REPLACEMENT OF LEAD CONTAINING PIGMENTS

1. Hansa Yellows have a hue range similar to that of Chrome Yellows. They are used to provide lead-free coatings with a clean hue, good lightfastness, and very good alkali resistance. They are deficient in bleeding and heat resistance. They are less opaque, and have about five times the tint strength as Chrome Yellows of comparable hue. Also Hansa Yellows have a tendency to induce puffiness or lack of flow.

2. Diarylide Yellows possess high tinting strength and good alkali, bleed, and heat resistance. As compared with Hansa Yellows, they are poorer in lightfastness, about twice as strong, and considerably better in resistance to bleeding and heat. Also they lack the excellent working properties of Chrome Yellows.

3. Nippon Orange Toner possesses very good alkali resistance and lightfastness, but is not generally considered good enough in tint lightfastness for outside use. It bleeds in most paint solvents.

4. Toluidine Reds are excellent in masstone brilliancy and lightfastness, and are very good in hiding and alkali resistance. Weak points include: lack of tint cleanliness, insufficient tint lightfastness for outside use, and bleeding in paint solvents. Also, baked coatings pigmented with toluidine sometimes bronze, due to migration of dry pigment to the surface.

5. American Hoechst's Azoic Dyestuffs are more permanent than other organic pigments within the same hue range, but are more expensive. They also possess good baking resistance, and are practically non-bleeding. When better quality is required, regardless of cost, these organic pigments are the answer.

SUGGESTED REPLACEMENTS	L-304 Imperial X-2846		L-301 Imperial X-1351	Imperial X-2476	L-305 Imperial X-1956
1. Lightfastness					
Full Strength-Exterior	Excellent	Excellent	Excellent	Good	Excellent
Fadeometer	Excellent	Excellent	Excellent	Very Good	Excellent
Tints - Exterior	-	-	-	-	-
Fadeometer	Very Good	Very Good	Good	Good	Good
2. Exterior Film Durability	Excellent	Excellent	Excellent	Very Good	Excellent
3. Alkali Resistance	Very Good	Very Good	Very Good	Very Good	Very Good
4. Resistance to Bleed In					
Lacquer	Poor	Poor	Poor	Excellent	Poor
Enamel	Fair	Fair	Fair	Excellent	Fair
Water	Excellent	Excellent	Excellent	Excellent	Excellent
Ethyl Alcohol	Poor	Poor	Poor	Excellent	Poor
MEK	Poor	Poor	Poor	Very Good	Poor
Ethyl Acetate	Poor	Poor	Poor	Excellent	Poor
Xylene	Poor	Poor	Poor	Good	Poor
Mineral Spirits	Poor	Poor	Poor	Excellent	Poor
5. Change on Baking					
30 min. at 250°F	-	-	-	None	--
15 min. at 300°F	-	-	-	None	--
10 min. at 350°F	-	-	-	None	--
6. Opacity	Fair	Good	Good	Excellent	Good
7. Ease of Dispersion	Excellent	Excellent	Excellent	Excellent	Excellent
8. Type of Color	Hansa GX	Hansa 10G	Hansa G	Diarylide AADT	Hansa R
9. Cost	258.00				
10. Color Substituted For	Chrome Green Lt.Chrome Yellow	Primrose Yellow	Lt.Chrome Yellow	Chrome Yellow	Med.Chrome Yellow

SUGGESTED REPLACEMENTS	L-356 Hoeshst 11-1410	L-357 Hoechst 12-1010	R-640 Hoechst 13-3050	R-641 Hoechst 13-3060	R-752 Hoechst 12-5000
1. Lightfastness					
Full Strength-Exterior	Very Good	Very Good	Excellent	Very Good	Excellent
Fadeometer	Very Good	Very Good	Excellent	Very Good	Excellent
Tints - Exterior	Very Good	Very Good	Good	Good	Good
Fadeometer	Very Good	Very Good	Good	Good	Good
2. Exterior Film Durability	Very Good (Somewhat Darker)	Very Good (Somewhat Redder)	Very Good (Bluer)	Excellent	Very Good (Trace Redder)
3. Alkali Resistance	Good	Good	Good	Good	Good
4. Resistance to Bleed In					
Lacquer	Excellent	Very Good	Very Good	Excellent	Good
Enamel	Excellent	Very Good	Very Good	Excellent	Good-Fair
Water	Excellent	Excellent	Excellent	Excellent	Excellent
Ethyl Alcohal	Excellent	Very Good	Good	Very Good	Very Good
MEK	Very Good	Good	Good	Good	Good
Ethyl Acetate	Very Good	Very Good	Good	Very Good	Good
Xylene	Very Good	Good	Good	Good	Good
Mineral Spirits	Excellent	Very Good	Good	Very Good	Very Good
5. Change in Baking					
30 Min @ 250° F.	none	none	none	none	none
15 Min @ 300° F.	none	none	none	none	none
10 Min @ 350° F.	none	none	none	none	none
6. Opacity	-	-	-	-	-
7. Ease of Dispersion	-	-	-	-	-
8. Type of Color	Permanent Yellow HR	Permanent Orange RL	Permanent Red FGR	Permanent Red F5RK	Permanent Red GG
9. Cost					
10. Color Substituted For	Chrome Yellow	Moly Orange	Moly Orange	Moly Orange	Moly Orange

R-711 Paper Red

SUGGESTED REPLACEMENTS

	R-735 Imperial X-881	R-710 Am-Cyanamid 20-3050	Kentucky Color No.2915	L-364 IMPERIAL SAHARA YELLOW X2864
1. Lightfastness				
Full Strength-Exterior	VeryGood	Excellent	Very Good	VERY GOOD
Fadeometer	Excellent	Excellent	Very Good	EXCELLENT
Tints - Exterior	-	Fair	-	VERY GOOD
Fadeometer	Excellent	Fiar	Good	
2. Exterior Film Durability	Excellent	Excellent	Good	VERY GOOD
3. Alkali Resistance	Very Good	Good	Good	VERY GOOD
4. Resistance to Bleed In				
Lacquer	Poor	Poor	Very Good	EXCELLENT
Enamel	Fair	Fair	Very Good	"
Water	Excellent	Excellent	Excellent	"
Ethyl Acetate	Poor	Poor	Very Good	FAIR
Ethyl Alcohol	Poor	Poor	Very Good	FAIR
Xylene	Poor	Poor	Very Good	EXCELLENT
Mineral Spirits	Fair	Poor	Excellent	
MEK	Poor	Poor	Very Good	
5. Change on Baking				
30 Min at 250°F.	None	None	None	NONE
15 Min at 300°F.	None	None	Sl.Duller	"
10 Min at 350°F	Slight	None	Mod.Duller	"
6. Opacity	Very Good	Very Good		GOOD
7. Ease of Dispersion	Excellent	Excellent	Excellent	EXCELLENT
8. Type of Color	Dinitroaniline	Pine Toluidine Toner	Dianeil Orange Toner	DIARYLIDE
9. Cost	195.00			
10. Color Substituted For	Moly Orange	Moly Orange	Moly Orange	MED YELLOW