Printing Inks

- Screen Printing Inks
- Off-set & Letterpress Inks
- Flexographic Inks
- Gravure Inks
- Textile Inks
- Security Inks
- UV Inks

Aron Universal Limited

We are the largest manufacturer & exporter of daylight fluorescent colours in India, for the last three decades. Aron has developed a wide range of fluorescent colours for various applications like,

- Paper Coating
- Textile Printing / Dyeing
- Plastic Coloring
- Master Batch
- PVC Calendering
- Safety Traffic Cone
- Silk Screen Inks
- Liquid Inks
- Offset & Litho Inks Bases / Inks
- Security Inks
- Paints
- Arts & Crafts
- Industrial Markers
- Crayons / Poster Colours
- Wax Colouring
- Clay Colouring

Our comprehensive product range caters to almost all conceivable requirements.

At Aron, technology has continued to grow and its in-house R&D has developed innovative products for security inks, crack detection, fugitive pigments etc.

We sell our products to more than 45 countries, across the globe and we have a world wide distribution network providing local response with prompt in stock deliveries.

New products are being developed all the time, so please get in touch with us, if your need is not listed in our regular literatures.

Daylight Fluorescent colours

Conventional / normal colour can reflect, only light in visible range, in case of fluorescent colours, it even converts absorbed UV light & reflects in visible range, there by colour appears more bright than normal colour.

For example fluorescent orange colour absorbs the same orange band as the conventional, however it also converts the lower end of the spectrum and ultraviolet light into visible light of the same predominant wavelength.

Where a clear, bright conventional colour is able to reflect a maximum of 90% of a colour present in the spectrum, a fluorescent colour can reflect as much as 200-300%.

Daylight Fluorescent Pigments

Flamingo fluorescent pigments are transparent organic resin particles containing dyes which are capable of fluorescing while in solid state solution. The characteristics of fluorescent pigments will be decided by the surrounding resinous matrix.

Lightfastness

Fluorescent colours are generally more fugitive than similar hue conventional colours, the relative degree of light stability would depend on formulations, film deposits, wall thickness, additives, etc.. as well as the areas intended to use.

Daylight fluorescent pigments are stable to indoor light or outdoor conditions other than direct sunlight. They are affected by exposure to direct sunlight. The degree and effect of change is dependent on the colour, intended end usage, pigment loading and various other factors.

Lightfastness can be improved to some extent by use of ultraviolet absorbers in the pigment formulation, clear overcoats containing ultraviolet absorbers and higher pigmentation level in the formulation. If prolonged outdoor exposure is the intended use, actual outdoor exposure tests should be conducted in order to be certain of satisfactory results.

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FLAMINGO SERIES RECOMMENDATION

APPLICATION	IX-AD	IX-ASJ	IXT-311LF	IXT-350LF	ST-911	GLT	FF-611 +	8000IC / ARC ✦	FIB ✦	FPB ✦	FFD + *
Conventional offset								✓	✓	✓	
Heatset										✓	
UV cured offset										✓	
Screen Inks											
Water base	▲	✓	▲	▲			▲				✓
Solvent base			✓	✓	✓						
Miscellaneous											
Vinyl & Other plastics			▲	▲	✓						
UV Curable				✓	✓						
Flexographic											
Water base		▲		▲	▲		▲				✓
Solvent base				▲	▲	✓					
Gravure Inks											
Solvent base											
Aliphatic / Aromatic		✓	✓	✓							
Alcohol / Ester / Ketones			▲	✓		✓					
Water base		✓	▲	▲			✓				✓
Textile											
General Purpose	▲	✓		✓	✓						✓
Crock & Dry clean resistant				✓	✓						▲
Plastisol				▲	▲		▲				

* Available in dispersion form ✦ Available in flush form + Formaldehyde free series

✓ - Series recommended

▲ - May be used for selected applications

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SCREEN PRINTING INKS

Many types of Screen printing inks systems designed and formulated to print onto a varied selection of substrates with different end uses.

Aron Fluorescent Pigments are suitable for use in majority of formulations. The pigment series selection is dependent upon the solvent system used in the ink formulation and the end use application.

Where maximum strength, clearer and brighter shades or economy is required, the selection of IXT-350LF series is recommended. Daylight fluorescent colours are both transparent and translucent and so best results are obtained by printing on to an opaque white surface, The lightfastness properties of fluorescent inks are limited and therefore they are not generally recommended for long term outdoor exposure.

Characteristics of IxT-311LF & IxT-350LF*		
Chemical Nature	Thermoset type aminoplast base pigment	
	IxT-311LF	IxT-350LF
Bulk Density	0.35 - 0.40 gm/cc	0.30 - 0.35 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 pigment	

General Description :

IxT-311LF are standard strength pigments, good in terms of heat stability, solvent stability, lightfastness & color migration property.

IxT-350LF are stronger shades and can be used were finer mesh products are recommended due to its fine particle size.

These pigments are designed to be used in formulations, inks and coatings, where strong solvents are used and where softening by heat and pressure may be a problem. They are also suitable for use in water based latex systems, where long term shelf stability is required.

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

* Typical Values

Specialised Screen Printing Ink

For printing on flexible and rigid grades of PVC, CAB and other similar plastics, it is recommended Flamingo IXT-311LF series is used where strong solvents are present. Where finer mesh is required, the use of IXT-350LF series is recommended.

For paper and board screen inks with aliphatic / aromatic solvents Flamingo IX-ASJ or IxT-311LF or IxT-350LF series is recommended.

For UV curing screen printing inks Flamingo IxT-350LF series is recommended

General Description

IX-AD / IX-ASJ pigments are thermoplastic fluorescent pigments which are recommended for wide range of applications where resistance to strong solvent is not needed. They perform well in systems based on aliphatic and some aromatic hydrocarbons. They are also usable in aqueous systems where prolonged shelf-life is not required. These pigments can also be used for coatings, vinyl coated fabric, aqueous flexo inks / gravure inks, paints, screen inks, vinyl plastisols and organosols.

IX-ASJ series is comparatively stronger compared to IX-AD series and offers better storage stability.

Characteristics of IX-AD & IX-ASJ*		
Chemical Nature	Thermoplastic aminoplast base pigment	
	IX-AD	IX-ASJ
Bulk Density	0.25 - 0.29 gm/cc	0.22 - 0.27 gm/cc
Softening Point IX-AS/AD	130 - 140°C	135 - 145°C
Avg. Particle Size	3-4 microns	2-3 microns
Decomposition Point	210°C	
Oil Absorption Value	50-60 g/100g pigment	

* Typical Values

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FLEXOGRAPHIC INKS

Flamingo Fluorescent pigments and toner can be used in flexographic ink applications. Depending on solvent selection, the ink formulator can choose between various flamingo series.

Flamingo IX-ASJ or IxT-311LF or IxT-350LF series can be used in aliphatic / aromatic solvent based ink formulas.

IxT-311LF or IxT-350LF series is recommended for inks using strong solvents such as ketones.

Flamingo GLT toners are soluble in many solvents and can be used in solvent based ink formulas where thin films are required.

Solvent Based Flexographic

Aron offers fluorescent colours specially formulated for use in flexographic ink formulations. Flamingo GLT series is specially designed for use in solvent based flexographic inks.

General Information

Flamingo Fluorescent colours may be blended with white to produce extremely bright pastel colours. Fluorescent flexographic inks are printed at very low film weights and therefore they have limited lightfastness. It is recommended that these inks be printed on to products designed for indoor applications only.

The GLT series are highly concentrated solvent soluble toners. Too high a loading of these products in the ink can reduce the colour purity and fluorescent brightness. The inclusion of brightners in the ink formulation will improve the colour purity and brightness as well as reduce the cost of the ink.

These toners completely dissolve into the flexographic ink resulting in a sub-micron particle size. No further milling is required.

Flamingo GLT Series

GLT Series consists of high strength toners, which are completely soluble in a mixture of alcohol and ester solvents. These toners can be blended at different ratio's to achieve wide range of fluorescent shades.

To ensure that the colours in the GLT series are fully dissolved its important to use appropriate proportions of alcohol and ester solvents. A blend of approximately 2.5 parts anhydrous ethyl or n-propyl alcohol to one part ethyl or iso-propyl acetate is recommended. If this alcohol/ester blend cannot be used alternative solvents are suggested like Methyl ethyl ketone, Ethyl glycol, Methyl iso butyl ketone... etc,.

Aqueous Dispersion - FFD

FFD series is Formaldehyde free aqueous based dispersion with very fine and narrow range of spherical particles, with improved light fastness compared to our IX / IxT / ST-911 series.

FFD series is available in different colours, they can be used in a wide range of aqueous based applications like ink, paint, textile printing / dyeing, paper coating, marker, high-lighter, stamping ink, etc.

Characteristics of Aqueous Dispersion*	
Chemical Nature	Styrene co-polymer
Solid content (%)	46 ± 2
Viscosity (Brookfield Viscometer)	30 - 70cp at 25°C
Particle Size range (Microns)	0.3 - 1.6
pH	8 ± 1

* Typical Values

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GRAVURE INKS

Flamingo Fluorescent pigments and toner can be used in gravure ink applications. Depending on solvent selection, the ink formulator can choose between various flamingo series.

Flamingo IX-ASJ or IxT-311LF or IxT-350LF series can be used in aliphatic / aromatic solvent based ink formulas.

IxT-311LF or IxT-350LF series is recommended for inks using strong solvents such as ketones.

Flamingo GLT toners are soluble in many solvents and can be used in solvent based ink formulas where thin films are required.

Introduction

One of the major application for fluorescent gravure inks is in the printing of light board and cartons for packs like detergent and general advertising.

The choice of the most suitable series is governed by the solvent system used in the ink formulation and the etch depth of the gravure cylinder used in the printing process.

SERIES SELECTION FOR GRAVURE INKS BY SOLVENT SYSTEM & ETCH DEPTH			
Solvent System	Cylinder Etch Depth		
	85 μ	43 μ	<43 μ
Aliphatic / Aromatic	IX-ASJ	IX-ASJ	IX-ASJ
Alcohol / Ester / Ketone	IxT-311LF	IxT-350LF	GLT
Water	IxT-311LF	IxT-350LF	ST911

FF-611 Series

FF-611 series can be used in aliphatic/aromatic solvent based inks where formaldehyde free pigments are required. (strong polar solvents should be avoided in formulation).

Lightfastness

To improve lightfastness, fluorescent gravure pigmented systems can be printed over a non-fluorescent toner of similar hue. Alternatively a small quantity of non-fluorescent pigments may be added in the ink formulation to provide a residual colour after the fluorescent colour has faded.

Dispersion

Fluorescent pigments may be dispersed with high speed stirrers. Ensure that the mixing temperature does not exceed 40°C when dispersing above this temperature the pigment may begin to swell and soften, resulting in thickening or separation from the vehicle.

Characteristics of GLT*	
Chemical Nature	Thermoplastic aminoplast base pigment
Softening Point	100 - 110°C
Form	Granular Powder
Oil Absorption Value	50-60 g / 100g pigment
General Solubility	Soluble in some esters, ketones, glycols, glycol ethers and alcohol / ester blends.

General Description :

Flamingo **GLT** soluble toners are thermoplastic fluorescent colors applicable for systems where solvent solubility is required. They are soluble in large number of solvents. Designed for use in formulations for coatings, flexo & gravure application on flexible packaging papers, films and foils. These colorants also offer glossy finish on the substrate.

GLT toners are transparent and should be printed on white stock or over a white ink to achieve the maximum daylight fluorescent brightness.

* Typical Values

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TEXTILE INKS

Flamingo IX-AD, IX-ASJ, IXT-350LF, FF-611 and ST-911 series are all recommended for use in water based textile printing inks, applied by screen process on flat bed and rotary machines.

All our series have high colour strength and the IXT-350LF and ST-911 series offers improved crock resistance and dry clean resistance properties.

FF-611 series can also be used where formaldehyde free colorants are required with crock resistance and dry clean resistance properties.

On well formulated fluorescent inks using the IXT-350LF or ST-911 series, wash and dry cleaning results of level 5 (maximum) on the AATCC Scale are possible..

Aqueous Dispersion - FFD

FFD series is Formaldehyde free aqueous based dispersion with very fine and narrow range of spherical particles.

FFD series is available in different colours, they can be used in a wide range of aqueous based applications like textile printing / dyeing, paint, ink, paper coating, marker, high-lighter, stamping ink, etc.

FF-611 Series

FF-611 series can also be used for textile printing where formaldehyde free pigments are required. Due to its fine particle size it is suitable for dry blending and liquid colour systems.

Characteristics of ST-911 & FF-611 *

	ST-911	FF-611
Bulk Density	0.33 - 0.38 gm/cc	0.25 - 0.35 gm/cc
Average Particle Size	3-4 microns	3-4 microns
Softening Point	Thermoset	-
Melting Point	Non-melting	135 - 145 ^{0}C
Min. Processing Temp.	Non-melting	175 ^{0}C
Decomposition Point** (Heat degradation is time/temp. dependent)	260^{0}C	290^{0}C
Chemical Nature	Benzoguanamine Formaldehyde Co-polymer	Formaldehyde free thermoplastic polyamide

General Description :

ST-911 series is a thermoset pigment with unique spherical particles. These pigments are developed to virtually eliminate colour migration and are recommended for flexible vinyl, vinyl plastisol, and organisol applications. This product's non-migrational properties makes it well suited for these highly plastisized applications. Because of its thermoset nature, ST-911 series does not cause buildup on calendering or two roll mill equipment and exhibits a low degree of plateout.

FF-611 is a formaldehyde free thermoplastic polyamide base fluorescent pigment with fine particles. Recommended for various water based applications were formaldehyde free and improved light fastness are major criterias.

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

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OFFSET & LETTERPRESS INKS

Introduction

Aron FIB / FPB / ARC / 8000IC series concentrated pastes are specifically formulated for use in offset, lithographic and letterpress inks.

Product Range

FIB / FPB / ARC / 8000IC are fluorescent offset ink concentrates that require modification for use. FIB comprises of 10 strong, clear fluorescent shades and an additional Invisible Blue.

The advanced formulation of our FPB fluorescent ink concentrates / inks provides compatibility with conventional offset, heat-set and UV-cured offset inks. Also provides greater flexibility when formulating finished ink.

Manufacturing

Due to small particle size of our FIB / FPB / ARC / 8000IC they do not require further milling and may be mixed with varnish, waxes and driers using simple blending equipment.

To avoid air entrapment in the ink it is preferable to pass over an open three-roll mill after blending.

Varnish

Rosin modified phenolic resins or isophthalic linseed alkyd resins, certain of the vinyl toluene modified alkyds and Polyurethane letdown vehicles have been found to be suitable, particularly when formulating inks for use on modern high-speed presses.

Driers

Magnesium/cerium, clacium and zirconium driers give good results in inks based on Flamingo concentrates. Excess driers may cause a reduction in the brightness of the Fluorescent colour.

Reducers

Conventional printing ink distillates may be used with the Flamingo FIB / FPB / ARC / 8000IC series. Avoid using any dark-brown colour reducer to keep brilliancy intact.

Formulation

To produce ink from our FIB / FPB / ARC / 8000IC series concentrates it is necessary to add varnish, solvents, waxes and driers.

Press Performance

FIB / FPB / ARC / 8000IC series offer excellent lithographic characteristics combined with fast setting and excellent drying.

The new FIB / FPB series provides superior press stability and lithographic performance, also offering improved gloss and rub resistance.

Characteristics of FIB & FPB Series *

	FIB	FPB
Viscosity (By Laray Viscometer)	40 ± 20 Sec for 500 gram.wt. @ 32°C	40 ± 10 Sec for 500 gram.wt. @ 32°C for Yellow, Magenta & Blue
		80 ± 10 Sec for 500 gram.wt. @ 32°C for Green, Pink, Orange & Red
Pigment Particle	< 6 Microns	< 6 Microns
FlashPoint	> 110°C	> 110°C
Boiling Point	260-290°C	260-290°C
Pigment content	54-56%	48-53%

General Description :

FIB / FPB bases are a unique combination of ultra-fine, high strength fluorescent pigment dispersed in a rheologically controlled vehicle system. This yields maximum color density and excellent printability .

FPB bases : These are pantone shades offering fast setting for Heat-Set & UV Cured Offset inks. FPB bases offers increased chemical and product resistance.

* Typical Values

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SECURITY & UV INKS

Aron offers Invisible pigments & Ink bases, Bi-fluorescent pigments & Ink bases. Flamingo Invisible colorants find many uses in security printing & anti-counterfiet applications such as

Bank Security Papers	Security Passes
Product identification	Lottery Tickets
Signature Verifications	Postal coding
Concert Tickets	Rail Tickets

Due to the security aspect of these applications only guidance can be offered. Flamingo colours should be chosen for their dominant wavelength emission properties and general chemical resistance so as to give characteristics spectral curve which can then be modified by the user with the addition of the following either singly or in combinations.

- Non-fluorescent pigments
- Carbon black
- Opacifiers (Tio2)
- UV absorbers
- Optical brightners

Such modifications to the spectral curve can give a very narrow emission band at a predetermined wavelength known only to the user and the UV light source used as a detector can be chosen to emit at around this wave band. The potential forger or counterfeiter will not be aware visually that the product he is looking at contains a Flamingo fluorescent pigment, due to the masking effects of the other colourants and additives.

Flamingo Invisible Blue ink concentrate is suitable for offset and letter press printing and will fluoresce bright blue under a UV light source over a wide wave band.

All our Invisible colors fluoresce respective colours under UV light source.

Regulatory Information

Flamingo fluorescent IX / IxT / FF / FIB / FPB series complies with European Norms EN-71 part III-2000, for heavy metal contents.

Our IX / IxT / HTPB series are in accordance with ASTM-D 4236 guidelines for Arts & Crafts materials.

Flamingo fluorescent IxT series has INCI references assigned to them, but as these are not included in CTFA positive list, hence they are not automatically approved for use in cosmetics. Therefore, users must test the product and ensure that its suitable and complies with local regulations.

Flamingo IX-AD/ASJ, IxT, FIB & FPB series fully comply and conforms as per EU Directive 2002/95/EC in accordance with RoHS (Restriction of Hazardous Substances).

Custom Colours

When specialized application requires specific pigments or colour requirements Aron welcomes your enquiry. Custom colours are developed based on our know-how and supported by our technical and manufacturing groups. Our custom products are produced and controlled to the quality standards you specify.

Also please contact us for any technical support, related to our product applications.

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