Graphic Arts Digital Inkjet Inks

Starting Point Formulations

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Below are cyan, magenta, and yellow inkjet ink formulations for fast cure response using BASF monomers, Laromer® oligomers, and Efka® and Irgastab® additives. This formulation offers good adhesion, chemical properties and abrasion properties. Pigment dispersions were prepared with 20% pigment, 74-80% TPGDA, and 6-10% Efka PX 4731, then milled in a small media mill to attain fine particle sizes (< one micron-meter) for inkjet application.

Raw Material		Cyan	Magenta	Yellow
Laromer LR 8987		4.00	4.00	4.00
Laromer PO 9103		5.00	5.00	5.00
Laromer HDDA		42.90	42.90	42.90
NVC (V-CAP)		20.00	20.00	20.00
Bis-acyl phosphine oxide		2.00	2.00	2.00
α-Amino Ketone		5.00	5.00	5.00
α-Hydroxy Ketone		5.00	5.00	5.00
Irgastab UV 22		1.00	1.00	1.00
Efka SL 3257		0.10	0.10	0.10
Dispersion	Cyan Dispersion in TPGDA	15.00		
	Magenta Dispersion in TPGDA		15.00	
	Yellow Dispersion in TPGDA			15.00
Total		**100.00**	**100.00**	**100.00**
Physical Properties				
Viscosity (CPS), 1667 sec-^{1}		21.4	23.0	22.5
Cure Speed	(Top cure) UV-A, B & C, mJ/cm^2	173	107	107
	(Bottom cure) UV-A, B & C, mJ/cm^2	502	173	367
MEK Rubs	White flexible PVC	90	80	60
	BOPP	54	90	100
	Polycarbonate	100	66	100
X-hatch Adhesion	White flexible PVC	5B	5B	5B
	BOPP	3B	5B	5B
	Polycarbonate	5B	5B	5B

Notes:
UV inkjet inks
- Exhibit good adhesion over plastic substrates, such as polyvinyl chloride (PVC) and biaxially oriented polypropylene (BOPP)
- Provide good reactivity and performance properties over plastic substrates
- Cure at ≤ 500 mJ/cm^2 with a 300 Watts / in D bulb at a film thickness of 9 – 12 µ
- Display similar viscosities (< 25 cps spread) at 25°C

Important

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