6860	7470
8 MPH	1670	2220	2780	3330	3870	4430	4980	5540	6090	6650
7 MPH	1460	1940	2430	2910	3390	3870	4370	4850	5330	5820
6 MPH	1250	1670	2070	2490	2910	3330	3740	4160	4580	4980
5 MPH	1040	1380	1730	2070	2430	2780	3120	3470	3810	4160
4 MPH	830	1110	1380	1670	1940	2220	2490	2780	3050	3330
3 MPH	630	830	1040	1250	1460	1670	1880	2070	2280	2490
2 MPH	420	560	690	830	980	1110	1250	1380	1530	1670

Procedure for Calibrating Bead Guns:

1. Mark off a 30-ft section in which the striping vehicle can maintain its striping speed. Install a stripe over this area with no beads.
2. When the spray goes over the starting mark, start a timer. When the spray goes over the stopping mark, stop the timer.

Use the table below to match the time required to travel 30 feet with the corresponding speed in MPH.

Time (seconds)	10.23	6.82	5.11	4.09	3.41	2.92	2.56	2.27	2.05
Speed (MPH)	2	3	4	5	6	7	8	9	10

3. Turn the bead gun on for 10 seconds and allow the beads to flow into a graduated beaker. Measure the volume of the beads.
4. Using the provided charts, match the truck speed (MPH) with the desired drop rate (#/gal) to find the minimum volume.

Calibration



How to Check Bead Drop Rate

- Use the calibration chart based on the truck speed
- Time for 10 seconds and measure the volume of beads
- The truck must maintain a consistent speed

Essential Formula for striping a 4" line

- A. Usage = (footage/300)* drop rate
- B. Drop Rate = (usage/footage)* 300
- C. Footage = (300/Drop Rate)* usage

5" marking use 250 for a constant / 6" marking use 200 for a constant

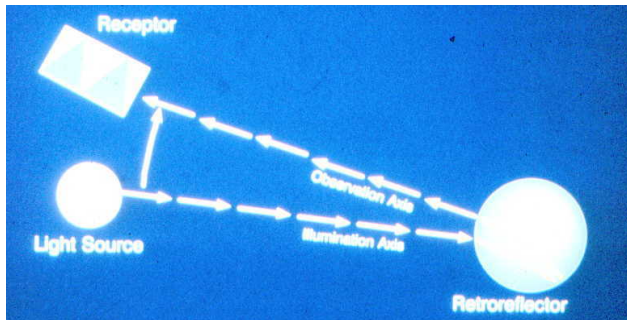
Typical Application Rates

- **Paint:** 6 lbs. per 100 Square Feet
- **Thermoplastic:** 6-12 lbs. per 100 sqft
- **Epoxy:** 20-25 lbs. 100 sqft
- **Polyurea:** 10-12 lbs. 100 sqft

MMA: 8-10 lbs./100 sqft

RETROREFLECTIVITY OF PAVEMENT MARKINGS

This is the amount of retroreflection that occurs when a surface returns a large portion of the directed light beam to its source. Retroreflective materials appear brightest to observers nearest the light source. The object's brightness depends on the intensity of the light striking the object and the materials the object is made of. In all states, they have a spec that will determine the amount of light that must reflect the driver. In our case beads will have an incoming light beam that bends as it passes through a glass bead, reflects off a mirrored surface behind the bead, then the light bends again as it passes back through the bead, and returns to the light source.



When finding your retros, you will have to use a Refractometer and this device comes in a small handheld device, a mobile device for your car, a lightweight device you hover above the line. These devices will make sure that your beads are giving off the required light to be seen at night. This is important to take while spraying so you follow state specs. If you need retros based on the state you can follow your paint truck, so you do not need to waste time replacing a line that does not pass retros. Now when you are on-site and using this device you want to try and maintain the same height when taking the retro, this will provide the best numbers throughout the job.

Factors of Retroreflectivity

Glass Index

The glass bead index is the amount of light that bends through the glass bead when it is hit. The higher index will make the focal point smaller which will have a higher degree of reflected amount of light. The number you are looking for on the index is 1.50 might be the most common.

The Quality of Glass Bead

How light is reflected down through the shape of the bead, will include the roundness, clarity, color, and down to the percentage of error is under 3%. If you have flaws in the bead anywhere it will cause light to not reflect the driver. If your beads do not have the clarity it needs, it will be cloudy which will give you poor retros. SWARCO offers five different types of beads and has a higher quality of retro the better bead you get.

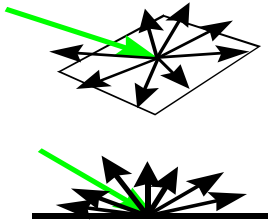
The Different Sizes of Beads

Bead sizes vary between many different types. SWARCO offers a variety of types from type zero being the smallest and largest being type five. There are also a variety of textured options you can get. The proper blend of beads will give off the best numbers for retros. You can blend these to meet your state/job site specs. See any SWARCO sales or field Rep to get you the bead option that is offered.

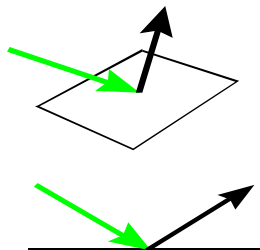
Bead Embedment

Bead embedment is how the bead has been dropped into the line and how exposed it is to the light and if it will stay in the line. The binder must cross the equator of the bead to provide the necessary mechanical bond and provide the optimal Retroreflectivity. This relates to 50-60% embedment on the bead. This will create the retros you need to pass your state's spec.

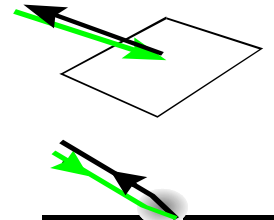
Diffuse(Bad)



Specular(Bad)

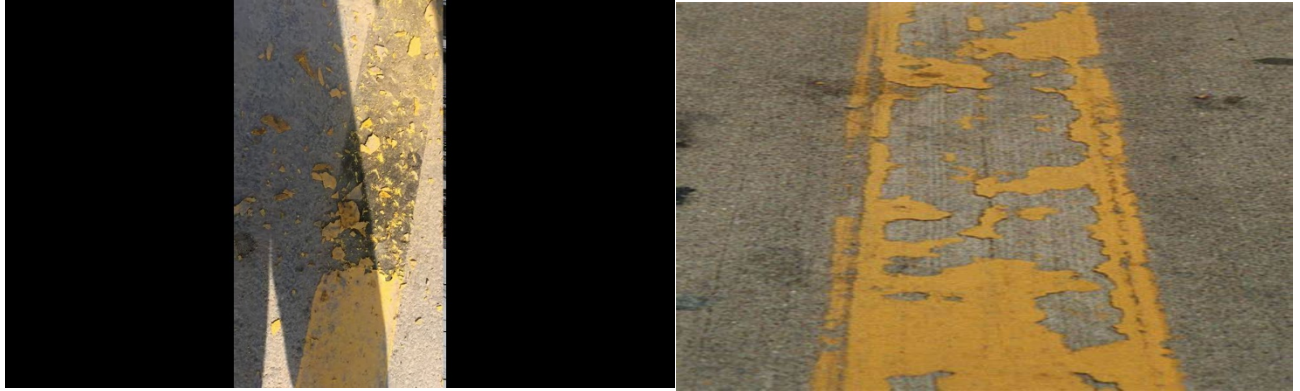


Retro(Good)



TROUBLESHOOTING SOLUTIONS

Bond Failure

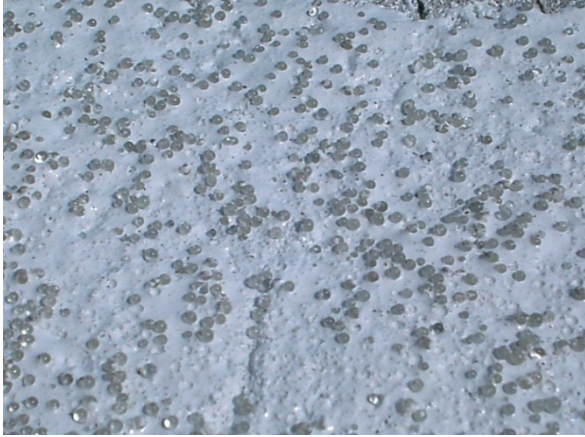


Problem: This issue is caused by the product not bonding onto the surface due to the surface not being properly cleaned before installation

Solution: Before spraying the product, we recommend all prior products be removed before install. Whether you must water blast, shot blast, grind you will have to follow up with blowing off the line because your blower/vacuums on trucks will not clean off the line enough all the time. Please refer to the surface prep page for more. These will assist in creating a better product result



Poor Bead embedment



Bead Over Spray



Problem: Picture one shows poor bead embedment this can be a few different reasons. One could be the guns are mounted too high and beads do not have enough pressure to get the 50-60% embedment that is optimal. Picture two is bead overspray which is because bead guns are not lined up right or the bead guns are too low to the line and will cause beads to clump up on the line.

Solution: Picture one, poor bead embedment can be fixed by a couple of options. First, adjust bead guns to desired height and angle as a start. Second, check your out pressure on the beads making sure it is set higher to get a deeper embedment but not too much pressure which too high will cause retro to lose light and overspray/clumping.

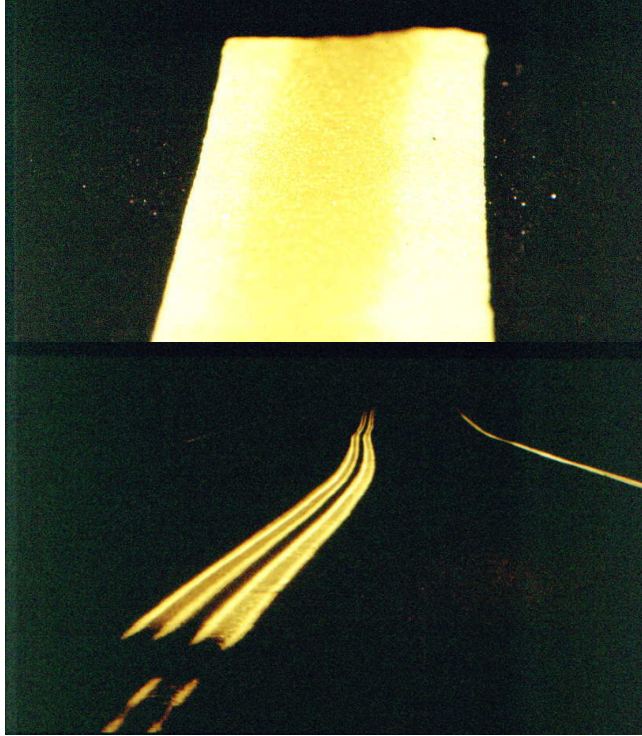
Picture two is over spraying which is not only wasting a ton of product and company money but is counterproductive. This is also dangerous for bikers, motorcyclists, and cars so no good from it. This solution is to adjust the bead spread to just slightly over each side of your line and lower your pressure, this will also cause your retros to be lower and overspray will wear off.

Observations step that might help: Make notes on it to help find the issue

- | | |
|----------------------------|--------------------|
| ■ On or off the line | Pulsed Application |
| ■ On one side or the other | Too Many/too few |
| ■ None in the middle | On top/buried |
| ■ All in the middle | |

Please refer to the bead calibration page for more information

Railroading Lines



Pulsating Gun



Problem: The photo set to the left shows railroading with your beads which causes the beads to accumulate to the edges of the line. The photo set to the right shows pulsating beads being dropped from the truck, which gives it the striped look.

Solution: Railroading has steps that SWARCO recommends to take starting with the most common problem being your temperatures. The product is coming out cold start slowly turning up the temperature to see if the railroading stops. Next is to check your pressures and make sure you have the appropriate pressure coming out because too high can also cause the issue. The last check for a problem is checking your tips to make sure they have no damage to them and exchanging the tip to the next desired tip and referring to the chart in previous pages for recommended tips.

Further Problems: Contact the Field representatives that are listed below if you have a failing product and further troubles and they will assist in coming up with the solution.

SWARCO CONTACT LIST

Customer Service for Colorado Paint Products

Sara Hinkle - **Office Assistant/Customer Representative**

- Cell: 303-388-9265
- Email: Sarah.hinkle@SWARCO.com
- Email(Orders): officecpc@SWARCO.com

Field Product Related Issues

Call these numbers for all on-site failures and issues

- **Bradley Henry- Liquid Sales Rep/Field Tech Manager**
Cell: 785-213-2071 Email: Brad.henry@SWARCO.com
- **Trevor Cunningham-Henry- Field Service Rep/Sales Rep**
Cell: 785-424-5708 Email: Trevor.cunningham-henry@SWARCO.com

Product Sales - Order Status - Product Information

Call your SWARCO Sales Rep for your region or known person to help direct you for all your sales-related inquiries

- **Jonathan Knutson - Pacific region**
Cell: 503-421-5227 Email: Jonathan.Knutson@SWARCO.com
- **Darryl Anderson - Mountainous Region**
Cell: 303-877-1816 Email: Darryl.Anderson@SWARCO.com
- **Mark Colombo - Central Region**
Cell: 314-729-7833 Email: Mark.colombo@SWARCO.com
- **Frank Coghlan – Southwest Region**
Cell: 936-967-5028 Email: frank.coghlan@SWARCO.com
- **Scott Pantall – Southeast Region**
Cell: 904-716-7445 Email: Scott.pantall@SWARCO.com
- **John Giordano – Northeast Region**
Cell: 201-341-1581 Email: John.giordano@SWARCO.com