

CYTEC

**Low viscosity dispersing resins
EBECRYL 3203
& EBECRYL 452**



**Cytec Surface Specialties
New dispersing resins**

- **EBECRYL 3203™** is designed specifically for **black pigment concentrates** and **Inorganic pigments or fillers**.
 - Appearance Eb 3203™ is amber resins which has a viscosity of about 1000mPa.s at 25°C
- **EBECRYL 452™** is designed for **organic pigments**.
 - Appearance Eb 452 is a darker amber resins which has a viscosity of about 600mPa.s at 25°C

	Yellow	Magenta	Cyan	Black
Resin	58.5	54	58.6	54
Additol S 120	1	1	1	1
Solsperse 22000	1.5			
Solsperse 5000			0.9	
Solsperse 39000	4		4.5	5
Solsperse 32000		5		
SB 250				40
Pigment GLO			35	
Pigment 4 BY		40		
Pigment Yellow DGR	35			

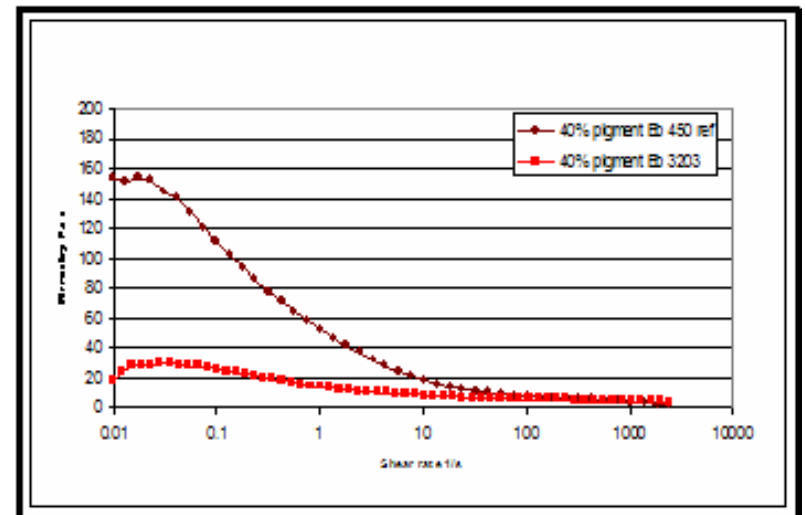
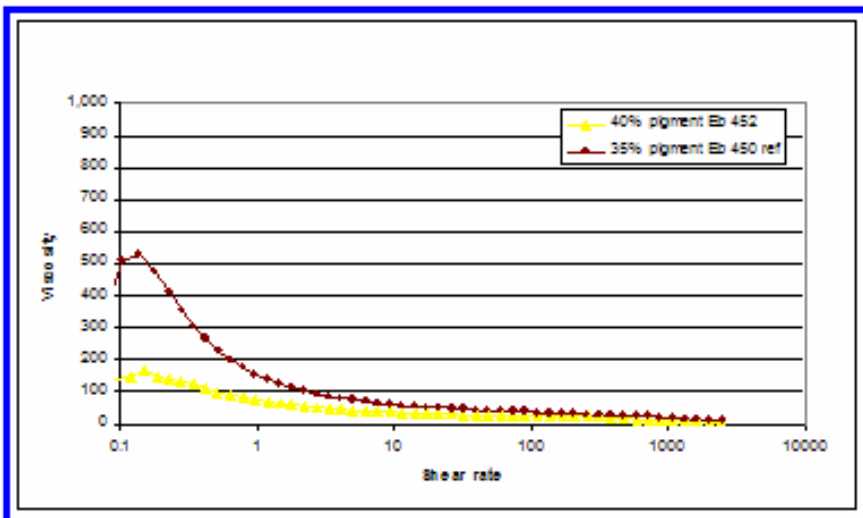
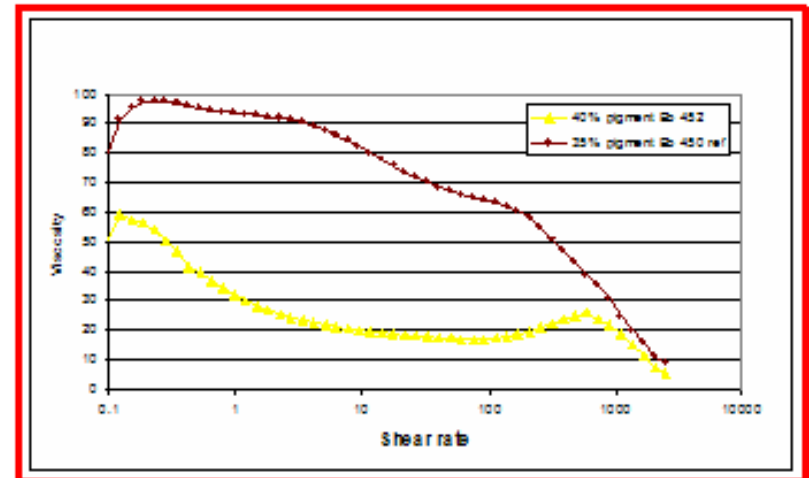
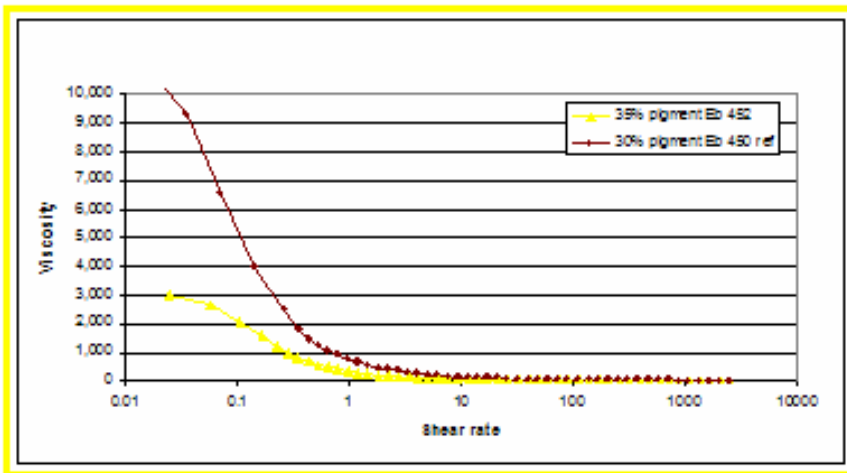


Eb 452 is particularly well suited for Magenta where we could use up to 50% pigment in the concentrate

	Yellow	Magenta	Cyan	Black
Resin	52.7	49.5	47.3	48.5
Additol S 120	1	1	1	1
Solsperse 22000	1.7			
Solsperse 5000			1	
Solsperse 39000	4.6		5.6	5.5
Solsperse 32000		4.5		
SB 250				45
Pigment GLO			45	
Pigment 4 BY		45		
Pigment Yellow DGR	40			



Pigment concentrates up to 45% are possible using standard triple roll mill and up to 40% for Yellow pigments are making this resin a unique material on the market



- All **yellow** inks were diluted to **14%** pigment in EBECRYL™ 160.
- All **magenta** and **cyan** inks were diluted to **16%** pigment in EBECRYL™ 160.
- All **black** inks were diluted to **18%** pigment in EBECRYL™ 40.

The PI system used was

- EPD 5%
- PBZ 3%

Ink Formulations for testing

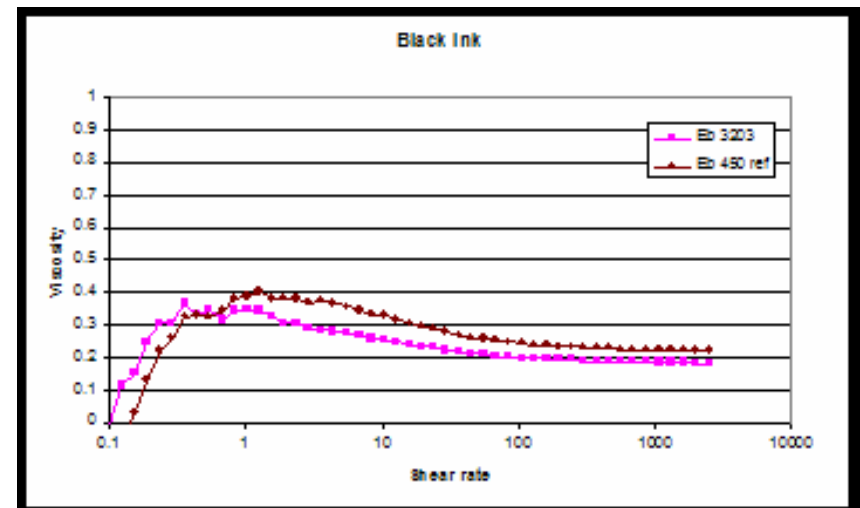
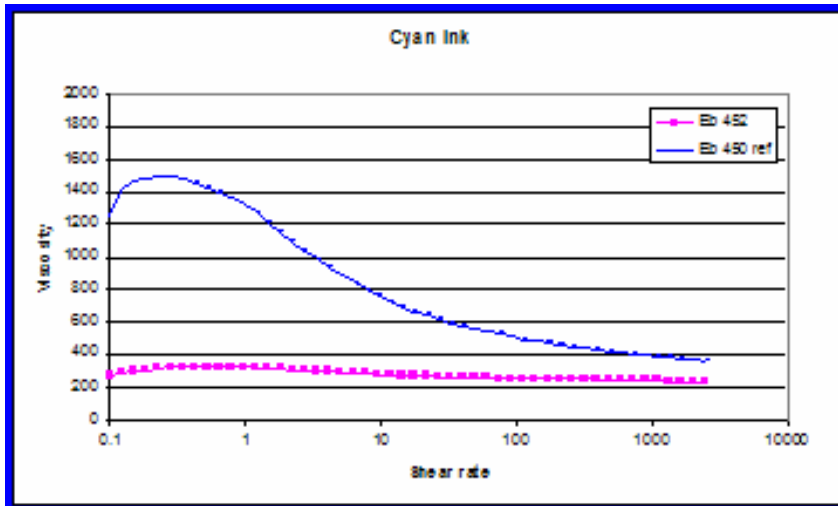
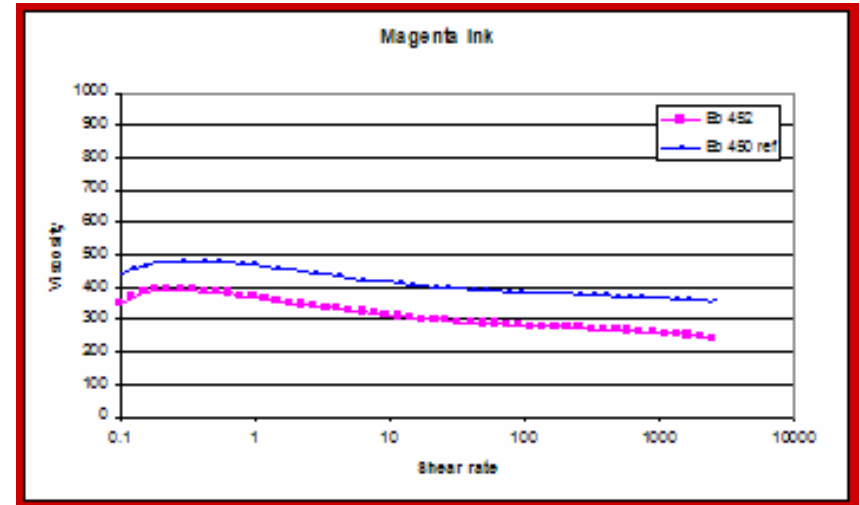
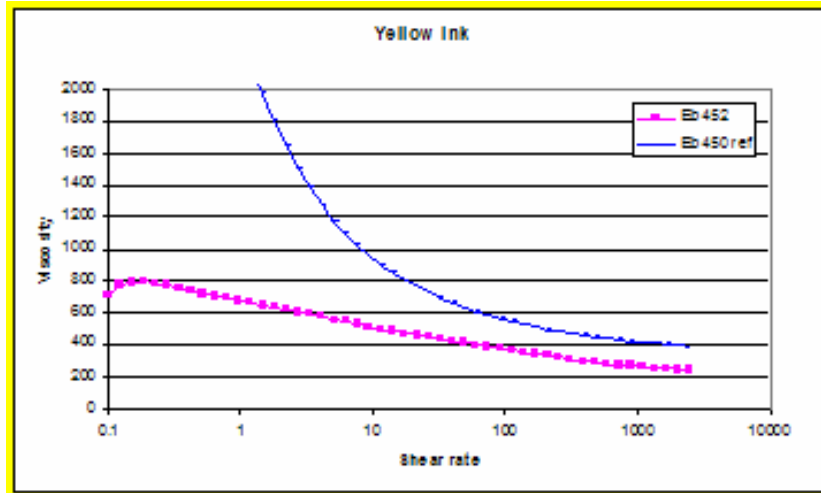
The table shows how the amount pigment concentrate (PC) required in the ink formulation reduces as the pigment loading in the pigment concentrate increases.

Yellow ink	30% PC*	35% PC*	40% PC*	45% PC*
PC*	47	40	35	31
EBECRYL™ 160	45	52	57	61
PBZ	3	3	3	3
EPD	5	5	5	5
% Pigment	14	14	14	14
kg ink / kg PC*	2.12	2.50	2.86	3.23

* PC = Pigment concentrate

Yellow ink	30% Ebecryl 450	40% Ebecryl 452
Pigment	14	14
Grinding resin	30	18.5
Additives	2.2	2.2
EBECRYL™ 160	45.8	37.3
Resin	-	20
PI	8	8
Total	100	100

Less of a lower viscosity grinding resin in the final ink formulation allows **greater flexibility** in formulating



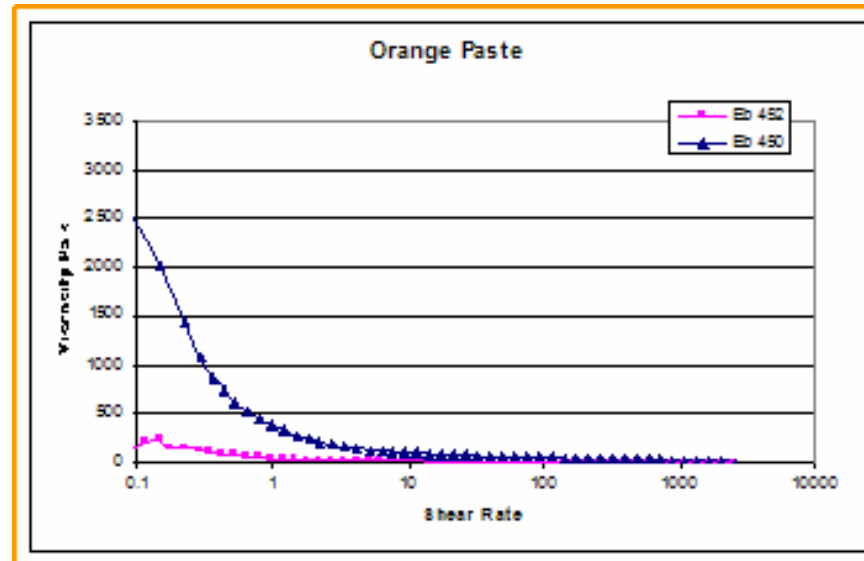
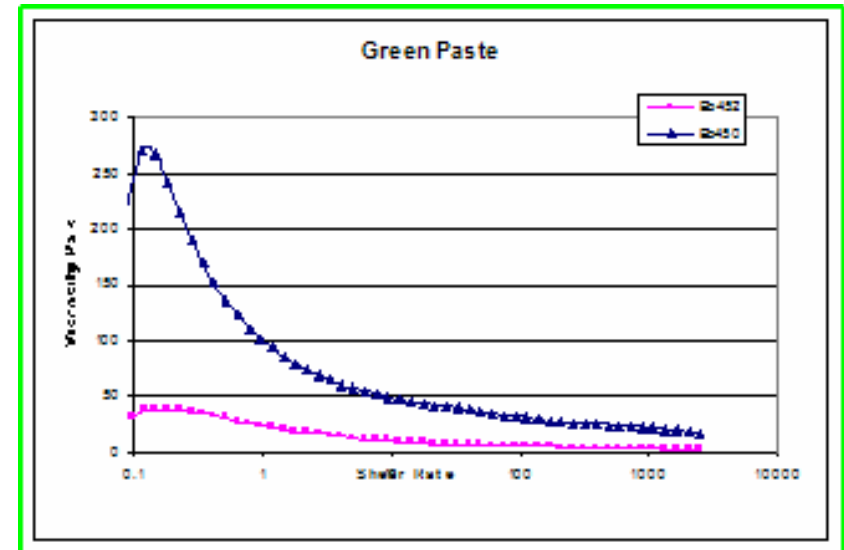
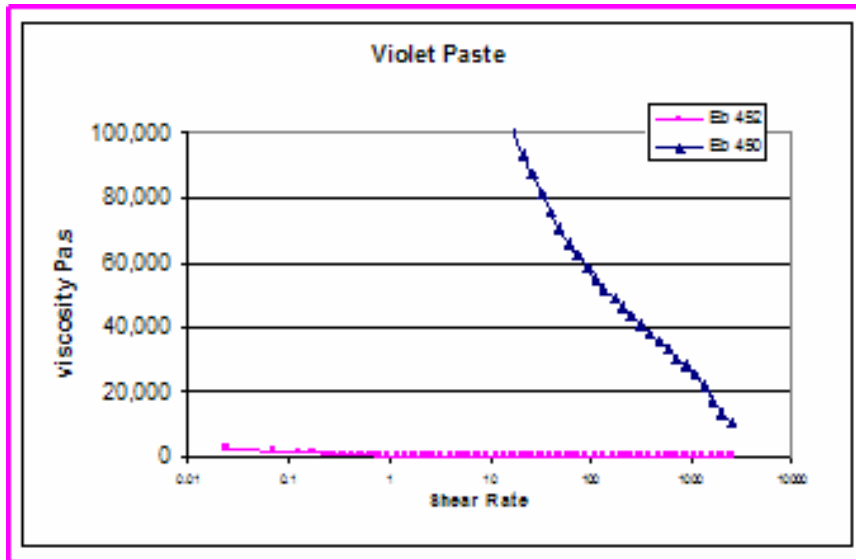
	PP		Ink							dilution	
	Min Pa s	SI	plastic					paper		plastic	
			Min mPa. s	SI	Cure Speed Passes	OD	Visual clarity	OD	Gloss 60°	OD	visual
Yellow											
EB 450	3	445	200	5	X3	1.48	0	1.49	57	0.80	0
EB 452	6	93	240	3	X3	1.38	0	1.45	55	0.81	0
Magenta											
EB 450	1	162	220	2.9	X2	1.35	0	1.42	62	0.76	0
EB 452	6	7	245	1.6	X2	1.40	0	1.43	63	0.71	+
Cyan											
EB 450	3	67	205	4.2	X2	1.95	0	1.77	55	1.15	0
EB 452	4	25	230	1.4	X2	1.91	0	1.78	61	1.20	+
Black											
Eb 450	3	81	220	1.5	X4	2.1	0	1.9	52	1.4	0
Eb 3203	3	5	180	1.5	x4	2.1	0	1.9	53	1.4	0

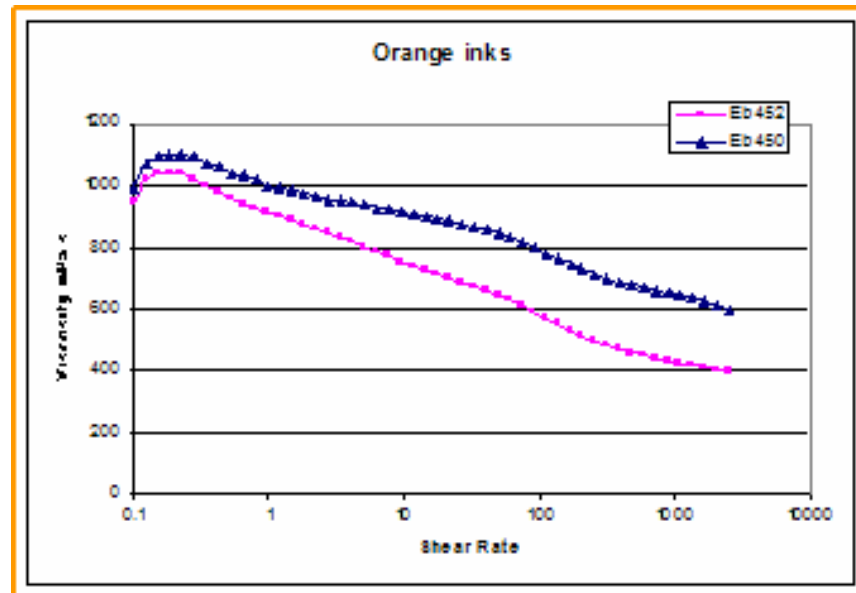
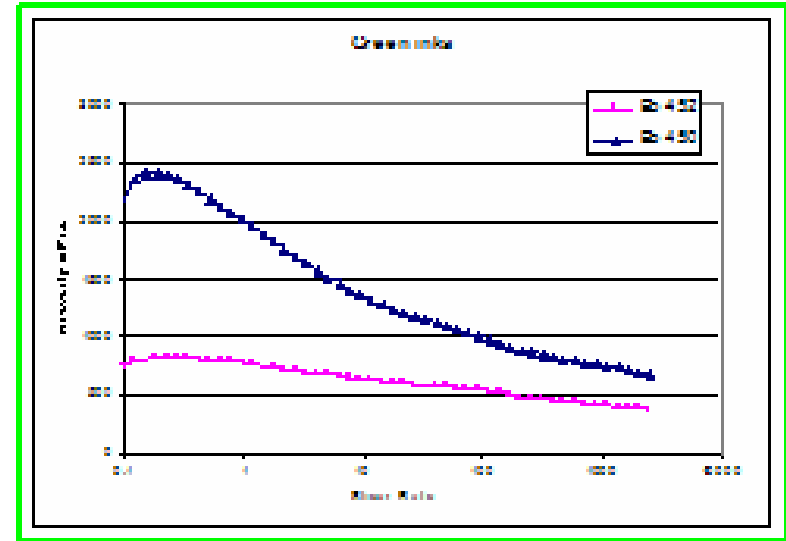
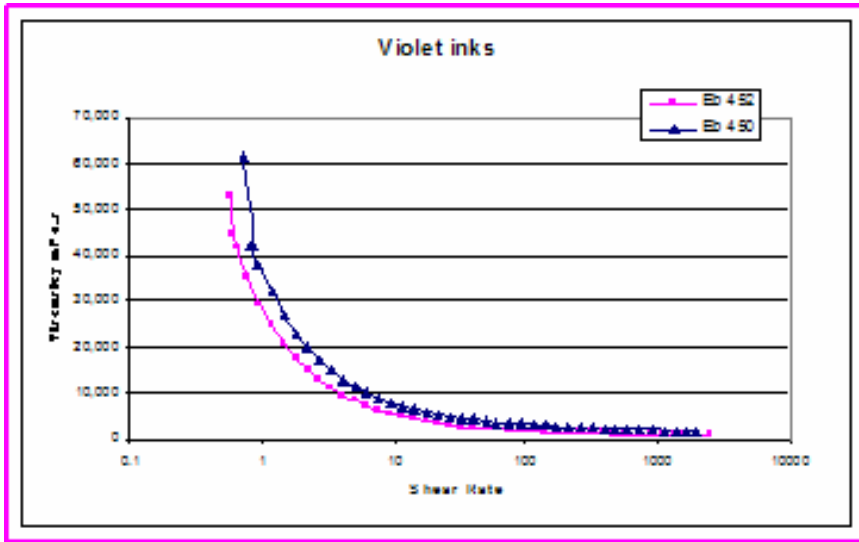


Pigment pastes and final Inks are showing better rheological behavior compared to best actual standards

- Eb 452 is very good for grinding of pigments which have poor pigment wetting properties with UV resins.
- Examples are:
- Orange PO 13
- Violet PV 23
- Green PG 7

	Orange	Violet	Green
EBECRYL 452	56.6	62.5	57.5
EBERCYL 450	56.6	62.5	57.5
S39000	2.5	3.5	3.5
S22000 (30% paste)	4.9	-	-
S5000 (30% paste)	-	3	3
S120	1	1	1
PO 13	35	-	-
PV 23	-	30	-
PG 7	-	-	35





	PP		Ink							dilution	
			plastic							plastic	
	Min Pa s	SI	Min mPa. s	SI	Cure Speed Passes	OD	Visual clarity	OD	Gloss 60°	OD	visual
Violet											
EB 450	16.6	633	1590	1427	X5	1.73	0	1.73	59	0.50	0
EB 452	2.4	976	683	2327	x6	1.63	0	1.63	60	0.54	0
Green											
EB 450	9.2	16	678	3.5	X6	1.12	0	1.12	94	0.34	0
EB 452	2.4	5	376	2.2	x6	1.22	0	1.22	104	0.37	0
Orange											
EB 450	10.6	316	596	1.8	x6	1.40	0	1.40	93	0.42	0
EB 452	3.5	93	398	2.6	x6	1.51	0	1.51	92	0.46	0

- **Production cost lower per kg of ink.**
- **Formulating flexibility improved.**
- **No or lower use of diluting resins.**
- **Increased flexibility in logistics.**
- **Higher pigment concentrates leading to time saving or increased productivity**
 - **Time saving in pigment grinding as 1kg of pigment will produce more ink.**
 - **5% to 10% increase in pigment loading increases productivity by an average of 15% to 30%.**

- These two new resins allow:
 - Grinding of pigment concentrates using a bead mill.
 - Grinding of high concentration pigment pastes using a triple roll mill.
 - Pigment Wetting and dispersion properties are better than those of Standard resins.
 - Production of high loading pigment concentrates gives more options in ink formulating.
 - Less pigment concentrate is required in the ink.
- OR
- Inks with higher optical densities can be produced using existing formulations.