



ABOUT US

Aron Universal Limited, established in the year 1974 in the name of Aromax Chemicals, is headquartered at Bangalore, India.

We are India's leading manufacturer and exporter of Daylight Fluorescent colors – pigments, inks and ink bases, toners and dispersions. We have also developed and manufacture non-fluorescent products such as Organic Pigment Dispersions, security inks and other customized color products. All our products are well known in the domestic and global market under the brand name FLAMINGO.

Products developed by Aron, both traditional and new eco-friendly formaldehyde free products are widely use in a broad range of applications such as Plastics, Paper Coating, Arts and Crafts, Textile, Paints, Inks and other miscellaneous applications.

We are an ISO 9001:2008, and ISO 14001:2004 certified company. Our products comply with the international quality standards and are in compliance with various regulatory requirements such as EN-71 Part III 2000, RoHS (EU Directive 2002/95/EC), AP89(1), ASTM-D4236 and REACH.

OUR VISION

To be a global leader in providing innovative colors solutions for multiple applications.

OUR PRESENCE

Aron is one of the leading fluorescent suppliers of the world and our strong distribution network is spread across all states of India. Globally, we have presence in 45+ countries where we also stock and distribute our products through our marketing network. Major exports are to the America's, European countries, Middle East and South East Asian countries including China, Africa and Australia.

RESEARCH AND DEVELOPMENT

Aron has a passion for developing new innovative products continuously for our customers. Our strong in-house R&D Centre's are well equipped with modern analytical equipment's and application development lab. We have a strong team of experienced scientists and chemists, continuously working on various research projects.

Our R&D Centre is recognized and accredited by Department of Science and Industrial Research (DSIR), Ministry of Science and Technology, Government of India.

QUALITY – A JOURNEY

Aron has a state of the art lab with stringent quality testing procedures for all our incoming raw materials, work in progress and finished goods before they are dispatched to our customers across the globe. For Aron – Quality is a journey and not a Destination!

OUR COMMITMENT

To be a trusted partner in your success for today, tomorrow and for the future!

FLUORESCENT PLASTIC COLORANTS

Fluorescent colors are up to three times brighter than non-fluorescent colors, which make it a perfect choice in plastic application where better visibility and brilliancy is required.

At Aron, we create fluorescent color products that help you create yours that are bright, brilliant and beautiful.

The modern plastic industry places increasing technical demands on pigments.

Recognizing the need for specialized pigments manufactured to the highest technical specification. Aron offers a completely new comprehensive range of technically advanced products developed specifically for optimum performance in different plastic applications.

The outstanding features of Aron's comprehensive product range are:

- Excellent color consistency and surface finish quality
- Easy to disperse and use
- Substantially reduced to negligible plate out
- Non-migrating and non-bleeding
- Thermal stability in compliance with DIN EN 12877-2 standard
- Energy saving and environment friendly
- Formaldehyde Free
- Compliance with international regulatory standards
- Completely safe for use in toys
- Completely safe for use as colorants in plastic material coming into contact with food.

Aron's range of fluorescent products are broadly classified into 4 groups. These include:

1. Polyester Resin based fluorescent colorants

PA Series: Low cost formaldehyde free polyester based colorants

Since traditional standard polyester based pigments include high moisture pick up, plate out and poor dispersion. Poor performance is experienced during processing with these low cost plastic colorants.

The PA series is specially developed to give improved moisture resistance, better dispersion with clear, brighter and stronger shades. This coupled with reduced plate out properties provides better surface finish quality and lower down time in production during change in color.

PA series can be processed from 120 – 260°C, and it also complies with DIN standard upto 240°C.

Please refer to Table No. 7 for applications and polymers where this product is recommended for use.

Table No. 1

Characteristics of PA Series*	
	PA
Average Particle Size	Coarse Powder
Melting Point	80-90°C
Decomposition Point**	260°C
Min. Processing Temp	120°C
Maximum Recommended Processing Temperature (for short dwell times)	260°C
Chemical Nature	PA : Formaldehyde free thermoplastic polyester resin.

** - Maximum temperature at which fluorescence is maintained. Color degradation is time/temperature dependent.

* - Typical Values

2. Polyamide Resin based fluorescent colorants

PML Series: Low Temperature Melting and Dispersing formaldehyde free polyamide based colorants.

Traditional polyamide based pigments had higher minimum processing temperature range which made it unsuitable to use for low temperature polymer processing, along with other limitations associated with high minimum temperature processing characteristics.

PML series is specifically developed to combine the benefits of improved polyamide based pigments with that of the low temperature processing benefit of the polyester based pigments.

Minimum processing temperature required is only 120°C for this product.

Substantially low processing temperature requirement helps in excellent dispersion and higher loading of pigment in master batch preparation, along with eliminating shade variation caused due to earlier poor color development issues.

In addition to above, very low plate out property enhances both productivity and savings for end user. As a result of low energy consumption during processing, uninterrupted production and lower down time during color change. Surface finish quality of the molded articles is also drastically improved.

PML series offers a wide range of processing temperature possibility from 120 – 280°C. Thermal stability is in compliance with DIN standard upto 260°C. Further, color also retains at 290°C with short dwell times.

PMH Series: High strength formaldehyde free polyamide based colorants

PMH series is specially processed to provide high strength polyamide based products with better properties such as improved plate out performance, excellent brightness and color strength with shade variation elimination due to poor color development. Surface finish quality of molded articles is also improved.

Processing temperature ranges from 180 – 280°C.

Thermal stability is in compliance with DIN standard upto 260°C. Further, color also retains at 290°C with short dwell times.

Please refer to Table No. 7 for applications and polymers where polyamide based PML and PMH series is recommended for use.

3. Pre-dispersed Fluorescent Pigment Concentrates

FPC Series : Free flowing fluorescent pigment concentrates with superior processing and eco friendly characteristics.

FPC series comprises of fluorescent pigment concentrates that offer superior processing properties by converting standard pigments into a free flowing, dust free products with exceptionally easy dispersion, and highest color value generation with minimal pigment loading, including clarity and brightness.

Additionally, FPC series virtually eliminates problem of plate out also which gives very high productivity and makes it economical in use. It eliminates usage of expensive or hard to handle additives for master batch manufacturing, eliminates shade variation due to poor color development and gives better surface quality of molded articles.

Table No. 2

Characteristics of PML & PMH Series*		
	PML	PMH
Average Particle Size	4-5 μ	4-5 μ
Melting Point	95-105°C	125-135°C
Decomposition Point**	290°C	290°C
Min. Processing Temp	120°C	180°C
Maximum Recommended Processing Temperature (for short dwell times)	290°C	290°C
Chemical Nature	PML & PMH : Formaldehyde free thermoplastic polyamide resin.	

** - Maximum temperature at which fluorescence is maintained.

Color degradation is time/temperature dependent.

* - Typical Values

Table No. 3

Charactistics of FPC Series*	
Chemical Nature	Thermoplastic Polyamide resin
Physical form	Free flowing prills
Bulk density	0.65 gm/cc \pm 0.05
Thermal stability (As per DIN)	Up to 260°C
Min Processing Temp	120°C
Max. Recommended Processing Temp. for Short dwell time	290°C

* - Typical Values

It is developed as high performance colorants especially for polyolefins. It can also be used directly for blow molding and injection molding applications. Processing temperature ranges from 120 – 280°C. Thermal stability is in compliance with DIN standard upto 260°C. Further, color also retains at 290°C with short dwell times.

Please refer to Table No. 7 for applications and polymers where FPC series is recommended for use.

4. Benzoguanamine thermoset resin based fluorescent colorants

ST-911 series: Non-migrating and non-bleeding Benzoguanamine based fluorescent colorants

ST-911 series is based on Benzoguanamine thermoset carrier resin, recommended for any applications requiring optimum degree of solvent and plasticizer resistance.

The thermoset nature of these products virtually eliminates migration of color, and bleeding of color in strong solvents. Including offering high resistance against various plasticizers, catalysts and curing agents.

This product does not melt, but is easily dispersed which drastically reduces plate out and enables easy processing and color changeovers across various processes.

The above properties enable its usage even in flexible vinyl, vinyl plastisol, PVC, rubber, EVA, and other plastic applications including in PVC & Olefines moulding and extrusion. Further, it can also be used for solvent based inks that use strong solvents such as ketones and esters.

ST-911 series also consists of uniform, spherical shaped particles having average particle size of 3 to 4 microns, which allows it to be used in thin film applications too.

Depending on color and dwell times it gives excellent heat stability upto 220°C, and it also exhibits minimal color change after one hour on a twin roll mill at 175°C.

It is resistant to gassing at elevated temperatures and has very low levels of formaldehyde release. Users should also be aware than all benzoguanamine based fluorescent colorants have less resistance to daylight exposure than the conventional polyamide and melamine based pigments.

Please refer to Table No. 7 for applications and polymers where ST-911 series is recommended for use.

Table No. 4

Characteristics of ST-911*	
	ST-911
Bulk Density	0.33 - 0.38 gm/cc
Average Particle Size	3-4 Microns
Softening Point	Thermoset
Melting Point	Non-melting
Min. Processing Temp.	Non-melting
Decomposition Point** (Heat degradation is time/temp. dependent)	250°

** - Maximum temperature at which fluorescence is maintained. * - Typical Values

GENERAL INFORMATION ON PLASTICS PROCESSING

Color and Opacity

The final color and opacity depends on the characteristics of polymer and additives used by masterbatchers and compounders. Some additives and polymers containing additives can cause adverse effects on our products. Therefore it is essential that the series and color to be used is fully evaluated in system to be used prior to going into full scale production.

Table No. 5

To obtain maximum color and brightness it is important to use sufficient pigment and ensure complete dispersion. The quantity used will depend upon the wall thickness of the plastic product, as illustrated in table no. 5.

Percentage of Aron Pigment Recommended by Series*					
Thickness	PA	PMH	PML	FPC	ST-911
0.25mm	0.8-1.5%	3-4%	3-4%	2.5-3.5%	3-4%
0.50mm	0.8-1.5%	2-3%	2-3%	1.5-2.5%	2-3%
1.00mm	0.2-0.8%	0.5-2%	0.5-2%	0.5-1.5%	0.5-2%

* - Typical Values

Fluorescent pigments are transparent by nature. To improve opacity optimum levels of rutile grade titanium dioxide (2% or less) or similar hue of non-fluorescent colors (10% or less) are added, based on weight of fluorescent colorant.

Light Fastness

Fluorescent colors have good indoor durability and can be used successfully in most toys, housewares, novelties and products that have intermittent outdoor use. In direct sunlight fluorescent colors tend to fade because the conversion of energy which produces the fluorescent effect causes a continuous degradation of the molecular structure. The fastness to sunlight is therefore not as good as most nonfluorescent colourants. Of all the Flamingo series, PMH generally gives the best lightfastness for plastics.

The higher the pigment concentration, the better the lightfastness, but a certain point can be reached when the fluorescent pigment may adversely affect the structural properties of the polymer. Lightfast non-fluorescent colors of a similar hue to the fluorescent color can be used to give a residual color as fluorescent color fades. As quantity of non-fluorescent color is increased, the fluorescent brightness will be reduced. Optimum light stability and brightness are obtained using efficient dispersion techniques, processing at minimum temperature and with the shortest dwell time. Users should carry out their own lightfastness trials to try and ascertain satisfactory light stability.

Dispersion and Color Development

Flamingo fluorescent colors can be dispersed in all polymers with banbury mixers and twin screw extruders. For maximum color development, it is necessary for the pigments to achieve complete melting and dispersion in the plastic. Poor color is generally the result of inadequate dispersion of pigments. Wide range of Aron products exhibit excellent dispersion, depending on the temperature of processing.

VINYL PLASTISOL MOULDING

Table No. 6

Introduction

The thermoset type IxT-310LF/311LF/350LF and thermoset ST-911 series are recommended for best heat stability and migration resistance. Ix-AS Series may be used but caution is necessary due to the limited degree of migration resistance.

Stabilizers

The choice of heat and light stabilisers are important. It is recommended that stabilisers be checked in the plastisol system to establish the performance and compatibility with the fluorescent pigment. Barium, zinc or tin stabilisers have been found to give the brightest results together with improved lightfastness in certain applications. If the process allows, PML and PMH series may be used. This series offers high color strength, good lightfastness and the complete absence of formaldehyde odor. Where a calendering process is involved care needs to be taken to ensure the thermoplastic nature of PMH series does not cause sticking problems on the calendering roll. In this case production modifications may be necessary. ST-911 series has improved performance over the thermoset type IxT-310LF/311LF/350LF series, where bleed resistance is the most important criterion. Whichever series is chosen, it should be fully evaluated in the user's system and subjected to appropriate test procedures for bleed and migration, before adopting on a commercial scale.

Undercoat

Daylight fluorescent colors are translucent, non opaque, therefore fluorescent coatings should be applied over a white undercoat or diffused white surface in order to obtain the maximum daylight fluorescent effect.

Safety Traffic Cones

Aron offers Formaldehyde free orange-red colorants specifically formulated for Traffic cone manufacturing by injection moulding and plastisol Roto moulding/overcoating process. Product details can be forwarded on enquiry.

Characteristics of IxT-310LF/311LF & IxT-350LF*		
Chemical Nature	Thermoset type aminoplast base pigment	
	IxT-310LF/311LF	IxT-350LF
Bulk Density	0.35 - 0.40 gm/cc	0.32 - 0.36 gm/cc
Avg. Particle Size	4-5 microns	3-4 microns
Softening Point	Thermoset type	
Decomposition Point**	250°C	
Oil Absorption Value	50-60 g/100g of pigment	

Percentage of Aron Pigment Recommended by Series*			
Thickness	IxT-310LF	IxT-311LF/350LF	ST-911
0.25mm	8-15%	4-7%	4-7%
0.50mm	4-8%	2-4%	2-4%
1.00mm	1-4%	0.5-2%	0.5-2%

SERIES RECOMMENDED

Table No. 7

APPLICATION	SERIES						
	IxT-310 /311	IxT-310LF/ 311LF/350LF	PA	PMH	PML	FPC	ST-911
Masterbatch			✓	✓	✓	✓	
Mouldings & Extrusions			✓	✓	✓	✓	●
Blow Mouldings			●	●	●	✓	✓
Liquid Colourants			●		●	●	✓
Vinyl Plastics	✓	✓			●	●	✓
Vinyl Calendered Film	✓	✓			●	●	✓
Powder Coatings		✓		✓	✓		✓
POLYMER							
LDPE			✓	✓	✓	✓	✓
HDPE			✓	✓	✓	✓	✓
PP			✓	✓	✓	✓	●
GPPS				✓	✓	✓	●
HIPS			●	✓	✓	✓	●
ABS				●	●	●	
Polycarbonate				●	●	●	
Acetal				●	●	●	
PVC calendering	✓	✓					✓
PVC spread coated	✓	✓		✓			✓
EVA & Rubber				●	●		✓
Acrylic				✓	✓	●	
Nylon 6				●	●	●	

✓ - Series Recommended ● - May be used for selected applications

REGULATORY INFORMATION

PA, PMH, PML & FPC series has been approved for European Norms EN-71 part III-2000 for heavy metals.

PMH, PML & FPC series are in compliance with Resolution AP-89(1) regulation on the use of colourants in plastic materials coming into contact with food.

PA, PMH, PML & FPC series are in compliance with RoHS (Restriction of Hazardous Substances) as per EU directive 2002/95/EC.

Pre-approved in accordance with ASTM-D 4236 guidelines for Art & Creative materials.

All Aron products are REACH compliant.

FDA approval : Like all fluorescent pigments, Aron products cannot be used as food additive and currently do not have any approvals with the American food and drug Administration(FDA).

Disclaimer: Technical information, advice, statements, verbal and written suggestions, and test results are offered for guidance only and it is believed to be reliable, but are not to be construed as a warranty for which we assume no responsibility. NO WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS MADE. Users are responsible for testing our products and suggestions to ensure that they are suitable for the intended purpose and application prior to use.