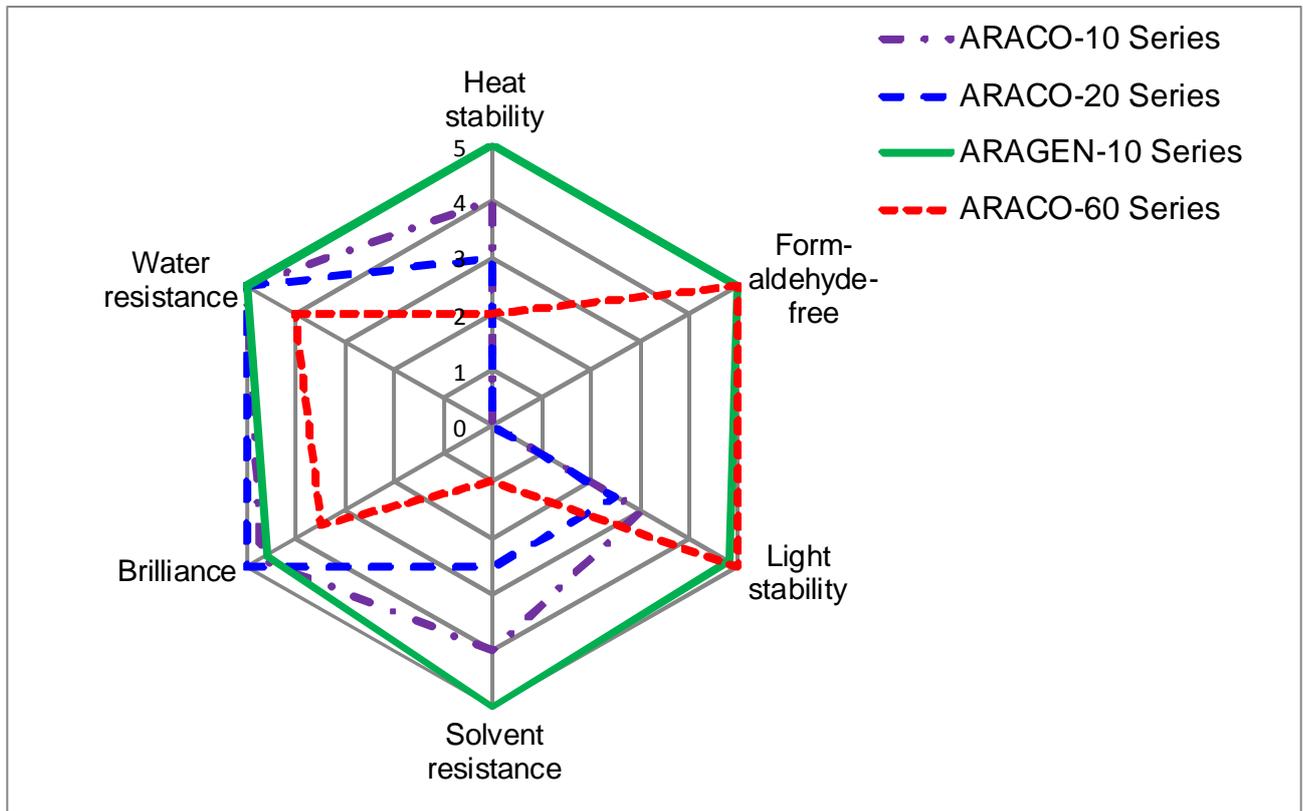


ARAGEN-10 SERIES

Formaldehyde-free Daylight Fluorescent pigments without compromises



ARAGEN-10 Daylight fluorescent pigments excel in all properties compared to formaldehyde containing pigments. Those pigments possess compared to their formaldehyde containing counterparts:

Better Light Fastness

Better Heat Stability

Better solvent resistance

In addition to comparable brightness, reflection and fluorescence.

ARAGEN-10 in short:

- * Formaldehyde-free
- * Very high solvent resistance
- * NON-Melting / Thermoset
- * Decomposition
T > 280 °C.
- * Heat stability: 240 °C / 3 minutes
- * Highest known light stability of fluorescent pigments

Regulatory & Ecotox

- All non-polymeric components are registered in EINECS and TSCA.
- All non-polymeric components are registered respectively preregistered in REACH
- EN71 part 3 conformity (purity requirement). Still tests have to be carried out on the final application.
- Heavy metals free (with exception of the natural values in the ppm range).

Packaging

1 Carton BOX= 20 kg

Any technical information is given on a purely informative basis.

ARALON cannot give any warranty for a particular use.

PAINTS & SPRAY CANS
TEXTILE, GRAVURE & SCREEN INKS
PVC PLASTISOLS & ORAGANISOLS
POM, PU, SBC & CALENDERED PVC
PLASTICS, OLEFINS
NON-STAINING APPLICATIONS
CRAYON PENS, MARKING, NDT
CONTRAST FLUORESCENT POWDER

Technology & Applications

ARALON® ARAGEN-10 is developed as an optimal choice for solvent and water resistance demanding applications. Fluorescent dyes are dissolved & bonded, encapsulated respectively embedded in a hybrid carrier. The chemical respectively physical bond ensure highest possible resistance against migration and staining. The solid solution is milled to optimal particle size. This technology results in ARALON® ARAGEN-10 as excellent **STIR-IN** pigments. The chemical nature of the ARALON® ARAGEN-10 carrier as modified hybrid cured resin and its pigment engineering deliver beside the **high water and solvent resistance** an optimum **balance between color strength and fluorescence / brightness**. The resination ensures best STIR-IN quality, just mixing and homogenizing are sufficient to obtain final application products, no grinding is required, although this does not harm the pigment particles. Further advantages of the chosen pigment engineering are very **good staining performance**, suited formulations of ARAGEN-10 series are easily washed out from hands and fibers. The pigment engineering ensures too high performance in **heat resistance** demanding applications like calendered PVC, blow molding and injection molding. Low migration, improved **light stability** and best Hegman grind cut OFF ensure best performance in PU, Paints and spray cans. ARAGEN-10 is also optimally applied in textile, screen and gravure inks and in crayon pens, Applications in Olefins are possible till 240 °C and optimal at lower processing temperatures.

Storage & Shelf life

ARAGEN-10 series products are stable. Provided they are stored in dry places at ambient temperatures (below 40 °C) the predicted shelf life is 60 months. However depending on the quality of storage conditions, products might be used beyond this shelf life period.

Light Fastness & Heat Stability

Light Fastness

ARAGEN-10 series can partially resist the multiple factors, generally known to influence light fastness and, depending on the shade, values up to maximally 6 on the BWS can be achieved (30% pigment, UV-Top Coat, 150 µm layer thickness, PVC).

Heat Stability

ARAGEN-10 series can withstand temperatures of 240 °C for up to 3 minutes without affecting the perceived shades. Resistance to even higher temperatures is possible but for shorter exposure

Available colors

ARAGEN-100	LEMON	
ARAGEN-101	GREEN	
ARAGEN-103	ORANGE	
ARAGEN-104	ORANGE-RED	
ARAGEN-105	RED	
ARAGEN-106	PINK	
ARAGEN-107	MAGENTA	
ARAGEN-109	BLUE	
ARAGEN-199 UV	BLUE	
<p>The above shades are only indicative; computer screens and conventional printers cannot reproduce true fluorescent shades.</p>		

Physical & Chemical properties

- Resin / Carrier: Cured hybrid resin
- Volatile organic compounds: 0%
- Mineral oils: 0%
- Particle size: D50 = 6 µm
- Grind: > 4,5 Hegman gauge
- Spec. Gravity: 1.4
- Bulking value: 0.4 g/ml

Solvent resistance

The results of the following method are given on the next page: Mix 1 g pigment thoroughly for 10 seconds in 10 ml of solvent to get the complete pigment wetted. Store the mixture for 37 minutes into a water bath at 37°C. The solvent resistance of the pigment is determined by inverting and shaking the glass tube and observing how quick the pigment particles start to flow in the solvent or not. Freely moving not attacked particles is the best (5). Totally attacked gel forming particles is worst (1). Bleeding is determined by diluting the filtrate 50 times and measuring the absorption. The worst bleeding is 1. Minor to non-bleeding is the best (5).

Waterborne formulations

Fluorescent pigments have about 75% of their volume as trapped air. In waterborne formulations of the hydrophobic ARAGEN-10 pigments the trapped air is very slowly replaced by water on the surface of the particles resulting in slowly outgassing of the trapped air in the first days and increasing the pressure of tightly closed containers. Special care should be taken in order to avoid problems. The stability of the pigment particles is not affected by this phenomena.

Action and observation	S: Solvent resistance scale	B: Bleeding Scale
Pigment moves after 1 to 15 shakes. All pigment parts are not attacked	5: Very good	5: Minor to NON-bleeding
The first action above is not sufficient, 1 to 10 extra hard shakes are needed to let all pigment particles move	4: Good	4: Slight bleeding
After the 1 to 10 hard shakes, only a portion of the pigment moves, more than 10%	3: Moderate	3: Moderate bleeding
After the 1 to 10 hard shakes, only a portion of the pigment moves, more than 10% leaving a cone of attacked part	2: Poor	2: High bleeding
After the 1 to 10 hard shakes, the attacked part of the pigment is forming a gummy or sticky mass or the complete pigment is dissolved	1: Very poor	1: Heavy bleeding

		ARAGEN-10	
		S	B
ALIPHATIC HYDRO CARBONS	Mixed hexanes	5	5
	Destillates 35-260°C	5	5
HYDRO CARBONS	Toluene	5	4
	Xylene	5	4
	Destillates 150-250°C	5	4-5
ALCOHOLS & Water	Methyl alcohol	5	3
	Ethyl alcohol	5	3
	Isopropyl alcohol	5	3
	Water or Water / Ethanol	5	3
KETONES	Acetone	5	2
	Methyl ethyl ketone (= MEK)	5	3
	Cyclohexanone	5	3
ESTERS	Ethyl acetate	5	3
	Iso/n-Propyl acetate	5	3
	n-Buthyl acetate	5	3
GLYCOLS & ETHERS	Glycerine	5	4
	Ethylene glycol	5	3
	Diethylene glycol	5	3
CHLORINATED SOLVENTS & PLASTICIZERS	Carbon tetrachloride	5	4-5
	Trichloroethylene	5	3
	Perchloroethylene	5	3
	Di-isononyl-cyclohexan-1,2-dicarboxylate	5	4
	Diisodecyl phthalate	5	4
	Diocetyl adipate	5	4
	Diocetyl sebacate	5	5
	Castor oil	5	5
	Epoxidezed soya oil	5	5

Mixing recommendations

ARAGEN-199 UV BLUE 20 % Pigment Blue 15 dispersion	15 parts 1-3 parts	Fluorescent BLUE	PANTONE 801
ARAGEN-100 LEMON 20 % PIGMENT GREEN 7 dispersion	15 1-3 parts	Fluorescent GREEN	PANTONE 802 / RAL6038
96-98% ARAGEN-100 + 4-2% ARAGEN-103		Fluorescent YELLOW	PANTONE 803 / RAL1026
ARAGEN-103 (depending on the application 5 to 20 % ARAGEN-100)		Fluorescent ORANGE-YELLOW	RAL 2007
ARAGEN-103 / ARAGEN-105, ratio depends on the application		Fluorescent ORANGE	RAL 2005
ARAGEN-103 / ARAGEN-105, ratio depends on the application		Fluorescent ORANGE-RED	RAL 3026
ARAGEN-103 / ARAGEN-105, ratio depends on the application		Fluorescent RED	RAL 3024
ARAGEN-105 / ARAGEN-107, ratio depends on the application		Fluorescent PINK	PANTONE 806
ARAGEN-105 / ARAGEN-107, ratio depends on the application		Fluorescent MAGENTA	PANTONE 807
ARAGEN-199 UV BLUE with all other ARAGEN-10 shades		Less color strength without brightness loss	Conserved brightness
Neighboring ARAGEN-10 shades		Optimal fluorescent intermediate colors	Inter-mediate shades
For more hiding power use ZnS pigment dispersions instead of TiO ₂ pigment dispersions to preserve optimal brightness, especially under UV light.			
ARAGEN-10 at 10-30% of the pigment part in conventional formulations of similar shade		Increase freshness of conventional colors	Fresh shades
2 - 5 % of the pigment part of conventional formulations of similar shades to ARAGEN-10 colors		Higher color strength without noticeable loss of brightness	Stronger shades



The functional color company®

About ARALON:

Today, ARALON – The NEW supplier of daylight fluorescent and functional pigments. Development, manufacturing and marketing of pigments for the paints & coatings (ARACO products), plastics (ARAPLAST), aerosols (ARASOL), and printing inks (ARAPRINT) industries only commenced in 2013 at its greenfield construction in 56412 Heiligenroth, Germany, half-way between Cologne and Frankfurt. ARALON's strengths are apparent in three key areas:

- State-of-the-art encapsulation technology coupled with modern and efficient manufacturing assets and lean operations capable of delivering best-in-class fluorescent pigments at competitive cost.
- Unique fluorescent ARAPLAST-melting pigments permitting coloration of thin olefin based films in single and multilayer packaging.
- Next generation ARAGEN-chemistry enabling unprecedented light stability of formaldehyde-free fluorescent pigments without compromising other performance attributes.

ARALON wants to surprise with best-in-class products, innovations that matter and prices hard to ignore – TRY US!

ARALON, What is behind the name and the logo?

ARALON was created as a name for our company based on the ARA, which is kind of colorful parrot. The wonderful and bright colors of the parrot's feathers are the result of light refraction through nano-sized holes in the natural polymer structure of the parrot feathers. Depending on the hole size and the number of feather layers results in an unlimited number of bright and colorful shades of light, seen by our eyes as being the color of the feathers themselves.

This has, for our company, a relevance of many kinds. Initially the brightness and purity of the parrot's colors is similar, but often less when compared to the brightness and purity of our fluorescent colors. Further, the colors of the feathers were created in completely natural way, which is for our R&D development, an orientation for the future horizons of the company.

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