

NAPHTHOL REDS

The Naphthol Reds are azo pigments derived from the arylide group of intermediates. They are used in all types of finishes: flat wall, semi-gloss or full gloss, oleoresinous or alkyd, enamel or latex emulsion. Their good light resistance in full shade and fair light resistance in tint, plus their clean, bright shades make them especially suitable for formulating these modern finishes.

Their excellent alkali resistance makes them outstanding for use in wall finishes which may be applied over "hot plaster" or other alkaline surfaces. These pigments are high in tinting strength but their opacity is not too great; therefore, they should be used with other pigments such as whites or iron oxides.

The excellent alkali resistance of the Naphthol Reds makes them useful in floor coverings, plastics and rubber. Some application of these colors are made in plastics; however, most of them are unsatisfactory for plasticized compositions because of their excessive crocking. The lightfast Naphthol Red 87 C 40 shows less crocking than the other types.

<u>Principal Standards</u>			<u>Special Standards</u>		
<u>S-W Code</u> <u>No.</u>	<u>PC&C</u> <u>Code No.</u>	<u>Description</u>	<u>S-W Code</u> <u>No.</u>	<u>PC&C</u> <u>Code No.</u>	<u>Description</u>
87 C 55	10454	Light shade. Slightly lighter and yellower than 8750, especially in masstone. Excellent resistance to light in full shades and quite good in tints--slightly better than 8750. See Technical Bulletin C-46.	87 C 64	10456	Deep shade. Lightfastness in tints poorer than 87 C 55 and 87 C 63. Use 10459 instead. See Technical Bulletin C-46.
8750	10397	Light shade. Slightly deeper than 87 C 55. Recommended for durable enamels and lacquers.	(87 C 18)	D-2907	Regular water pulp of 8750. 20% solids.
87 C 63	10455	Medium shade. High strength. Stronger and deeper than 87 C 55 and has slightly bluer tint. Excellent resistance to light in full shades, good in tints. See Technical Bulletin C-46.	--	10483	Stir-in pulp of 8750. Light. Non-ionic surfactant. Recommended for all types of emulsions. 20% solids.
--	10459	Deep shade. Considerably bluer and deeper than 87 C 63. Excellent resistance to light in full shade, but only fair in tints. Brighter shade and stronger tint than 87 C 64.			
87 C 40	10460	Lightfast. Deep shade. Commonly known as ITR Red. Good strength with a clean, bright shade. Has excellent light resistance in full shade and very good in tints, outstanding resistance to Clorox. Greatly improved lightfastness over 10459. Used in high quality lightfast lacquers and enamels and dual tinting systems. See Technical Bulletin C-47.			

PLASTICONE REDS AND MAROONS

(Pyrazolone Reds)

The Plasticones are azo pigments based on substituted pyrazolone intermediates. They are non-bleeding and have bright shades with very good light resistance in full shade and superior heat resistance.

Plasticone Red Light 10465 is ideal for use in paints, lacquers, and enamels because of its bright shade, good opacity, excellent heat resistance, and relatively good light resistance in full shade. It is well suited for the newer type enamels where high bake characteristics are required.

The medium shade Plasticone Red, 10464, has somewhat lower opacity and thus is of less interest. Plasticone Red Deep 10457 is too transparent for most protective coatings.

For lighter shade reds, combinations of Lightfast Molybdate Orange Deep 80 C 72 and Plasticone Red Light 10465 have excellent characteristics. They have excellent heat resistance--better than Toluidine Red, Rubanox Red or Permachrom Red. They are non-bleeding, have good light resistance in full shade and good gloss.

For the darker shades, the combination of Plasticone Red Light 10465 and Plasticone Maroon 10458 is recommended as it gives better opacity than either the medium shade, 10464, or the deep shade, 10457.

The Plasticone Reds are described in Technical Bulletin C-71 and Color Pigment News Letter L-31.

<u>S-W Code</u> <u>No.</u>	<u>PC&C</u> <u>Code No.</u>	<u>Description</u>
--	10465	Light shade. Bright, light shade with a bluish-red tint. Slightly deeper than Toluidine Red Light. Very opaque.
--	10464	Medium shade. Medium in shade and tint. Has moderate strength and medium opacity.
--	10457	Deep shade. Has a deep shade with a yellowish-red tint. About the same depth as Naphthol Red Deep. Moderately transparent and very strong.
--	10458	Maroon shade. Good opacity. Very deep shade.

TOLUIDINE MAROONS

Toluidine Maroons are azo pigments derived from the arylide group of intermediates. They have excellent resistance to light in full shades and fair resistance in tints. Resistance to heat, alkali and acid is good. The Toluidine Maroons bleed slightly in nitrocellulose lacquers and synthetic enamels.

<u>S-W Code</u> <u>No.</u>	<u>PC&C</u> <u>Code No.</u>	<u>Description</u>
8755	10396	Light shade. Light masstone, strong blue tint. Considerably deeper in shade than Toluidine Red Extra Deep 86 C 43. Recommended for high quality lightfast lacquers and enamels.
8756	10393	Dark shade. Darker in shade and yellower in tint than 8755. Recommended for high quality lightfast lacquers and enamels.
87 C 10	--	Intermix for 8756.
87 C 11	--	Intermix for 8755.

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B-O-N REDS

B-O-N Reds are mono-azo couplings of various organic amines with 2-hydroxy-3-naphthoic acid, precipitated by metals. They have good light resistance, durability and are non-bleeding. They disperse well on a roller mill. The six types of B-O-N Reds are: Permachrom Reds, Dearborn Reds (mixture with Permansa Red), Rubanox Reds, Solfast Reds, Brilliant Toning Reds and Polaris Red.

PERMACHROM REDS AND MAROONS

The Permachrom Reds and Maroons are the manganese salts of various amines coupled to 2-hydroxy-3-naphthoic acid. The Permachrom Reds are recommended for all types of exterior enamels and lacquers. They are non-bleeding and have very good exterior durability. They are described in Technical Bulletin C-32.

The Permachrom Reds are widely used with Molybdate Orange to produce non-bleeding reds of a lighter shade. Such combinations are relatively inexpensive. For the lowest cost pigment combination with good durability, use 87 C 22 plus Molybdate Orange. For the best durability at a slightly higher cost, use 87 C 21.

<u>S-W Code</u> <u>No.</u>	<u>PC&C</u> <u>Code No.</u>	<u>Description</u>
87 C 21	CP-1083	Medium shade. Has good hiding power. Best lightfastness and heat stability of the Permachroms. Blends of 87 C 21 with Molybdate Orange 8041 produce non-bleeding reds close in shade and durability to Toluidine Reds.
87 C 22	CP-1086	Dark shade. Bright red similar to Rubanox Red. Transparent. Blended with Molybdate Orange 8041, it produces non-bleeding red similar in shade to Toluidine Red. Exterior durability of these blends is good, being considerably better than similar blends using Rubanox Red, but definitely not as good as 87 C 21 and 8041 blends.
8716	CP-779	Deep, blue shade Maroon. Very good lightfastness. Non-bleeding, high tinting strength.
8718	CP-429	Maroon shade. A 50% reduced toner of 8716 on blanc fixe. Not recommended. Use 8716.

DEARBORN REDS

The Dearborn Reds are mixtures of Permachrom Red 87 C 22 and Permansa Red, thus they are organic red toners of the bleeding type. They are of importance because they give clean, bright shades comparable to the Toluidine Reds and they have durability close to that of the Toluidines at some saving in cost. They are also known as "Duratone Reds."

The Dearborn Reds are the cheapest pigments that can be used in the Toluidine Red shade range which have a bright clean shade and good durability. For that reason they are expected to find many uses in enamels and lacquers for trucks, tractors, farm implements, toys, gasoline pumps, signs, etc., where the lower cost is more important than the very slight deficiency in durability versus Toluidine.

The only disadvantage of these colors is the fact that, like Toluidine and Permansa Reds, they do bleed in lacquers and synthetics.

Potential customers should be cautioned to evaluate the Dearborn Reds only by means of outdoor exposures, not by accelerated tests. In accelerated tests the Dearborn Reds darken considerably, which is definitely not true for outdoor exposures. In outdoor tests the Dearborn Reds approach the durability of Toluidine Reds.

<u>S-W Code</u> <u>No.</u>	<u>PC&C</u> <u>Code No.</u>	<u>Description</u>
87 C 25	10452	Light shade. Slightly lighter and slightly poorer lightfastness than Toluidine Reds 86 C 22 or 8651. Same strength, slightly better gloss and as clean as the Toluidine Reds. See Technical Bulletin C-32.
87 C 26	10453	Deep shade. Somewhat deeper than 87 C 25 and Toluidine Red Light 86 C 22 but somewhat lighter than Toluidine Red Dark 86 C 28. Same strength, slightly better gloss and as clean as the Toluidine Reds. Meets Federal Spec. TT-E-489b. See Technical Bulletin C-32.
--	10467	Extra Deep shade.

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RUBANOX REDS

Rubanox Reds, chemically Lithol Rubines, are calcium salts of diazotized 4-aminotoluene-3-sulfonic acid coupled to 2-hydroxy-3-naphthoic acid. They are bright, blue shade reds of medium to dark masstone. They are made in two principal forms: A non-resinated medium shade and a resinated darker shade which is considerably brighter and slightly cheaper. The non-resinated type is a trifle better in light resistance than the resinated.

Rubanox Reds are used in coatings because they are inexpensive, non-bleeding, bake well (for 4 hours at 320°F.). They have the unusual property of blending with light reds without the dulling of shade which occurs to a slight extent when the Permchrom Reds are used with Molybdate Orange. The combination of Rubanox Reds and Molybdate Orange does not have good light resistance.

Principal Standards

S-W Code No.	PC&C Code No.	Description
87 C 68	CP-543	Non-resinated. Light masstone, good covering, not as bright as CP-762. Considerably lighter masstone and appreciably bluer undertone, 10% stronger than 8727.
--	CP-762	Resinated. Dark bright masstone, fairly good hiding, high tinting strength.

Special Standards

S-W Code No.	PC&C Code No.	Description
8727	CP-368	Resinated. Similar to CP-762 but 15% weaker. Use CP-762.

SOLFAST REDS

Solfast Reds are calcium salts of diazotized 2-chlor-5-aminotoluene-4-sulfonic acid coupled to 2-hydroxy-3-naphthoic acid. They are bright, blue shade reds similar to the Rubanox Reds in shade and other physical properties and have similar applications.

The Solfast Reds have good resistance to light in full shade, fair in tints. They do not bleed in oil, water, alcohol, paraffin, and do not bleed through enamel or lacquer. Their resistance to acid and alkali is good. Baking is satisfactory for 4 hours at 320°F.

S-W Code No.	PC&C Code No.	Description
--	CP-967	Medium shade. Non-resinated. Considerably lighter and yellower than 8700.
8700	CP-787	Deep shade. Resinated. Similar in shade to Rubanox Red CP-762.
--	CP-1257	Resinated. Similar to 8700 but 25% stronger. Definitely the strongest B-O-N Red available. See Technical Bulletin C-54.
--	CP-1296	Non-resinated. Slightly bluer masstone, same opacity and about 15% stronger than CP-967. Has high strength of CP-1257. See Technical Bulletin C-64.

BRILLIANT TONING REDS

The Brilliant Toning Reds, also called Watchung Reds or Permanent 2B Reds, are barium and calcium salts of diazotized 2-chlor-4-aminotoluene-5-sulfonic acid coupled to 2-hydroxy-3-naphthoic acid.

The Brilliant Toning Reds are outstanding among the B-O-N Reds because of their excellent bleed resistances and heat stability in which properties they are better than Rubanox and Solfast Reds. They are the brightest of B-O-N Reds and their lightfastness is good--satisfactory for interior house paints.

Principal Standards

<u>S-W Code</u> <u>No.</u>	<u>PC&C</u> <u>Code No.</u>	<u>Description</u>
--	CP-1205	Barium salt. Bright, strong, yellow shade red. Fairly good lightfastness. Has as good heat stability and bleed resistance as 87 C 36. See Technical Bulletin C-41.
87 C 36	CP-1206	Calcium salt. Medium shade red having light, bright masstone, good strength. Good lightfastness. Very good heat stability and bleed resistances. Best standard for exterior durability. See Technical Bulletin C-41.
--	CP-1200	Resinated calcium salt. Medium shade red, dark masstone, more transparent, stronger and cheaper than 87 C 36. See Technical Bulletin C-41.
--	CP-1269	Similar to 87 C 36 but darker masstone and 15% stronger. See Technical Bulletin C-60.

Special Standards

<u>S-W Code</u> <u>No.</u>	<u>PC&C</u> <u>Code No.</u>	<u>Description</u>
87 C 20	CP-663	Practically identical to 87 C 36 in shade and properties. Use 87 C 36 instead.
87 C 19	CP-1233	Reduced toner. 25% pigment of 87 C 36 type co-precipitated on calcium carbonate. Bright, medium red having very soft texture. Developed for latex paint.

POLARIS RED

Polaris Red is a metallic salt of a diazotized aryl amine-sulfonic acid coupled to 2-hydroxy-3-naphthoic acid. It is a unique, bright new B-O-N Red exceptionally blue in shade. It has better lightfastness in both full shade and tints than any of the other B-O-N Reds. Suggested as a Rhodamine substitute used with Pyrolux Maroon.

<u>S-W Code</u> <u>No.</u>	<u>PC&C</u> <u>Code No.</u>	<u>Description</u>
87 Y 3	CP-1285	Resinated. Very bright masstone, good strength. See Technical Bulletin C-66.

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AMARANTH LAKE

Amaranth Lake is produced by the precipitation of amaranth on a mixed base. It is non-bleeding, has good resistance to heat and poor resistance to light, alkali, and acid. Baking is satisfactory at 230°F.

<u>S-W Code</u> <u>No.</u>	<u>PC&C</u> <u>Code No.</u>	<u>Description</u>
87 C 24	10182	Very bright shade. Poor permanence and weak; thus should replace. Suggest the use of Lithol Maroon 86 C 26 or CP-838 which have better light resistance and are much cheaper to use.

SCARLET LAKE

(Turkey Red)

Scarlet Lake is produced by the precipitation of Scarlet 2R dyestuff on a mixed base of alumina and blanc fixe.

It has fair permanence and is non-bleeding in paint vehicles, water, paraffin and alcohol. Resistance to heat is excellent and to alkali and acid, poor. Baking is satisfactory at 230°F.

<u>S-W Code</u> <u>No.</u>	<u>PC&C</u> <u>Code No.</u>	<u>Description</u>
8720	10180	Standard deep bright shade. Very weak; thus should replace. Suggest use of Lithol Red 86 C 49 which has better light resistance and is much cheaper to use.

FLUSHED NAPHTHOL REDS, PERMACHROM MAROONS, AND RUBANOX REDS

<u>S-W Code</u> <u>No.</u>	<u>PC&C</u> <u>Code No.</u>	<u>Pigment Name</u>	<u>Pigment</u> <u>Type</u>	<u>%</u> <u>Pigment</u>	<u>% Others</u>	<u>Wt./Gal.</u>
<u>Flushed in General Purpose Alkyd Varnish (37 C 18)</u>						
(87 C 34)	FL-10-312	Permachrom Maroon	8716	38%	38% Resin Solids 24% (145)	9.0
<u>Flushed in High Quality Alkyd Varnish (3853)</u>						
(87 C 33)	FL-10-201	Permachrom Maroon	8716	30%	30% Resin Solids 40% (145)	8.4
<u>Flushed in Soya Alkyd (3948)</u>						
(87 C 60)	FL-10-101	Rubanox Red	8727	30%	39% Resin Solids 31% (323)	9.3
<u>Flushed in Soya Alkyd (39 C 65)</u>						
(87 C 65)	FL-10-103	Naphthol Red	8750	38%	34% Resin Solids 28% (145)	8.8

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CLASS 8700

Organic Reds and Maroons, Azo, coupled
to materials other than Beta Naphthol.

- 8700-8749 Containing sulfonic or carboxyl groups, or salts thereof
on either diazo or coupling group. (Scarlet lake, Pig-
ment Scarlet, Lithol Rubine or Rubanox, Solfast, Maroon
Toner).
- 8750-8799 Containing no sulfonic or carboxyl group or salts thereof
on either diazo or coupling group.

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I. PERMACHROM REDS AND MAROONS (Including Lake Bordeaux Maroons)

A. Pigments

Number	Name	Oil Abs.	Bulk	Remarks
		SW 419.1	G/100#	
87C21	Permachrom Red A	45	6.86	
87C22	Permachrom Red D	42	8.28	
8716	Permachrom Maroon F	42	7.84	
8718	Light Maroon	55	6.63	
87C5	Maroon Toner XL455(Imperial)		7.32	Try 8716

B. Dispersions

Number	%	Pigment	Vehicle NVM	Vehicle	#/G
87C33	30	8716	30	(3853)	8.40

Remarks

PERMACHROM REDS AND MAROONS are manganese salts of azo pigments based on beta oxynaphthoic acid. They are noted for good durability, non-bleeding properties, and good light and heat stability.

Those formerly known as maroon toners (Lake Bordeaux Maroons) are manganese salts of Tobias Acid.

87C21 Medium red shade.

87C22 Dark red shade.

8716 Dark maroon shade.

II. SOLFAST REDS

A. Pigments

Number	Name	Oil Abs.	Bulk
		SW 419.1	G/100#
8700	Solfast Red, Dark 59		7.95
87C20	Solfast Red, Light		7.06

Remarks

8700 Dark shade, blue undertone

87C20 Light shade, yellow undertone

SOLFAST REDS are precipitated azo pigments derived from beta oxynaphthoic acid. They have high tinctorial strength and properties similar to the Rubanox Reds, but have slightly better resistance to bleeding and a softer texture.

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III. ARYLIDES (SOLFAST SCARLETS, TOLUIDINE & SOLFAST MAROONS)

A. Pigments

Number	Name	Oil Abs. SW 419.1	Bulk G/100#
8750	Solfast, Scarlet Light	37	8.33
8755	Toluidine Maroon Light	66	8.51
8756	Toluidine Maroon Dark	38	7.56
87C10	Intermix for 8756	38	7.56
87C11	Intermix for 8755	68	8.51
87D6	Maroon Toner X1455		7.32
87D7	Toluidine Maroon RT3 (Harmon)		9.39
87D13	Toluidine Maroon RT 436D		8.34

C. Dispersions

Number	Name	Remarks	#/G
87C18	Solfast Scarlet Light Pulp, 20%	Emulsions	
87C23	20% 8756 in (3853)		8.5

Remarks

The three types constituting this class are all azo pigments derived from the arylide group of intermediates. Their composition and characteristics are somewhat similar, although there is some difference in properties.

The toluidine maroons have excellent resistance to light in full shades and fair in tints. They bleed slightly in nitrocellulose lacquers and synthetic enamels.

The Solfast Scarlets and Maroons have excellent light resistance in both full shades and tints. They bleed slightly in both nitrocellulose and synthetics. Resistance to heat, acid and alkali is good in all cases.

8750 Solfast Scarlet Light; somewhat darker in shade than Permansa Red, 8670. Recommended for durable enamels and lacquers.

8755 Toluidine Maroon Light; recommended for high quality lightfast lacquers and enamels.

8756 Toluidine Maroon Dark; darker in shade and yellower in tint than 8755. Recommended for high quality lightfast paints and enamels.

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IV. MISCELLANEOUS REDS (AZO, NON BETA-NAPHTHOL)

Number	Name	Bulk	#/G	Remarks
8720	Scarlet Lake, Dark	4.25		
8727	Rubanox Red, Resinated			
87C2	BON Red Dark RT525D	7.25		Try 87C21
87C3	BON Maroon Lt., RT533-D	7.0		
87C4	BON Red Light, RT565D	6.44		
87C6	Azo Rubine Ex. Conc.			
87C7	BON Red Dispersion P944E4			
87C8	Croceine Scarlet			Acid Dye Index 252
87C9	BON Red Dispersion P710E60			
87C12	Mahogany Dye, Oil Soluble	7.0		
87C13	Mahogany Dye, Oil Soluble	9.96		
87C14	Red Dye, Toluene Soluble			
87C15	Amberglo Red		13.42	
87C19	Brilliant Toning Red B Lake			
87C24	Amaranth Lake	4.07		Poor permanence; try to replace
87C25	Dearborn Red Light	7.79		
87C26	Dearborn Red Dark	7.79		
87C28	Anthosine B			
87C30	8727 flushed in (3948)			
87C32	Lithosol Red 2B			CP Department
87C36	Brilliant Red Toning B			
87C37	22.5% Cabamarine Red in $\frac{1}{2}$ " RS N/C		11.07	
87C40	Naphthol Red Deep (D3049)			
87C41	Naphthol Red Pulp (D2921)			
87C42	Naphthol Red Pulp (D2925)			
87C43	Naphthol Red Pulp (D2928)			
87C44	Naphthol Red Pulp (D2947)			
87C45	Naphthol Red Pulp (D2999)			
87C46	Naphthol Red PC (D2773)			
87C47	Naphthol Red PC (D2740)			
87C48	Naphthol Red PC (D2978)			
87C49	Naphthol Red PC (D3118)			
87C50	Naphthol Red PC (D3119)			
87D2	Amberine MT202	8.83		
87D5	Deeptone Amberglo Red MT 6612	8.5		
87D10	Cabamarine Red MB 6501	7.0		
87D12	Tonga Red Light MT 6537	8.64		
87D14	Cabamarine Chip Stock	8.63		
87D16	Montauk Red	7.15		
87D50	Caddy Red R6222	8.39		

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IV. MISCELLANEOUS REDS (AZO, NON BETA-NAPHTHOL) (Con't.)

Number	Name	Bulk	#/G	Remarks
87F10	Wood Stain Scarlet NS Conc.			
87F11	Ragoon Maroon #1147	11.80		
87F12	Pigment Scarlet	10.87		

Remarks

RUBANOX REDS are calcium salts of the azo pigment 4-aminotoluene 3-sulfonic acid coupled with beta oxynaphthoic acid. They have a bright blue shade, are brilliant in masstone, and clean and strong in tint. The principal shades are medium which has a high bronze, and a darker shade (Resinated) which is considerably brighter and has low bronze.

Rubanox Reds have good resistance to light in full shades and fair in tints. They are non-bleeding. Resistance to acid and alkali is good. Baking is satisfactory for four hours at 320°F. They have the property of blending with light reds without dulling the shade.

8727 Resinated type, typical dark shade; has a brilliant deep masstone, clean blue undertone and good strength.

SCARLET LAKE RED (TURKEY RED) is produced by the precipitation of Scarlet 2R Dyestuff on a mixed base of alumina and blanc fixe.

Heat resistance is excellent, alkali and acid poor, and permanence fair. It is non-bleeding in paint vehicles, water, paraffin and alcohol. It is especially suited for inexpensive enamels.

8720 Standard deep bright shade.

BON REDS are mono-azo couplings of various organic amines with beta oxynaphthoic acid, precipitated by metals.

They have good light resistance, durability, and are non-bleeding. They disperse well on a roller mill.