



SOLUBLE TONERS

Technical Information GF and GFS series

Product description

RADGLO® GF and GFS soluble toners are high strength, transparent fluorescent colorants designed for flexo and gravure applications on flexible packaging papers, films and foils.

GF soluble toners are standard strength, whereas the GFS soluble toners offer higher strength to give increased latitude. Water washable and moisture set letterpress inks can also be made from these toners.

Chemical composition

RADGLO® GF and GFS soluble toners are composed of a solid solution of dyestuffs in a thermoplastic glycol-uril, sulphonamide-paraformaldehyde resin.

RADGLO® fluorescent pigments as such are not classified in the Colour Index (CI), but certain colour components are.



Standard GF colours

- GF-09: UV Blue
- GF-11: Green
- GF-13: Orange
- GF-14: Orange Red
- GF-15: Red
- GF-17: Pink
- GF-18: Magenta
- GF-29: Blue

Standard GFS colours

- GFS-10: Chartreuse
- GFS-18: Magenta

Applications:

Solvent based:

- Gravure
- Flexo inks
- Paints
- Industrial inkjet inks

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- Powder coatings

Physical properties

- Product form: Granular powder
- Particle size: < 150 µm
- Spec. Gravity: 1.38 g/ml
- Bulking value: 0.4 g/ml
- Softening point: 80-95°C (Fisher-Johns app.)
- General solubility: some esters, ketones, glycols, glycol ethers and alcohol/ester. Insoluble in water, aliphatic & aromatic hydrocarbons.

Regulatory and Ecotox information

All components of RADGLO® GF/GFS series are registered in EINECS. All components as well as the polymeric resin of the GF/GFS series are registered in TSCA. RADGLO® GF/GFS series is in conformity with the purity requirements of EN71 part 3.

RADGLO® GF/GFS series is basically free from heavy metals. For detailed information, please consult the individual MSDS.

Lightfastness & Heatstability

Lightfastness

Fluorescent pigments are more fugitive than conventional pigments. They are stable to indoor light or outdoor conditions other than direct sunlight. By exposure to outdoor sunlight the colour will change, whereby the degree of fading is depending on following factors:

- Colour of the pigment
- Pigment loading and thickness of the endproduct. The higher the pigmentloading and thickness, the better the lightfastness.
- Type of binderpolymer
- Intensity and angle of the incident sunlight.

The lightfastness may be improved by including UV-absorber(s) in the formulation and/or by making use of clear overcoats containing UV-absorber(s).

Heatstability

RADGLO® GF/GFS series can be used for short dwell times in applications with processing temperatures up to 180°C without affecting the colouristic properties. The dwell time should be kept constant to avoid hue variations.

Applications & Storage

Applications

GF series are standard soluble toners, whereas GFS soluble toners are used if extra strength is desired or if there is a need to reduce the amount of toner in the system. GF and GFS can be blended to give intermediate shades of colour.

GF-09 UV Blue is used to extend GFS soluble toners ink systems, maintaining their brightness. The product is colourless in normal daylight; it glows vivid blue under UV exposure, making it especially suitable as a tracer.

Typical applications are:

- Solvent based gravure and flexo inks
- Solvent based pen ink formulations
- Powder coatings, but should be individually tested
- Industrial solvent born inkjet inks

Storage

RADGLO® GF/GFS soluble toners remain stable provided they are kept in a dry storage place at temperatures < 50°C.

RADGLO® GF & GFS series are completely soluble in specific solvents.

Processing conditions & specific considerations

RADGLO® GF/GFS soluble toners are transparent and should be printed on white stock or over a white ink to achieve the maximum fluorescent brightness. In flexographic trial press runs, inks made with these toners have been run at speeds up to and exceeding 200 meters/minute.

Thorough testing of their suitability is advised before making large scale commercial runs. Specific guideline formulations are available upon request.

Solubility data

GF/GFS series are meant to be dissolved!

SOLVENT	SOLUBILITY*				
	40%	60%			
	GF(S)	GFS-18	GFS-10	GF-18	GF-13
Acetone	S	S	S	S	S
MEK	S	S	S	S	S
MIBK	S	S	S	S	S
Ethylene glycol	PS	NS	PS	NS	NS
Diethylene glycol	S	S	S	S	S
Propylene glycol	NS	NS	NS	NS	NS
Nitropropane	S	S	S	S	S
Etylacetate	S	S	S	S	S
n-Propyl acetate	NS	NS	NS	NS	NS
Diacetone alcohol	S	S	S	S	S
Glycol ether EM	S	S	S	S	S
Glycol ether DB	S	S	S	S	S
Glycol ether EB	S	S	S	S	S
Ethanol	NS	NS	NS	NS	NS
90% Ethanol + 10% ethylacetate	NS	NS	NS	NS	NS
80% Ethanol + 20% ethylacetate	S	NS	NS	NS	NS
75% Ethanol + 25% ethylacetate	S				
70% Ethanol + 30% ethylacetate	S	NS	S	S	S
Ethylene glycol propyl ether	S	S	S	S	S

S	Soluble
NS	Not Soluble
PS	Partly Soluble

* Filtration may be necessary. The resin used can influence the solubility of the pigment. All shades do not dissolve equally well. Other solvents or solventblends may be used, but their suitability should be thoroughly tested before production.

Resins compatible with GF and GFS

RADGLO® GF/GFS soluble toners are compatible with most resins used in solventbased flexo- and gravure ink formulations, like nitrocellulose(esters), acrylics and polyamides. Thorough testing of their suitability is advised before making large scale commercial runs.

SS Nitrocellulose
RS Nitrocellulose
Ethyl cellulose N-4
Cellulose acetate propionate (CAP-504-02)
Cellulose acetate butyrate (CAB - 553-04)
Krumbhaar Resin K-1717-B
Pentalyn 255
Elvacite 2043
Acryloid B-66
Butvar B-79
VYNC

Available standard colours & package of the GF(S) series:

COLOUR	GF	GFS
Chartreuse		GFS-10
Green	GF-11	—
Orange Yellow	—	—
Orange	GF-13	—
Orange Red	GF-14	—
Red	GF-15	—
Cerise	—	—
Pink	GF-17	—
Magenta	GF-18	GFS-18
Purple	—	—
Blue	GF-29	—
UV Blue	GF-09	—

<p>Similar codes in the different series offer a comparable colour but are not 100% identical. Colour may depend on the specific formulations of the customer.</p>		
Package:	Bags containing:	
1 box = 25 kg	1 x 25 kg	= Minimal order

® = registered trademark

Disclaimer: This technical information is just an advice. No warranty of fitness for a particular purpose is made.



RADIANT COLOR N.V.

Europark 1046 - B-3530 HOUTHALEN

Telephone sales department: + 32 11 52 07 60

Fax: + 32 11 52 66 79

E-mail: sales@radiantcolor.be

Website: www.radiantcolor.be

