

# True Colors?

While many heavy metals such as cadmium, mercury, and lead have been eliminated from lithographic printing inks, current ink technology still relies heavily on pigment bases whose environmental impact is potentially harmful.

Pigments of concern that are now in wide commercial use are Barium-based Red Lake C; Copper-phthalocyanine blue; and Copper-phthalocyanine green. These formulations are considered to be in compliance with current federal environmental regulations which test for leachability only. However, federal limits do not take into account the greater problem of bioavailability of these substances once the inks are incinerated as solid waste, disposed of as hazardous printers' waste, or handled as sludge from deinking plants.

In particular, the colors shown on this chart have the possibility of exceeding recommended threshold levels of copper and/or barium in their most common formulations. The percentages shown indicate concentrations in parts per million.

- C** Copper
- B** Barium

Additional ink colors that should be avoided include all metallics, (which are 60-70% pigment and contain aluminum and zinc which are acutely toxic to marine life when incinerated particles concentrate in the water), and fluorescents, especially the greens, oranges and opaque yellows used in flexographic inks, which may contain molybdenum orange (which derives about 60% of its weight from lead or chromium).

This chart can be a guide to avoiding specification of these colors or for lobbying ink manufacturers for more research and design of non-toxic pigment bases which would greatly reduce the toxicity of waste ink and deinking sludge.

Attach actual PMS chips to this chart for your use as a reference.

	2% B	4% B	5% B	7% B	12% B	14% B	18% B	21% B
PMS #	123	137	1375	151	1585	165	1655	172
	Warm Red	1788	185	192	213	259	2735	286
	28% B	25% B	21% B	18% B	7% B	4% C	7% C	12% C

	12% C	13% C	15% C	15% C	16% C	16% C	13% C	17% C
PMS #	293	300	3005	Process Blue	313	3135	320	327
	3272	3275	3278	Green	340	3405	347	354
	17% C	12% C	18% C	11% C	17% C	9% C	15% C	5% C

	4% C	5% C	1% C	5% C	11% C-11% B	13% C-7% B	4% C	2% B
PMS #	361	368	389	419	438	445	450	457
	464	4625	471	492	499	4975	506	513
	2% C	9% B	11% B	3% C-23%	7% C-18%	2% C-17% B	23% B	5% C

	2% C	7% C	13% B	5% C	3% C	3% C	11% C	12% C-1% B
PMS #	5115	520	5185	527	5255	534	5463	5535
	562	569	5747	All colors on Page 73 C	All colors on Page 74 C			
	16% C-3% B	17% C-2% B	3% C	Fluorescents	Metallics			