

Data Sheet

VIAVI

ChromaFlair

Light Interference Pigments

Seeing color in a whole new light

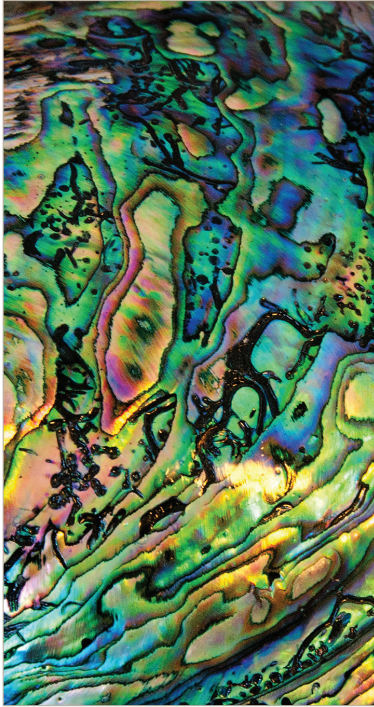
ChromaFlair® pigments include multi-layer flakes that give paints, coatings, plastics, textiles, and packaging the ability to change color when viewed from different angles, and is suitable wherever color is valued as a differentiator.

Each flake exhibits a variety of colors depending on the angle at which it is viewed and the angle of incident light. The pigment's dramatic color effect is visible in a wide variety of lighting conditions and works with both high-and low-gloss applications. It is easily incorporated into coatings and plastics used in automotive, consumer electronics, sports equipment, apparel, and packaging markets.

Applications

ChromaFlair pigments are suitable for coatings, paints and plastics for use in:

- Transportation
- Architectural Products
- Sports Equipment
- Apparel
- Consumer Electronics



Similar to natural structures such as soap bubbles, butterfly wings, and sea shells, the color of ChromaFlair pigment is the result of a thin-film interference whereby white light is separated into its components through selective constructive and destructive interference. This phenomenon is also called structural color: the raw materials are essentially colorless by themselves but, when ordered in the proper sequence, they work together to create color. Through the use of thin-film interference, vacuum-coating technology, and three colorless materials, VIAVI is able to create a full spectrum of highly-chromatic hue-shifting colors.

VIAVI uses Color by Physics® technology to create ChromaFlair pigments. A multi-layer interference film, manufactured by the deposition of ultra-thin layers using physical vapor deposition (PVD), is ground into micron-sized flakes. Unlike ordinary pearlescent pigments, ChromaFlair flakes include a center aluminum core layer that is opaque and highly specular (mirror-like). The aluminum layer is surrounded by a glass-like layer. Changing the thickness of this glass-like layer produces different colors, and allows all ten standard colors to be made from the same three ingredients. To maintain the tight color tolerance required by the automotive industry, layer thicknesses must be controlled to within a few atoms; this is achieved using a proprietary VIAVI manufacturing process.

ChromaFlair pigments can be mixed with traditional organic and inorganic pigments to create styled colors to meet a wide variety of design needs. Mix with aluminum pigments to lighten colors, create pastel effects or use in darker colors to intensify the color-shift effect.

Light Interference Phenomenon with ChromaFlair® Flake

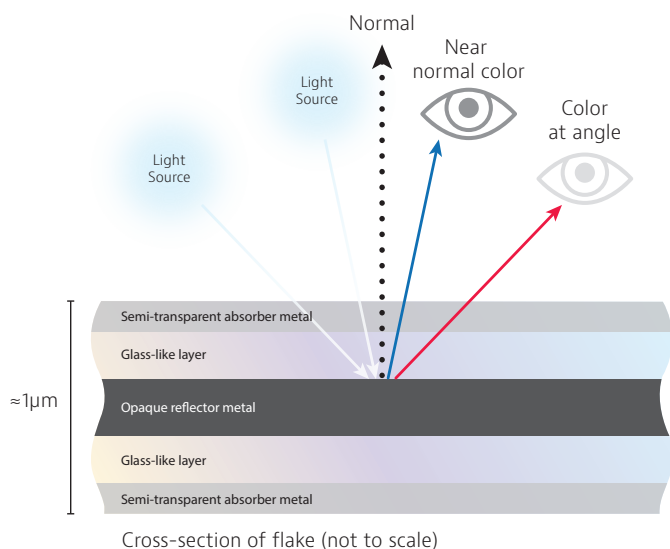


Figure 1. Cross-sectional drawing of a ChromaFlair pigment flake

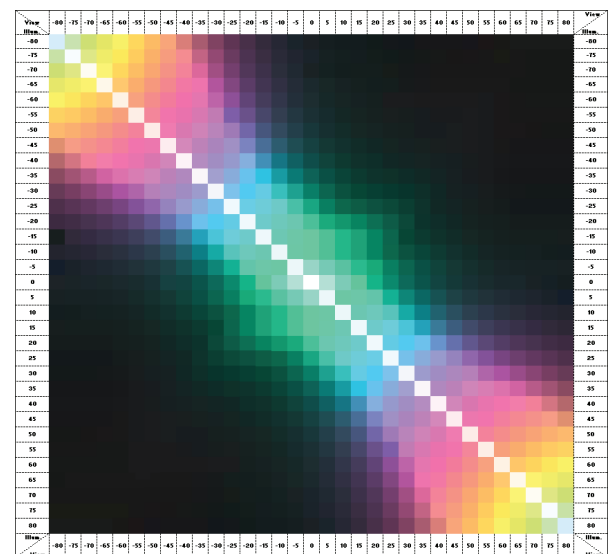
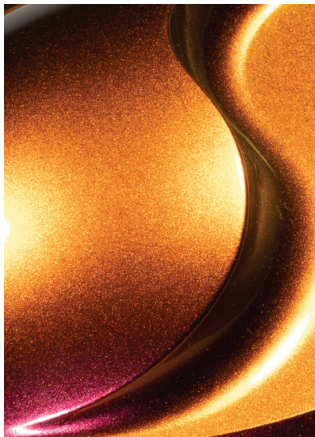


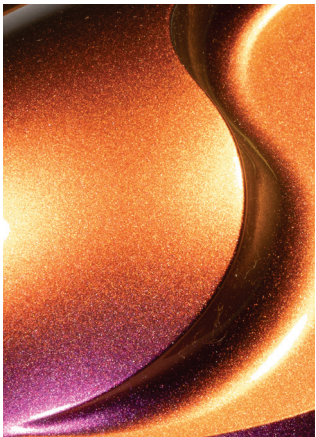
Figure 2. Color gamut of ChromaFlair Green/Purple 190, demonstrating the high degree of gonio-apparency

ChromaFlair Pigment Colors

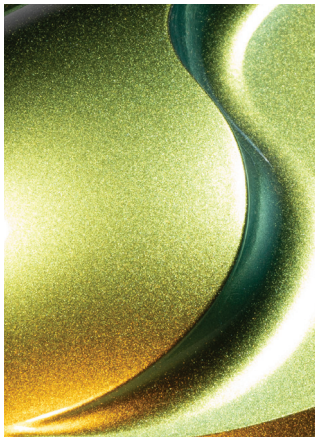
ChromaFlair pigment names reflect the color seen at approximately 0° and 45° respectively. The number represents the pigment's approximate hue at a normal viewing angle.



Red/Gold 000



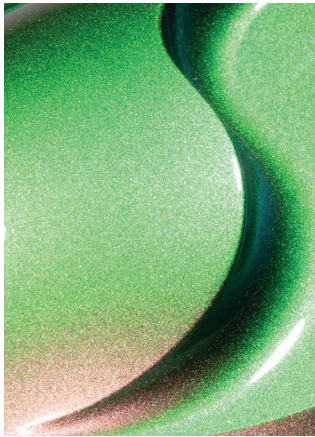
Magenta/Gold 334



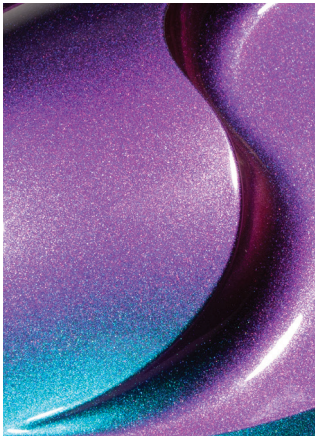
Gold/Silver 080



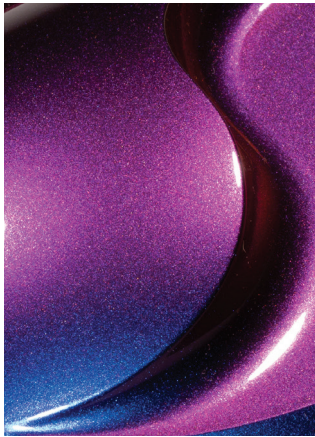
Green/Purple 190



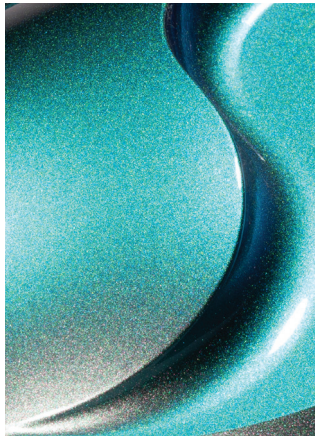
Silver/Green 060



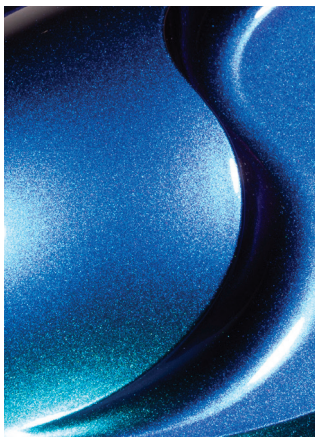
Cyan/Purple 230



Blue/Red 280



Silver/Blue 160



Cyan/Blue 225



Black/Red 315

Physical Properties

Part Number	Product Name	Color Description	Particle Size			Percent Solids (w/%)	Heat Stability (°C)	Specific Gravity (g/cc)	Hiding* (microns)
			D10	D50	D99				
			(µm)	(µm)	(µm)				
10095039	Red/Gold 000	Red face traveling through orange and gold.	<10	19	<67	90%	<200	2.43	28
10095042	Green/Purple 190	Green face traveling through purple, magenta and gold.						2.39	51
10095043	Cyan/Purple 230	Cyan face traveling through purple, magenta and gold.						2.40	41
10095044	Silver/Green 060	Silver face with visible green and purple at extreme angles.						2.38	51
10095045	Gold/Silver 080	Chromatic gold on face, traveling through green to steel blue.						2.44	20
10095047	Blue/Red 280	Blue face traveling through purple, red and orange.						2.42	33
10095048	Magenta/Gold 334	Magenta face traveling through red and orange.						2.43	28
30185378	Black/Red 315	Dark face quickly shifting to red, orange and gold.						2.38	36
30185381	Cyan/Blue 225	Cyan face traveling to deep chromatic blue and purple.						2.41	31
30185384	Silver/Blue 160	Silver-blue face traveling to aqua and purple at extreme angles.						2.38	31

*Dry film thickness to achieve black/white hiding at 25 parts pigment to 100 parts dry binder

Regulatory Information

ChromaFlair pigments are made with raw materials listed on most chemical inventories internationally. Please consult the Safety Data Sheet or contact customer service for additional regulatory information.

Ordering Information

For more information on this or other products and their availability, please contact your local VIAVI account manager or VIAVI Customer Service worldwide +1 800-254-3684 or via e-mail at ospcustomerservice@viavisolutions.com.



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