



Automotive Refinishing Technology

Purpose: To evaluate each competitor's preparation for employment and to recognize outstanding students for excellence and professionalism in the field of automotive refinishing technology.

On-Site/Off-Site	<ul style="list-style-type: none">Off-Site
Contest Date	<ul style="list-style-type: none">4/9/2024
Contest Location	<ul style="list-style-type: none">Three-C Body Shops Inc.2300 Briggs Road, Columbus, OH 43223Registration will begin at 9:00am, competition will begin at 10:00am, and contest will conclude at 5:00pm.
Contest Open/Closed	<ul style="list-style-type: none">OpenThis contest is open to observers.
Eligibility	<ul style="list-style-type: none">This contest has a Regional Qualifier Contest. The top three (3) candidates from the Regional Qualifiers will proceed to the State Championship Contest.
Competition Clothing (To be worn on Day 1)	<p>Work/School Attire:</p> <ul style="list-style-type: none">Field specific work clothing required for the work environment or that matches the service conditions for the contest.This may include jeans if they are clean and professional looking and are accepted in the respective field (no holes or overly soiled pants).Shoes or work boots with a hard sole and anti-slip properties.Clothing should be as such that it will not get caught in moving equipment or power tools.

	<ul style="list-style-type: none"> ▪ Professional attire worn in the classroom (school uniforms) such as a criminal justice uniform, chef attire, health scrubs, or cosmetology scrubs etc. may be worn if they meet the above requirements. ▪ Note: School identifiers and contestant names must be covered.
Safety Equipment Required	<ul style="list-style-type: none"> ▪ Safety glasses with side shields or goggles (Prescription glasses can be used only if they are equipped with side shields. If not, they must be covered with goggles).
Awards Ceremony Attire (To be worn on Day 2)	<p>SkillsUSA Official Attire:</p> <ul style="list-style-type: none"> ▪ Official SkillsUSA red blazer ▪ Button-up, collared, white dress shirt (accompanied by a plain, solid black tie or SkillsUSA black tie), or white shirt (collarless or small-collared), with any collar not to extend into the lapel area of the blazer ▪ Black dress slacks or black dress skirt (knee-length at minimum) ▪ Black closed-toe dress shoes ▪ Note: Wearing socks or hose is no longer required. If worn, socks must be black dress socks, and hose must be either black or skin-tone and seamless/nonpattern <p>Or,</p> <p>Business Dress:</p> <ul style="list-style-type: none"> ▪ Blazer, sports coat, or dress ▪ Button-up, collared, white dress shirt (accompanied by a plain, solid black tie or SkillsUSA black tie), or white shirt (collarless or small-collared), with any collar not to extend into the lapel area of the blazer ▪ Dress slacks or dress skirt (knee-length at minimum) ▪ Closed-toe dress shoes ▪ Note: Wearing socks or hose is no longer required. If worn, socks must be black dress socks, and hose must be either black or skin-tone and seamless/nonpattern
Testing	<ul style="list-style-type: none"> ▪ Students should be prepared to take a written knowledge test.
Provided by Contestant	<ul style="list-style-type: none"> ▪ One hard copy of a 1-page typed personal resume ▪ Extra air hose, 25'

<p>(Tool List)</p>	<ul style="list-style-type: none"> ▪ Dual action sander ▪ Sanding block ▪ Pliers ▪ Clipboard ▪ Vise grips (at least 2 pairs) ▪ Nitrile gloves ▪ Charcoal paint respirator 3M or equivalent (Dual Cartridge) – Please bring proof of fit test (will not disqualify if not supplied) ▪ D.A. Sandpaper – 180 grits, 320 grit – 10 sheets each – 600 & 800 ▪ Proper Paint Suite (full cover) ▪ Calculator (battery operated only) ▪ Safety glasses ▪ Two (2) spray guns – 1 for color and 1 for clear ▪ Two (2) #2 pencils (sharpened) ▪ Gray scuff pads ▪ High-Flow ▪ DeVilbiss: HC 4419 ▪ Milton: 76/810 ▪ RBL: 612 ▪ Prevost ▪ ERP 76251 (male) ▪ ERP 76201 (female)
<p>Contest Notes, Themes, & Deadlines</p>	<ul style="list-style-type: none"> ▪ At the 2024 State Competition - Featheredge, Priming, and Blocking will NOT be required for competition. (National Technical Standard ART 8.0, ART 9.0, ART 10.0, and ART 11.0)
<p>Special Notes</p>	<ul style="list-style-type: none"> ▪ Starting in 2024, all State Contests will begin to add a scenario-based component. ▪ All competitions will begin at 10:00am ▪ Contact with Contest Coordinators is prohibited. Contact with Contest Coordinators outside of the SkillsUSA Ohio office may result in contestant disqualification. ▪ All safety requirements will be heavily enforced. Violation may result in contestant disqualification. ▪ No smart watches and/or phones are permitted during the contest and/or in contest. ▪ No contact with anyone outside of the contest area once the contest begins.

	<ul style="list-style-type: none"> ▪ No inappropriate communication between contestants such as verbally degrading another contest. ▪ No cheating on any portion of the contest such as informing another contestant of the skills/test prior to competing. ▪ Starting in 2024, Wi-Fi is provided for contests where it is required for contest success.
National Technical Standards	<ul style="list-style-type: none"> ▪ Please refer to the 2023-2024 National Technical Standards for all contests. Any and all standards included may be tested in any competition. ▪ In conjunction with National Standards, violations may result in student loss of contest.
Resume/Interview Requirement	<ul style="list-style-type: none"> ▪ All SkillsUSA Ohio State Championship Contests will require a short interview component. Students should be prepared with basic job interview skills. ▪ All contestants must have a hard copy of a one (1) page personal resume.



[EB-143+ENVIROBASE+High+Performance+Waterborne+Basecoat+10+21 \(2\).pdf](#)

[Envirobase® High Performance \(ppgrefinish.com\)](#)

**For hot, drier climates, better results may be achieved using a larger-sized air cap / fluid tip and/or a lower PSI when applying waterborne basecoat. For more humid climates, a smaller-sized air cap / fluid tip and/or a higher PSI may be more desirable. The advantage of either of these adjustments is proper overall wetting of the basecoat.

NOTE: PPG Industries does NOT endorse any particular type or brand of application equipment. The above recommendations are only a general reference and should be used solely as a starting point. Your particular spray environment and application technique may require slight adjustments. All equipment was tested using “full trigger” during application with regulators approved by each gun manufacturer.

Gun Charts Link... (remove the next page completely, pg4)

[DOX440+Gun+Setup+Chart+Rev++05282019 \(newest\).pdf](#)

CLEARCOAT INFO....

[P-246+DC2000+Deltron+Ultra+Velocity+Clearcoat+04+19 \(2\).pdf](#)

[Deltron® \(ppgrefinish.com\)](#)

Pre-Cleaner INFO....

[OC-9+SWX350+H2O-SO-CLEAN+12+19 \(2\).pdf](#)

[OneChoice® \(ppgrefinish.com\)](#)

[ENVIROBASE Tint Chart](#)

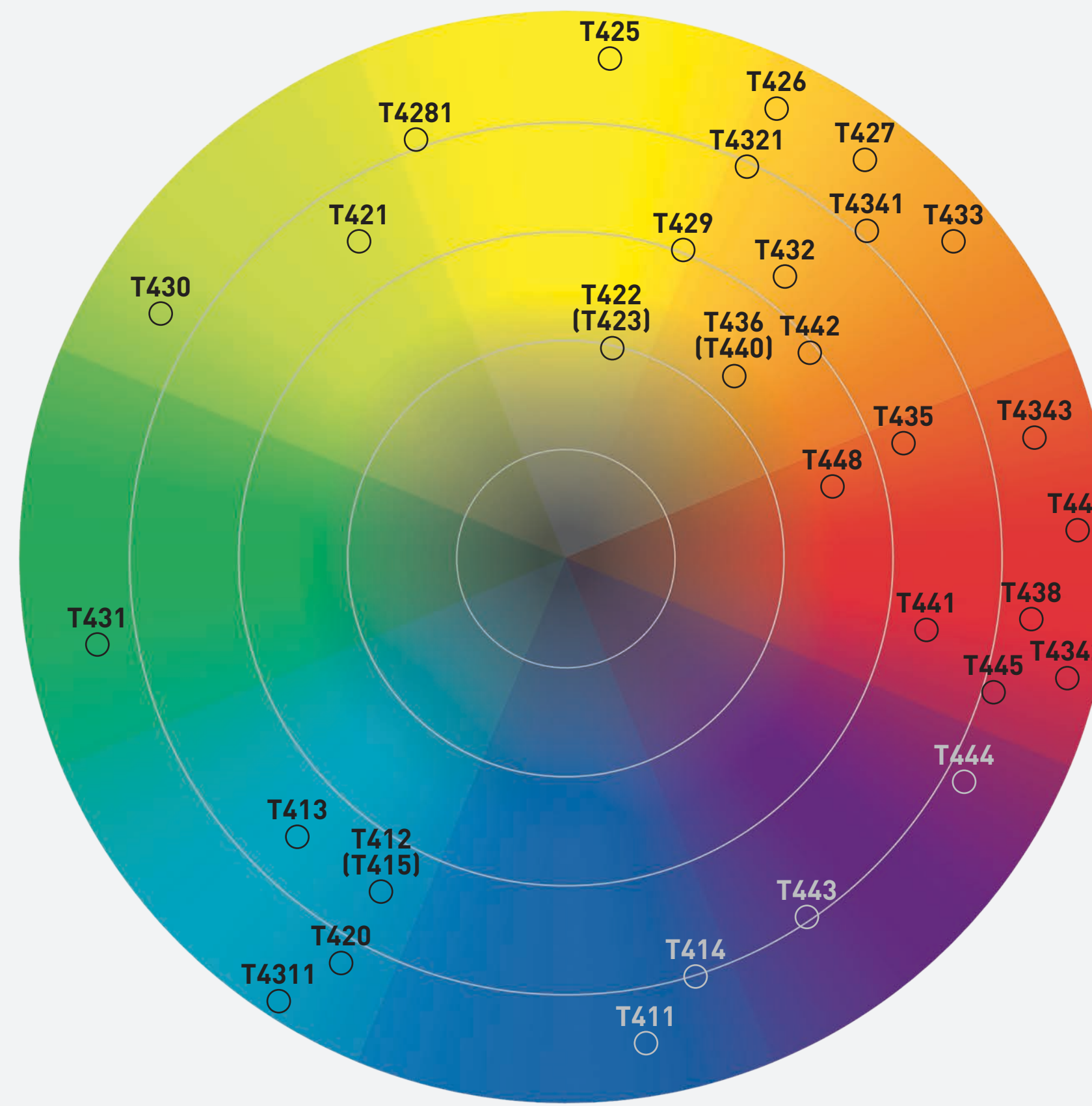
				Coverage	Control
Manufacturer	Model	Air Cap	Fluid Tip	Coat	Coat
CAUTION - To meet regulations in Compliant areas and EPA 6H requirements, all spray equipment should use regulators approved by the corresponding gun manufacturer.					
3M / Accu-Spray (Regulator #16574)	07HS	726	1.8	35 PSI	22 PSI
Anest Iwata (Regulator #8131) (Air Flow Control Valve #8130B)	W400 LV	W400LV	1.3	20 PSI	12 - 14 PSI **
	LPH400 LV	Extreme	1.3	16 PSI	14 PSI
	LS400	Platinum	H1.1 / H1.2 **	25 PSI	20 PSI
DeVilbiss (Regulator #HAV512)	CVI	510	1.2 / 1.3 **	26 PSI	16 PSI
	Tekna	909	1.3	24 PSI	14 PSI
	Tekna	7E7	1.2 / 1.3 **	22 PSI	14 PSI
	Tekna Pro Lite	TE10/TE20 **	1.2	26 PSI	17 PSI
	Tekna Pro Lite	HV30	1.3	24 PSI	14 PSI
Sata (adam2 #160853) (Micrometer #27771)	SATAjet®3000	WSB	WSB	29 PSI	17 PSI
	SATAjet®4000	WSB	WSB	29 PSI	17 PSI
	SATAjet®4000 RP	1.1 / 1.2 **	1.1 / 1.2 **	26-32 PSI **	17 PSI
Sharpe (Digi-Tell #U05510) Regulator	Razor Waterborne HVLP Part # 289389	289375	1.3	26 PSI	16 PSI
Walcom (Regulator #90105/W)	GENESI GEO HVLP	GEO 1.3 UNI	1.3	29 PSI	17 PSI





MIXING BASES

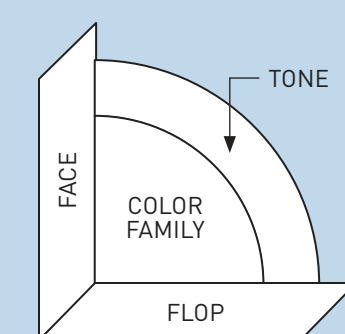
TONER SYMBOL	TONER	CHARACTERISTICS
	T425 Permanent Yellow	Medium shade yellow, less green than T421.
	T4281 Solid Yellow	Bright green shade yellow. Used primarily in solid colors.
	T421 Olive	Greenish yellow. Used primarily in metallic, pearl and effect colors.
	T430 High Strength Transparent Green	Yellow shade green.
	T431 High Strength Phthalo Green	Blue shade green.
	T413 Bright Blue	Green shade blue with red tone flop.
	T412 Transparent Blue (T415) (Trace Blue)	Mid-shade blue. Gives green tone flop. If less than 1% use T415.
	T420 High Strength Blue	Mid-shade blue with a green tone flop. More saturated than T412.
	T4311 HC Green Blue	Mid-shade blue. Higher level of chroma, deeper and greener flop than T412. Used primarily in metallic, pearl and effect colors.
	T411 Blue	Clean red shade phthalo blue.
	T414 Rich Blue	Extreme red shade blue. Redder than T411.
	T443 Violet	Semi-transparent violet.
	T444 Bordeaux	Transparent violet. Makes red metallic and pearl colors bluer. Darker on the flop than T438 and T445.
	T445 Transparent Magenta	Cleaner, more transparent magenta that has a deeper and bluer flop than T438. Used primarily in metallic, pearl and effect colors.
	T4342 HC Magenta	Magenta. Higher level of chroma and deeper flop than T445. Used primarily in metallic, pearl and effect colors.
	T438 Rose	Magenta color used as a blue shade red. Cleaner and lighter than T444. Used primarily in metallic, pearl and effect colors.



BLACKS & WHITES

TONER SYMBOL	TONER	CHARACTERISTICS
	T400 White (T402) (Trace White)	Clean, high strength white. If less than 5% use T402.
	T405 Graphite Black	Subtle blue tone on face, lightens flop on very dark metallic colors. Used primarily in metallic, pearl and effect colors.
	T406 Blue Black (T404) (Trace Blue Black)	High strength blue shade black. If less than 1% use T404.
	T407 Jet Black	Yellow shade black. Recommended for use when deep, dark flop is required in metallic colors.
	T409 Deep Black	Slightly bluer than T407 in metallic and light solid colors.

PICTOGRAM KEY



COLOR FAMILY – Yellow, Green, Blue, Violet, Red, etc.
FACE – Color viewing angle that is heavily influenced by metallic or pearl pigments in a formula.
FLOP – Color viewing angle that is generally darker and influenced mostly by the conventional pigments in a metallic or pearlescent color.
ZONE – Cast of the color in relation to its hue shift and adjacent color family (green-shade blue, mid-shade blue, red-shade blue).

MIXING BASES

TONER SYMBOL	TONER	CHARACTERISTICS
	T422 Yellow Oxide (T423) (Trace Yellow Oxide)	Opaque yellow oxide. Used primarily in solid colors. If less than 1% use T423.
	T429 Transparent Golden Yellow	Transparent yellow oxide used as a weak, dirty yellow. Darkens the flop in metallic, pearl and effect colors.
	T426 Warm Yellow	Orange shade yellow with green tone flop. Used primarily in metallic, pearl and effect colors.
	T4321 HC Yellow	Transparent yellow iron oxide. Higher level of chroma and deeper flop than T429. Used primarily in metallic, pearl and effect colors.
	T427 Yellow	Orange shade organic yellow. Used primarily in solid colors.
	T432 Transparent Red	Transparent iron oxide used to create a red-gold tint appearance. Used primarily in metallic, pearl and effect colors.
	T4341 HC Transparent Red	Transparent red iron oxide. Higher level of chroma and deeper flop than T432. Used primarily in metallic, pearl and effect colors.
	T433 Brilliant Orange	Bright organic orange. Used primarily in solid colors.
	T436 Red Oxide (T440) (Trace Red Oxide)	Opaque red oxide. Used primarily in solid colors. If less than 1% use T440.
	T442 Brown	Dark brown. Gives a deeper flop than T432. Used primarily in gold metallics.
	T435 Salmon Red	Orange shade red. Yellowest of red family toners.
	T4343 HC Organic Red	Perylene maroon. Higher level of chroma and deeper flop than T448. Used primarily in metallic, pearl and effect colors.
	T448 Russet	Dirty perylene maroon. Bluer than T436 and T442.
	T447 Bright Red	Organic red. Used primarily in solid colors.
	T441 Carmine	Bright red. Yellower on face and flop than T438. Used primarily in metallic, pearl and effect colors.





PEARLS

FLAKE SIZE	TONER	CHARACTERISTICS
	T451 Extra Fine White Pearl	White face, travels very light on the flop.
	T452 Fine White Pearl	Cleaner than T451, travels lighter than T453 on the flop.
	T453 White Pearl	Cleaner than T452, travels darker than T452 on the flop.
	T455 Fine Blue Pearl	Blue face. Can lighten flop in metallic and pearl colors. Travels to slightly yellowish tone on the flop in white tri-coat colors.
	T456 Blue Pearl	Blue face. Travels to slightly yellowish tone on the flop in white tri-coat colors.
	T457 Green Pearl	Green face. Travels to slightly reddish tone on the flop in white tri-coat colors.
	T458 Blue-Green Pearl	Blue green face. Travels to greenish yellow tone on the flop in white tri-coat colors.
	T460 Yellow Pearl	Yellow face. Travels to slightly bluish tone on the flop in white tri-coat colors.
	T461 Golden Yellow Pearl	Yellow iron oxide coated mica. Gold yellow face. Travels to reddish gold tone on the flop.
	T466 Orange Pearl	Orange face. Travels to slightly green tone on the flop in white tri-coat colors.
	T459 Copper Pearl	Iron oxide coated mica. Copper face, travels to dark copper tone on the flop.
	T465 Red Pearl	Red magenta face. Travels to slightly greenish tone on the flop in white tri-coat colors.
	T454 Bright Red Pearl	Red iron oxide coated mica. Bright red face, travels darker than T462 on the flop.
	T462 Fine Red Pearl	Red iron oxide coated mica. Red face, travels to light red tone on the flop.
	T468 Violet Pearl	Violet face. Travels to greenish yellow tone on the flop in white tri-coat colors.

SPECIAL EFFECTS

FLAKE SIZE	TONER	CHARACTERISTICS
	T4000 Crystal Silver	Sparkle bright white effect, coarser appearance and brighter than T453.
	T4003 Galaxy Blue	Sparkle bright blue effect, coarser appearance and brighter than T456.
	T4004 Stellar Green	Sparkle bright green effect, coarser appearance and brighter than T457.
	T4007 Cosmic Turquoise	Sparkle bright unique marine blue flake pigment.
	T4001 Sunbeam Gold	Sparkle bright gold effect, coarser appearance and brighter than T460.
	T4006 Fireside Copper	Sparkle bright copper effect, coarser appearance and brighter than T459.
	T4005 Solaris Red	Sparkle bright magenta red effect, coarser appearance and brighter than T465.
	T4002 Radiant Red	Sparkle bright red effect, coarser appearance and brighter than T454.
	T4008 Amethyst Dream	Sparkle bright violet effect, coarser appearance and brighter than T468.
	T4031 Autumn Mystery	Special effect orange silica flake that creates a unique red to gold to bronze to green color travel.
	T4032 Viola Fantasy	Special effect white silica flake that creates a unique violet to silver to green to blue color travel.
	T4033 Arctic Fire	Special effect silica flake that creates a unique color travel from subtle turquoise through brilliant silver to red.
	T4034 Tropic Sunrise	Special effect silica flake that creates a unique color travel from green to silver to reddish orange.
	T4035 Lapis Sunlight	Special effect silica flake that creates a unique color travel from gold to green to blue.
	T4018 Prism Silver	A medium particle size silver flake that creates a diffractive rainbow effect.
	T4037 Silver Glass Flake	Silver metal-coated glass flakes, used to create bright colors with intense sparkle and flare. The effect is particularly evident in bright sunlight.
	T4020 Green to Purple	Color shifting flake. Color shifts from green through purple.
	T4021 Silver to Green	Color shifting flake. Color shifts from silver through green.
	T4022 Gold to Silver	Color shifting flake. Color shifts from gold through silver.
	T4023 Cyan to Purple	Color shifting flake. Color shifts from cyan through purple.
	T4024 Blue to Red	Color shifting flake. Color shifts from blue through red.
	T4025 Magenta to Gold	Color shifting flake. Color shifts from magenta through gold.
	T4026 Red to Gold	Color shifting flake. Color shifts from red through gold.

METALLICS

FLAKE SIZE	TONER SYMBOL	TONER	CHARACTERISTICS
		T471 Extra Fine Metallic	Extra fine metallic with a light flop.
		T472 Fine Lenticular Metallic	Fine bright metallic with a darker flop than T471.
		T473 Medium Metallic	Medium metallic with a darker flop than T471.
		T474 Fine Metallic	Fine metallic with a darker flop than T471.
		T475 Medium Lenticular Metallic	Medium bright metallic with a darker flop than T472.
		T476 Coarse Lenticular Metallic	Coarse bright metallic with a darker flop than T475.
		T477 Extra Coarse Metallic	Extra coarse metallic with a darker flop than T479.
		T479 Coarse Silver Dollar Metallic	Very bright metallic with a lighter flop than T476.
		T489 Medium Gold Metallic	Medium gold aluminum flake.
		T4040 Orange Flash	Deep reddish-gold aluminum flake, more intense than T489.
		T4042 Blue Aluminum	Highly chromatic blue lenticular aluminum.
		T4705 Liquid Metal	Vacuumized metal flakes that have a unique optical effect similar to a molten metal appearance.

FLAKE SIZE - SMALL MEDIUM LARGE	PICTOGRAM KEY	COLOR TRAVEL CHARACTERISTIC KEY
PEARLS ALUMINUMS COLORED ALUMINUMS LENTICULAR ALUMINUMS SPECIAL EFFECTS	 COLOR FAMILY Yellow, Green, Blue, Violet, Red, etc. FACE Color viewing angle that is heavily influenced by metallic or pearl pigments in a formula. FLOP Color viewing angle that is generally darker and influenced mostly by the conventional pigments in a metallic or pearlescent color.	 LIGHT FACE LIGHT FLOP LIGHT FACE MEDIUM FLOP LIGHT FACE DARK FLOP

FLOP ADJUSTERS

TONER SYMBOL	TONER	CHARACTERISTICS
	T491 Matting Base	Gives a more coarse flake appearance and lightens flop.
	T402 Trace White	Used in metallic colors to grey the face and lighten the flop.
	T403 Micro White	Used in metallic colors to add yellow to the face and light blue tone on the flop.