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J. D. Baldwin
Cleveland
April 1, 1954

CLASS 100

Hydrocarbons, non-cyclic, volatile, including their halides.

100-119 C_1 through C_7 and any mixture of hydrocarbons having Tag Open Cup flash points below 20°F .

120-139 C_8 and C_9 and any mixture of hydrocarbons having Tag Open Cup flash points between 20°F . and 80°F .

140-159 C_{10} and up any mixture of hydrocarbons having a Tag Open Cup flash point above 80°F .

160-179 Volatile, chlorinated, non-cyclic hydrocarbons.

180-199 Open

Number	Material	Test Method 430.1 Distillation, °F.		
		0%	50%	100%
<u>C₇ through C₉ and mixtures with flash points below 20°F.</u>				
(1A1)	Hexane, Commercial	151	158	164
(1F5)	Hexane, Esso	147	154	160
(1C1)	Petrolene Naphtha 3	135	165	215
<u>C₈ and C₉ and mixtures with flash points between 20 and 80°F.</u>				
(4026)	C-8 Naphtha	200	212	240
(1C3)	Iso Octane	210.5		
(63)	VM&P Naphtha	240	265	325
(1N3)	Super VM&P Naphtha, 8182	244	263	288
(1C9)	Apcothinner	244	261	289
<u>C₁₀ and higher and flash points above 80°F.</u>				
(348)	Mineral Spirits	302	340	394
(1A5)	Mineral Spirits, Slops			
(1A6)	Mineral Spirits, Settled, Decanted			
(1F3)	Mineral Spirits, Settled, Decanted			
(1N2)	Mineral Spirits (Salvage), Redistilled	280	330	390
(1Y7)	Mineral Spirits (Salvage), Redistilled			
(1C12)	Odorless - Soltrol 150	354	371	445
(1L4)	Odorless - Soltrol 130	345	361	405
(1I5)	Odorless - Soltrol 170	421	429	445
(1C11)	Odorless - Shell-Sol 72	345	364	412
(1Y5)	Odorless - Amoco	360	368	389
(5027)	Mineral Spirits, High Flash	358	380	412
(1L1)	Mineral Spirits, Heavy	340	410	485
(1C2)	Kerosene, Deodorized	338	428	527
(1L3)	Kerosene	350		505(95%)
(1A4)	Kerosene			
(1C8)	Magie 470 Oil	467		512
(1C5)	Magie 500 Oil	507	525	549
(1C10)	Magie 535 Oil	535		593
(1Y2)	Dieselene			
<u>Chlorinated</u>				
(1A9)	Carbon Tetrachloride	165		172
(1F2)	Trichlorethylene	187		190
(1C4)	Methylene Chloride	104		142(95%)

Method 438.3 KB Value	Method 457.1 Evap., Minutes	Remarks	Method 429.5 FP°F. TOC	Test Method 401.2 Sp.Gr. 75°F.	#/G 75°F.	Number
30-40		Vegetable Oil Extraction	-30	0.689	5.74	(1A1)
27-32.5		Traffic Paints	0	0.686	5.72	(1F5)
33-39			-20	0.692	5.75	(1C1)
40-54	0.7		35	0.744	6.20	(4026)
			15	0.692	5.75	(1C3)
34-39	2.0		55	0.750	6.25	(63)
39			55	0.744	6.20	(1N3)
39			55	0.757	6.30	(1C9)
33-40	9.0	For (1A5) or Redistilled	105	0.780	6.50	(348)
		Washing only			6.5 App.(1A5)	
					6.5 App.(1A6)	
					6.7 App.(1F3)	
					6.6 App.(1N2)	
					6.5 App.(1Y7)	
24			135	0.757	6.30	(1C12)
25			130	0.748	6.23	(1L4)
23			190	0.766	6.37	(1L5)
26			130	0.757	6.30	(1C11)
26.5			135	0.757	6.30	(1Y5)
30-35			145	0.790	6.58	(5027)
26-37	90	Use (5027)	140	0.794	6.61	(1L1)
25-34			130	0.793	6.60	(1C2)
30-35		Dayton		0.797	6.63	(1L3)
		Restricted; Bound Brook				(1A4)
27.6		Restricted; Ink Vehicles	230	0.805	6.70	(1C8)
25		Restricted; Ink Vehicles	260	0.807	6.72	(1C5)
27.5		Restricted; Ink Vehicles	285	0.845	7.03	(1C10)
		Wood Preservatives		0.865	7.20	(1Y2)
		Degreaser		1.590	13.27	(1A9)
		P & V Remover		1.465	12.20	(1F2)
				1.336	11.12	(1C4)

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Remarks

- (63) VM&P Naphtha is used in thinning paints and varnishes and is frequently employed as a diluent in lacquers. Used for short flow dip paints and in spray type materials. Used in traffic paints because of quick solvent release. This is a red label solvent.
- (141) Kerosene, also known as heavy mineral spirits. An institutional policy of replacement with (5027) is in effect.
- (348) Mineral spirits, often referred to as heavy naphtha, has largely replaced turpentine as a thinner and solvent in the paint and varnish industry. More of this type of solvent is employed than any other. Used in conjunction with other solvents for most any type of application.
- (4026) Hydrocarbon solvent used in lacquers as a diluent and in fast drying varnishes and enamels. Generally used where VM&P Naphtha is found to be too slow. This is a red label solvent.
- (5027) Hi-Flash mineral spirits insures good leveling and flow. Slow evaporation of this solvent from the paint film eliminates lapping. Gives good wet edge in brushing paints.

0007-PMC-000000153

CLASS 200

Hydrocarbons, non-cyclic, non-volatile,
including their halides

200 - 209	Mineral oils with viscosities at 100° F. of not over 75 seconds Saybolt Universal.
210 - 219	Mineral oils with viscosities at 100° F. of 75 to 125 seconds Saybolt Universal.
220 - 229	Mineral oils with viscosities at 100° F. of 125 or more seconds Saybolt Universal.
230 - 249	Open.
250 - 259	Petrolatums.
260 - 269	Paraffin (slack waxes, scale waxes, white paraffin, and micro-crystalline).
270 - 279	Other hydrocarbon waxes (ozokerite, ceresin, montan, candelilla).
280 - 289	Non-volatile, chlorinated, non-cyclic hydrocarbons.
290 - 299	Open.

Number	Name	NVM %	Melting Point	Body G-H
<u>200-209</u>				
(2 A 3)	Mineral Oil 50	100	-	A ₁
(2 A 4)	Mineral Oil	100	-	A ₂
(2 A 8)	Gulf 372 Oil	100	-	-
(2 A 9)	Ultrol #5	100	-	-
(2 C 16)	Mineral Oil, Special Diesel Fuel	100	-	A ₂
(2 C 18)	Light Process Oil	100	-	-
(2 K 1)	Topaz Oil A	100	-	-
<u>210-219</u>				
(216)	Mineral Oil	100	-	A ₁
(2 C 20)	Mineral Oil #4462	100	-	-
(2 C 23)	Mineral Oil 97	100	-	A ₁
(2 C 25)	Mineral Oil 100	100	-	A ₁
(2 D 10)	White Rose Oil #2	100	-	-
(2 F 2)	Mineral Insulating Oil	100	-	A ₁
<u>220-229</u>				
(228)	Mineral Oil, Heavy	100	-	X
(2 A 10)	Sohio White Mineral Oil	100	-	-
(2 C 11)	Mineral Oil 215	100	-	B
(2 C 15)	Inkol No. 4	100	-	Z ₂
(2 C 24)	750 Pale Oil	100	-	-
(2 F 6)	Paraffin Oil	100	-	A
(2 P 2)	Base Oil 200 Pale	100	-	-
(2 Y 1)	200 Dormant Oil	100	-	-
<u>250-259</u>				
254	Petrolatum, Amber	100	138°F. ASTM	-
(2 C 2)	Vaseline Solution	50	-	-
(2 C 5)	Vaseline	100	112°F. S.P.	-
2 D 50	Yellow Petroleum Paste	-	-	-
2 F 7	Petroleum Grease	100	-	-
2 L 2	Petrolatum Extra Light Amber	100	120°F. ASTM	-
(2 N 1)	Vaseline Solution	10	-	A-
2 T 3	Petrolatum, Extra Light Amber	100	120°F. ASTM	-
2 Y 5	Water Proof Grease #1	100	375°F.	-
<u>260-269</u>				
261	Crude Paraffin Wax	100	125°F. B&R	-
(263)	Paraffin Wax Solution	15.2	-	A+
266	Paraffin Wax, Refined	100	132°F. ASTM	-
(2 A 6)	Wax Solution	19.1	-	A
(2 A 11)	Paraffin Wax Solution	1.8	-	A ₅
(2 A 12)	Refined Paraffin Wax Solution	10	-	A ₅
2 A 13	Sunoco #3425 Wax	100	127°F. ASTM	-
2 C 8	Petrolite Crown #1035	100	198°F. B&R	-

Viscosity SSU @ 100°F.	Color Gardner Max.	#/Gal.	Gal./100#	Fl.Point of (TOC)	Number
-	11	7.20	-	310	(2 A 3)
75	4	7.16	-	-	(2 A 4)
-	-	-	-	-	(2 A 8)
-	-	-	-	-	(2 A 9)
-	11	7.33	-	150	(2 C 16)
-	-	7.90	-	-	(2 C 18)
69	-	7.30	-	340	(2 K 1)
-	8	7.37	-	350	(216)
100	-	7.00	-	335	(2 C 20)
97	1	7.07	-	365	(2 C 23)
-	-	6.72	-	-	(2 C 25)
-	-	7.08	-	-	(2 D 10)
-	2	7.41	-	-	(2 F 2)
-	Dark	7.63	-	500	(228)
205	1	7.27	-	350	(2 A 10)
215	16	7.44	-	-	(2 C 11)
-	Dark	7.95	-	-	(2 C 15)
-	-	7.76	-	395	(2 C 24)
-	9	7.35	-	-	(2 F 6)
208	2	7.75	-	-	(2 P 2)
200	-	7.61	-	-	(2 Y 1)
-	15	7.13	-	390	254
-	-	7.25	-	81	(2 C 2)
-	-	7.30	-	400	(2 C 5)
-	-	7.73	-	-	2 D 50
-	-	7.88	-	-	2 F 7
-	14	10.08	-	-	2 L 2
-	5	7.51	-	205	(2 N 1)
-	14	-	14.3	-	2 T 3
1550	-	-	13.1	465	2 Y 5
-	3	7.25	13.8	375	261
-	-	7.08	-	105	(263)
-	-	-	13.2	-	266
-	-	6.55	-	105	(2 A 6)
-	-	7.07	-	81	(2 A 11)
-	-	6.59	-	105	(2 A 12)
-	-	-	13.3	420	2 A 13
-	-	-	12.8	-	2 C 8

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Number	Name	NVM %	Melting Point	Body G-H
Continued				
<u>260-269</u>				
2 C 10	Sunoco Wax #985 Yellow	100	198°F.B&R	-
(2 C 19)	Raybo 43	-	-	-
2 D 60	2305 Amber Amorphous Wax	100	-	-
(2 D 61)	Amorphous Wax Solution	11.5	-	-
2 F 10	Paraffin Wax	100	-	-
2 K 2	Atlantic 131 Wax	100	-	-
2 L 1	Paraffin	100	126°F.	-
(2 N 4)	Ceremul Q	50	-	-
2 N 5	Crude Paraffin Wax	100	121°F.Cap.	-
(2 N 6)	Paraffin Wax Solution	15	-	As
2 N 7	Powdered Polymekon Wax	100	-	-
(2 N 8)	Marproofing Agent	33.8	-	-
(2 N 9)	Marproofing Agent	33.7	-	-
(2 T 2)	Paraffin Wax Solution	-	-	-
2 Y 3	Socal Petrolatum #110	100	135°F.	-
2 Y 10	Socal Petrolatum #70	100	152°F.	-
2 Y 12	S/V Product 2310	100	155°F.	-
(2 Y 14)	Sure Cure White Vehicle	55.4	-	-
<u>270-279</u>				
2 C 1	Refined Candelilla Wax-			
	Durez 219 Blend	100	164°F.B&R	-
2 C 3	Solawax 1402	100	181°F.B&R	-
2 C 6	Ceresine Wax	100	-	-
2 C 9	Ozokerite 863	100	193°F.B&R	-
2 C 12	Ozokerite 861	100	193°F.B&R	-
2 C 14	Cornelowax 1822	100	200°F.B&R	-
2 C 17	Candellilla Wax, Crude or Prime	100	153°F.B&R	-
2 C 22	Estawax 25	100	215°F.B&R	-
2 C 26	Extra Light Bleached Candelilla Wax	100	-	-
2 F 3	Cereze Wax	100	170°F.B&R	-
2 F 9	Ceresin Wax	100	173°F.ASTM	-
(2 M 1)	Antifoam S-1 Wax Emulsion	-	-	-
<u>280-289</u>				
287	Chlorowax 70	100	103°F.	-
(2 A 2)	Chlorowax 40	100	-	Z
(2 A 7)	Chlorowax Dispersion	65	-	G
(2 C 4)	Chlorafin 42-5	100	-	-
(2 D 81)	Chlorowax #70 Solution	70	-	N

0007-PMC-000000157

Viscosity SSU @ 100°F.	Color Gardner Max.	#/Gal.	Gal./100#	Fl.Point of (TOC)	Number
-	-	-	12.8	-	2 C 10
-	-	7.6	-	66	(2 C 19)
-	-	-	12.0	-	2 D 60
-	-	6.35	-	55	(2 D 61)
-	-	7.56	13.25	-	2 F 10
-	-	-	-	-	2 K 2
-	-	-	13.15	-	2 L 1
-	-	8.12	-	-	(2 N 4)
-	-	-	12.47	-	2 N 5
-	-	7.08	-	105	(2 N 6)
-	-	-	12.2	495	2 N 7
-	-	7.86	-	35	(2 N 8)
-	-	7.23	-	35	(2 N 9)
-	-	7.30	-	-	(2 T 2)
-	-	-	13.4	-	2 Y 3
-	-	-	14.06	400	2 Y 10
-	-	-	14.2	460	2 Y 12
-	-	7.07	-	-	(2 Y 14)
-	-	-	11.4	-	2 C 1
-	-	-	11.4	-	2 C 3
-	-	-	13.3	-	2 C 6
-	-	-	12.7	-	2 C 9
-	-	-	12.9	-	2 C 12
-	-	-	12.6	-	2 C 14
-	-	-	12.0	-	2 C 17
-	-	-	12.7	-	2 C 22
-	-	-	12.0	-	2 C 26
-	-	-	12.8	-	2 F 3
-	10	7.66	13.05	460	2 F 9
-	-	-	-	-	(2 M 1)
-	-	-	7.23	-	287
-	4	9.6	-	-	(2 A 2)
-	10	10.52	-	80	(2 A 7)
-	6	9.77	-	-	(2 C 4)
-	-	10.7	-	80	(2 D 81)

REMARKS

Mineral oils are products resulting from the distillation of crude petroleum. Purification is accomplished through a cold sulphuric acid process. General uses of mineral oils include; low cost reducers in wood preservatives, neutral oil bases and standards, chiller pastes, and marproofing agents.

Petrolatums, like mineral oils, are products of petroleum distillation and are purified in a similar manner. Main uses are as marproofing agents, "slip" agents, and in concrete curing compounds.

Although waxes have a variety of sources, one of the chief types - paraffin - is again a product of petroleum refinement. Usage other than wax compounds is as marproofing agents, and concrete curing compounds.

Our use of chlorinated hydrocarbons is almost exclusively in fire retardant finishes.

0007-PMC-000000159

CLASS 300

Hydrocarbon, cyclic, both volatile and non-volatile, including halides.

- 300-309 C₃ through C₆ monocyclic (Benzene, cyclohexane, naphthenes).
- 310-319 C₇ monocyclic hydrocarbons and all mixtures of cyclic hydrocarbons having a Tag Open Cup flash point below 80°F. (Toluene, toluene substitutes, methyl cyclohexane and C₇ naphthenes).
- 320-339 C₈ and higher aromatic monocyclic hydrocarbons and mixtures of monocyclic hydrocarbons having Tag Open Cup flash points above 80°F. (Xylene, cumene, "High Flash Naphtha", crude heavy naphtha, creosote oils)..
- 340-349 C₈ and higher non-aromatic cyclic hydrocarbons and mixtures thereof having Tag Open Cup flash points above 80°F. (Terpenes such as turpentine, pinene, dipentene, limonene, etc., alkyl hexane and alkyl naphthenes).
- 350-359 Non-volatile cyclic hydrocarbons (coal tar neutral oil, rosin oil, naphthalene, anthracene, etc.).
- 360-369 Chlorinated cyclic hydrocarbons (chlorobenzene, etc., but not chlorinated diphenyls which are in class 49).
- 370-399 Open

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April 1, 1954		Distillation °F.			KB
Number	Material	0%	50%	100%	Value
<u>C₃ through C₆ monocyclic</u>					
(3C7)	Benzene, 2° Industrial	175		178	118
<u>C₇ monocyclic and low-flash mixtures</u>					
(241)	Toluene, Industrial, Pure	225		235	105
(4041)	Toluene, Wide Range	200	220	300	82
(3F3)	Toluene (Specification)	228		234(DP)	
(3C23)	Toluene (Specification)	228		234(DP)	
(3C2)	Indosol #1	221		239(DP)	88
(3C9)	Velsicol 1F (Alt: Hi-Solve T)	210		280(DP)	90-95
(3D10)	"T" Sol Toluene Substitute	223		237(DP)	92 Min.
<u>C₈ etc. aromatic monocyclic and higher flash mixtures</u>					
(4046)	Xylene, 20°	270		311	90
(4040)	Xylene, Wide Range	270	290	340	90
(3A2)	Xylene, Slops				
(3A4)	Xylene, Ends from Redistillation				
(3C19)	Xylene (Salvage), Redistilled	260		360	75
(3N2)	Xylene (Salvage), Redistilled	255		365	90
(3F2)	Xylene (Salvage), Redistilled				
(3Y4)	Xylene, Amsco Solvent B	270		311(DP)	87
(3A1)	SC Solvent 2B	276		350(DP)	75
(4021)	Aromatic Naphtha	340	375	415	65-85
(4048)	Aromatic Naphtha	350	380	425	85 Min.
(1257)	Hi-Flash Solvent Naphtha	302	320	370	85-100
(3Y7)	Shell TS-28	300	332	390	74
(3D20)	Hi-Flash Naphtha	280		384	33-40
(3Y8)	Solvent 7R	315	326	334	107
(3A6)	Creosote Oil, A.R.E.A.		671		
(3Y3)	Creosote AW PA#1				
(3Y2)	Creosote Diluent #1				
(3L2)	Shingle Stain Oil LX767				
(3C17)	Styrene Monomer N99	293			
(3A9)	Velsicol AR50G (Methylated Naphthylene)				
(3C1)	Polymethylated Naphthalene 2	380		500	80
(3L1)	Nevinol	570		700	
(3Y6)	Union 4060-0 Aromatic Oil	400		600	
<u>C₈ etc. non-aromatic and higher flash mixtures</u>					
(14)	Turpentine, Wood Sulfate	302		360	59
(2049)	Dipentene	334		370(95%)	65
(3C6)	Orange Oil (D-Limonene)	330	347	375	70
(3F4)	Turpentine, Gum Spirits	302		360	56
<u>Non-volatile cyclic</u>					
(3D52)	Coal Tar Neutral Oil	302		570	
(3P1)					
(3C11)	HB40 (Part. hydrog. mix. of isomeric terphenyls)	680			

0007-PMC-0000001

0007-PMC-000000161

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Evap. Minutes	Remarks	FP°F TOC	Sp.Gr. 75°F.	#/G 75°F.	Number
	P & V Remover	12	0.880	7.38	(3C7)
1.05		40	0.863	7.18	(241)
1.0	West Coast	42	0.828	6.90	(4041)
	Spec. TT-A-548a	45	0.863	7.18	(3F3)
	Spec. TT-A-548a	45	0.863	7.18	(3C23)
	Lacquer		0.831	6.92	(3C2)
	Lacquer		0.842	7.01	(3C9)
	Alt. for (3C9); use (3C9)	35	0.835	6.96	(3D10)
2.5		81	0.863	7.18	(4046)
3.0	West Coast	81	0.863	7.18	(4040)
	For Redistillation			7.2 App.	(3A2)
	Ends from (3A2) Redistillation			7.2 App.	(3A4)
		65		7.1 App.	(3C19)
	Washing Only			7.0 App.	(3N2)
	Washing Only			7.2 App.	(3P2)
	West Coast alt. (4046)	80	0.843	7.02	(3Y4)
	Restricted; TT-V-119	81	0.831	6.92	(3A1)
30.0		135	0.865	7.21	(4021)
30.0		135	0.879	7.32	(4048)
7.5		105	0.870	7.25	(1257)
	West Coast alt. (1257)	115	0.840	7.00	(3Y7)
	Acme only; R.B.L.		0.780	6.50	(3D20)
	Preservatives	100	0.873	7.27	(3Y8)
	Shingle Stains		1.080	9.00	(3A6)
	West Coast alt. (3A6)	400	1.095	9.08	(3Y3)
	Preservatives Solvent		0.963	8.02	(3Y2)
	Lowe Bros.		0.906	7.55	(3I2)
	Alkyd Varnishes	80	0.905	7.54	(3C17)
	Restricted; Bound Brook				(3A9)
	VB & Awning, etc.	160	0.943	7.85	(3C1)
	Plasticizer		1.044	8.70	(3I1)
	Preservatives Solvent		0.935	7.78	(3Y6)
6.0		85	0.864	7.20	(14)
10.0		105	0.853	7.10	(2049)
	Emulsions	120	0.840	6.99	(3C6)
	Restricted; Sherdye	75	0.864	7.20	(3F4)
	Salamander Black	100	1.020	8.50	(3D52)
		155	0.943	7.85	(3P1)
					(3C11)

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Number	Material	Restricted
<u>Chlorinated Cyclic</u>		
3A5	Dichlor Diphenyl Trichlorethane	Bound Brook
3A7	Benzene Hexachloride	Bound Brook
3A8	Lindane (99% Gamma Isomer of Benzene Hexachloride)	Bound Brook
3A10	TDE (DDD) Technical	Bound Brook
3A11	Marlate 50 (Methoxychlor 50%)	Bound Brook

REMARKS

Toluene

Toluene is one of the most common solvents for lacquers and synthetic resins and is extensively employed as a thinner for such coatings. Its very rapid rate of evaporation makes it desirable in these applications in which quick drying is an essential quality.

Xylene

Like toluene, xylene possesses high solvent power for most synthetic resins. Its slower evaporation rate indicates its use, in preference to toluene, in certain cases where such property is desired.

High Flash Naphtha

High flash naphtha does not possess as much solvent power as toluene. On the other hand, its much slower evaporation rate and high flash make it desirable for use as a solvent or thinner requiring such properties.

Turpentine

Turpentine has more solvent power for most resins than petroleum naphthas, but less than aromatic or coal tar solvents. Its main use is as a thinner in certain paints and as a solvent in varnishes.

Wood turpentine contains less dipentene and more pinene than gum turpentine. For this reason, it has slightly less solvent power and slightly greater speed of evaporation.

Dipentene

Dipentene has more solvent power and is slower evaporating than turpentine. It is largely used as an anti-skinning agent.

Creosote

The creosotes are used mainly in preservatives as fungicides.

0007-PMC-000000163

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E. Kulish
Chicago
February 8, 1955

CLASS 400

400 through 429	-	Alcohols, monohydric
400 - 409	-	Alcohols, C ₁ through C ₃
410 - 419	-	Alcohols, C ₄ through C ₇
420 - 429	-	Alcohols, C ₈ through C ₁₂

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Material No.	Previous No.	Material
(401)	(2617)	Methyl Alcohol
(4C16)		Methyl Alcohol (Heads)
(403)	(1891)	Ethyl Alcohol - Anhydrous
(405)	(30)	Ethyl Alcohol - 95%
(406)	(330)	Ethyl Alcohol - S. D. #1
(4C19)		Alcohol Blend
(408)	(3034)	Isopropyl Alcohol
(411)	(1167)	N. Butyl Alcohol
(4C20)		N. Butyl Alcohol
(414)	(4037)	Mixed Butanols
(4D10)		Mixed Solvent-65% But. Al., 32% Tol., 3% water
(409)	(2602)	Methyl Cellosolve
(4A6)		Pensolve Alcohol
(415)	(1656)	Ethyl Cellosolve
4Y6		Cyclohexanol
(417)	(4033)	Methyl Amyl Alcohol
(4A4)		Benzyl Alcohol
(416)		Diacetone Alcohol
(418)	(1682)	Butyl Cellosolve
(4C22)		Methyl Carbitol
(421)	(3031)	Octyl Alcohol
(4C1)		Amyl Alcohol, Tech.
(4C18)		Octyl Alcohol
(4C17)		Iso-octyl Alcohol
(4F7)		Iso-octyl Alcohol
(422)	(3032)	Solvent C-8
(419)	(2610)	Carbitol
(423)	(3039)	Butyl Carbitol
(4F1)		Lauryl Alcohol
(425)	(293)	Pine Oil
(4F9)		Pine Oil
4A3		Di (p-chlorophenyl) methyl carbinol

0007-PMC-000000165

Distil. Range °C Test Method 403.3	Flash Point °F - T.O.C. Test Method 429.5	Sp. Gr. 75°F. Test Method - 401.2	Wt./Gal. 75°F.	Material No.
64 66	52	0.790	6.58	(401)
61 69	52	0.791	6.59	(4016)
74 79	65	0.790	6.58	(403)
75 80	45	0.808	6.73	(405)
75 80	45	0.808	6.73	(406)
70 82	44	0.808	6.73	(4019)
81 83	60	0.782	6.52	(408)
115 118.5	114	0.808	6.73	(411)
115 118.5	114	0.808	6.73	(4020)
113 121		0.810	6.75	(414)
			6.93	(4010)
122 126	109	0.963	8.02	(409)
130 137	135	0.928	7.73	(406)
152 162	170	0.960	8.00	(415)
				4Y6
127 133	131	0.804	6.70	(417)
199 204	212	1.040	8.67	(414)
135 170	144	0.937	7.81	(416)
163 173	165	0.900	7.50	(418)
185 195	200	1.030	8.58	(4022)
180 192	182	0.832	6.93	(421)
132 136	111	0.815	6.79	(401)
181 186.5	182	0.827	6.89	(4018)
175 200	180	0.831	6.92	(4017)
175 200	180	0.831	6.92	(407)
174 181.5 (85% between)	180	0.814	6.78	(422)
185 205	205	1.024	8.53	(419)
220 235	230	0.953	7.94	(423)
264 332		0.834	6.95	(401)
190 250	165	0.920	7.67	(425)
190 250	172	0.930	7.75	(409)
				4A3

February 8, 1955

CLASS 400 - (400 through 429)

Remarks

The lower boiling members of this class (through C-12) are used principally as solvents in nitrocellulose lacquers. Certain members are also used in enamels and stains such as methyl alcohol in stains and butyl alcohol in alkyd resin enamels (particularly those enamels modified with urea or melamine resins). As the boiling point increases (above 170°C.) the use of these alcohols as lacquer solvents decreases. These higher boiling alcohols are used as anti-foam agents, leveling agents, and wetting agents.

The principal use of alcohols is in nitrocellulose lacquer. Alcohols are in themselves non-solvents for nitrocellulose, but in the presence of an active solvent (such as esters or ketones) they behave as though they were true solvents. It has been proved that the use of active solvent plus alcohol will result in a lower viscosity than active solvent alone. Also, most alcohols are lower costing than the corresponding ester and by using them, raw material costs are lower.

0007-PMC-000000167

Page 4-5
E. L. Superits
Chicago
November 30, 1956

Class 400

Monohydric alcohols (C₁₃ and above) and polyhydric alcohols, including halogen-substituted. Also additional similar-reacting poly-functional oxides.

430 - 439 Monohydric alcohols (C₁₃ and up)
440 - 449 Open
450 - 459 Dihydric alcohols
460 - 469 Trihydric alcohols
470 - 479 Tetra-and higher-hydric alcohols
480 - 499 Open

0007-PMC-000000168

Number	Prev. No.	Name	Flash Point °F.	Wt. % Water	Wt. % Acid	Viscosity
<u>Monohydric Alcohols Sub-Class 430</u>						
(430)	CW(2967)	Abitol				
(4A7)		Tergitol NP-14	420			
(4A9)		Triton-X102				
(4C6)	CW(3091)	Triton-X100		0.50		
(4C13)		Triton-W1756				
(4C15)	(29C29)	Tergitol-XC				
(4C24)		Tergitol-NPX	500			
(4F2)		Abitol (90% in Xylene)				
(4F11)		Triton X-45				K
<u>Di-Hydric Alcohols & Di-Functional Oxides Sub-Class 450</u>						
(450)	(3075)	Ethylene Glycol	240	0.50	0.01	
(451)	CW(1677)	Di-Propylene Glycol	280	0.50	0.01	
(452)	(4098)	Propylene Oxide	-35	1.00	0.05	
(453)	CW(2819)	Plasticizer X565				
(4A10)	OW(612)	Hexylene Glycol			0.01	
(4G7)	(4034)	Di-Ethylene Glycol	245	0.30	0.02	
(4G11)	(24C6)	Epichlorohydrin	105	0.10		
(4C12)		Polyglycol P-1200				
(4C23)		Pluronic L-44				654 cps
(4C30)		Dimethyl Octynediol				
4C31		Carbowax 1500	430			
<u>Tri-Hydric Alcohols Sub-Class 460</u>						
(462)	(2666)	Glycerine				
4G14		Trimet				
<u>Tetra-Hydric & Higher Alcohols Sub-Class 470</u>						
472	2296	Pentaerythritol-49		0.50		
473	1986	Pentaerythritol-47				
475		Di-Pentaerythritol				
4F6		Stabilizer A-5				

Hydroxyl Value	Color	Distillation Range °C.	Melting Point °F.	Boiling Point °C.	Wt./Gal.	Number
5.0			91		8.34 8.53 8.85 8.6 8.9 8.65	(430) (4A7) (4A9) (4C6) (4C13) (4C15) (4C24) (4F2) (4F11)
	15 (APHA)	190-210		197	9.28	(450)
	WW	215-245		232	8.53	(451)
	15 (GH)	30-40		30	6.93	(452) (453)
	15 (Hazen)	193-200			7.70	(4A10)
	WW	230-270		250	9.88	(4C7)
	WW			116	9.85	(4C11) (4C12)
	Cloudy				8.85	(4C23)
					8.5	(4C30)
	3 (GH)				9.48	4C31
			200		10.51	(462) 4C14
			482			472
			428			473
						475
					9.50	4F6

Remarks

- (430) Abitol - (Hydroabietyl Alcohol) - produced by hydrogenolysis of rosin and represents a colorless, tacky, viscous liquid at room temperatures. Chemical reactions are typical of a primary monohydric alcohol plus what might be expected from the residual unsaturation in the ring structure.
- Uses: Modifiers for chlorinated rubber, plasticizer in many synthetic resins and waxes, modifier for hydrogenated oils and essential oil vehicles.
- (4A7) Alkyl Phenyl Ether of Polyethylene Glycol - surface active agent finding use in Brush cleaner formula - can be used in oil soluble emulsifier.
- (4C6) Triton X100 - (Alkyd Aryl Polyoxy Ethylene Glycols) - an anhydrous liquid non-ionic detergent and wetting agent which is freely water soluble. An outstanding emulsifier for many applications.
- (4C15) Tergitol XC - Polyalkalene Oxide used as emulsifying agent.
- (4C24) Alkyl Phenyl Ether of Polyethylene Glycol - surface active agent used as dispersent in emulsion. Good detergent, wetting agent and emulsifier.
- (4F2) Abitol (90% in Xylol) - (Hydroabietyl Alcohol - 90% in Xylol) - would display much the same type characteristics of (430) with consideration being allowed for 10% Xylol which is present.
- (4F11) Alkyd Aryl Polyether Alcohol - surface active agent - good detergent for non-aqueous system - miscible in all proportions in aliphatic solvents.
- (450) Ethylene Glycol - difunctional alcohol which finds use as printing ink solvent, formation of plasticizers, special alkyd resins, esterification of rosin to obtain lower melting point ester gum with improved alcohol solubility.
- (451) Dipropylene Glycol - similar in properties to (4C7), having greater molecular weight. Has great solvency for castor oil. Much wider compatibility. Should provide more flexibility and better solvency for printing ink resins.
- (453) Dow Plasticizer X565 - (Technical 4-4' Isopropylidene bis Phenoxy Propanol) - difunctional viscous plasticizer which dissolves in all common solvents except aliphatic naphthas, glycerin and water. It is generally compatible with alcohol soluble resins such as ureas, melamines and shellac - however, it is not compatible with vinyl resins. Can be used to form large size molecules in esterification processes in order to enhance viscosity. Varnishes employing this plasticizer exhibit extremely good flexibility and toughness.

- (4C7) Diethylene Glycol - difunctional alcohol which finds use as printing ink solvent, formation of plasticizers, and makes possible more stable emulsions in soluble oils acting as a coupling agent between free fatty acids and fatty acid soaps.
- (4C11) Epichlorhydrin - a reactive intermediate for the synthesis of materials which may be used in surface active agents, resin intermediates, stabilizers and plasticizers. The reactivity of this item is due to the presence in the molecule of both an epoxide ring and a chlorine atom.
- (4C12) Polyglycol P-1200 - Polypropylene glycol finding some use as an emulsifying agent in latex paints.
- (4C23) High Molecular Weight Polyethylene Glycol - surface active agent - water miscible - relatively non-hygroscopic - dispersing agent in emulsions, polishes and abrasives.
- 4C31 Polyethylene Glycol 1500 - molecular weight 500-600 - water soluble polymers used to modify alkyds for emulsion vehicles. Used as water soluble lubricants - good solvents for dyes, resins, proteins. Dispersent for casein, glues, zein and cork.
- 4C14 Trimet - Trimethyloethane represents a polyhydric alcohol that could be considered as a substitute for pentaerythritol which can give a tougher film along with improved color retention under certain conditions.
- (4F6) Stabilizer A-5 - produced by Carbon & Carbide and believed to be essentially the diglycidyl ether of Bisphenol A. It could be considered a monomer but it also resembles polymeric materials in regard to its characteristics.

CLASS 500

Aldehydes, Ketones, Quinones, and any other compound in which a carbonyl is the sole or principal functional group, including halogen substituted.

500 - 519	Open
520 - 529	Aldehydes
530 - 549	Ketones of C ₂ through C ₈
550 - 559	Ketones of C ₈ and higher
560 - 569	Open
570 - 579	Quinones
580 - 599	Open

Material Number	Previous Number	Material	Distil. Range °C Test Method 403.3
(5C14)		Formaldehyde Solution	
(5C9)		Formaldehyde Solution (37%)	
(5C13)		N. Butyl Formcel (40%)	
(5C10)		Glyoxal (30%)	
(5M1)	(5A1)	Glyoxal	
(5C4)		Cisco Solve 4	56-77
(5C15)		Methyl Acetone	52-62
(5C12)		Acetone	55-57
(530)	(1826)	Acetone	55-57
(533)	(2639)	Methyl Ethyl Ketone	78-81
(5C7)		N. Butyraldehyde	70-80
(5A2)		Mesityl Oxide	120-135
(540)	(3038)	Methyl Isobutyl Ketone	114-117
(546)	(4031)	Cyclohexanone	130-157
(5F1)		Pentanedione	125-144
(5C2)		Paraldehyde	100-127
(556)	(4030)	Isophorone	205-220
(5C11)		Di-isobutyl Ketone	163-173
5F2		Synthetic Camphor	
5L1		Anthraquinone	
5C3		Chloroanthraquinone	

0007-PMC-000000174

Flash Point °F. T.O.C. Test Method 429.5	Sp. Gr. 75°F. Test Method 401.2	Wt./Gal. 75°F. Test Method 401.2	Bulk Gal/100#	Material Number
Above 80	1.038	8.65		(5C14)
	1.087	9.06		(5C9)
150	0.980	8.17		(5C13)
127		10.00		(5C10)
	1.257	10.48		(5M1)
Below 32	0.814	6.79		(5C4)
20	0.832	6.93		(5C15)
15	0.788	6.57		(5C12)
15	0.788	6.57		(530)
22	0.803	6.69		(533)
64	0.802	6.62		(5C7)
98	0.853	7.11		(5A2)
81	0.799	6.66		(540)
116	0.943	7.85		(546)
105	0.972	8.10		(5F1)
90	0.990	8.25		(5C2)
205	0.919	7.66		(556)
140	0.805	6.71		(5C11)
			12.1	5F2
			8.0	5L1
			12.0	5C3

Remarks

The ketones in this class display exceptional solvency for a wide variety of materials, particularly those which are used for surface coatings.

Cellulose nitrate, ethyl cellulose, cellulose acetate butyrate, acrylic resins, vinyl acetate, vinyl chloride--vinyl acetate copolymers, in fact, practically all synthetic and natural resins commonly used in lacquers are soluble in one or more of these ketones. Other uses consist of solvents for camphor, fats, grease, gums, oils, and dyes.

Aldehydes such as butyraldehyde are excellent antioxidants. They are used in the manufacture of synthetic resins (phenolics and ether resins).

The quinones find usage as oil bodying catalysts.

NUMBER	NAME	ACID VALUE	TITR °C	I.V.	VISC. GHT	COLOR GARD- NER	FLASH PT°F TOC	SP. GR 77°F	LBS. /Gal 77°F
sc 600, C ₁ -C ₁₀									
(6 F 3)	Formic, 85%								9.95
(602)	Acetic, Glacial								8.65
(6 C 24)	Acetic, 58%								
(6 A 4)	Acetic, 56%								
(6 A 23)	Acetic, 28%								
(6 C 20)	Pelargonic, 90%	350		.5		3		.910	7.63
(6 C 19)	Capric	333	26			3			
sc 620, C ₁₁ -C ₁₄									
(624)	Lauric, 90%	280	43	1.0		2		.870	7.24
(625)	Cocoanut	260	24	10		3		.880	7.33
(6 C 25)	Myristic	246	50	1		2		.888	7.40
sc 630, C ₁₅ - & Up									
(6 C 7)	Stearic, Triple Pr	202	55	5.0					
(632)	Oleic	195	9	90		14		.894	7.45
(6 Y 9)	Oleic, Emersol 233	202	5	88		1		.888	7.40
(6 F 2)	Soya, Emersol 610	193	28	115 m					
(6 Y 11)	Soya, Neofat 127	200	28	115 m		5		.894	7.45
(6 A 6)	Soya,	195	29	125 m		5		.894	7.45
(6 C 26)	Aliphat 16 BW	200	25	125		4		.900	7.50
(634)	Linoleic, 55%	198	5	138 m		2		.900	7.50
(6 C 4)	Linoleic, 59%	198	19	138 m		2		.900	7.50
(6 C 15)	Linoleic, Emer.9310	194		140 m		4		.900	7.50
(6 Y 12)	Linoleic, Emer.9310	194		140 m		4		.900	7.50
(6 A 8)	Linoleic, Emer.9315	194		145 m		4		.906	7.55
(639)	Black Oil	70-170		150 m		Dk		.924	7.70
(638)	Linseed	200	15	180 m		6		.904	7.52
(6 A 3)	D.C.O.F.A.	170	15	120 m		6 M		.908	7.57
(6 C 9)	D.C.O.F.A.	195	5	150 m		5 M		.900	7.50
(6 Y 10)	Synthenol	145		130 m		8 M		.900	7.50
(6 A 1)	Tung	195	40	158 m		12 M		.913	7.60
(6 A 5)	Tung, 35% NV Soln					13 M		.882	7.34
(6 Y 6)	Tung, 25% NV Soln							.846	7.05
sc 650, C ₁₅ & Up, with rosin acids									
ROSIN									
ACID %									
(6 C 17)	Acintol F A 2	195	1M	127 m A		8 M	380	.898	7.48
(6 L 5)	Aliphat 44 A	195	2M	120 m		8 M			
(6 A 7)	Acintol FA 1	189	4M	138 A		9 M	380	.900	7.50
(6 D 51)	Indusoil								7.59
(6 T 1)	Acolin	180	28	158	GH				7.8
(6 C 18)	Acintol D	190	32	164	D	8	400	.947	7.90
(662)	Tall Oil, Acid Ref.	160	43	125	150"	12 M	350	.987	8.22
(6 N 1)	Tall Oil, Unitol R				73"				8.22
(6 C 22)	Tall Oil, Unitol G7	170	46	167	23	9 M		.990	8.25
(6 C 10)	Tall Oil, Crude	165	42	160		/18		.965	8.03
(6 C 21)	Aliphat 45 A	180	70			10 M		1.04	8.66
(6 C 8)	Faresac 69 Pitch				solid				8.1
(6 L 1)	Dimer Acid, M461R	186			22-25	12 M		.944	7.85

NUMBER	NAME	MP, or BP °C	ACID V/NV	VISC. GH-T	COLOR GARD. or Pt Co	FLASH PT °F TOC	SP GR 77°F	BULK GAL /CWT	LBS /GAL 77 F
sc 700	Monobasic								
(7 C 15)	Crotonic, sc 600	M 72	600			190			
(7 A 2)	Octoic	B 220	380		Pt 50	260	.903	11.8	7.51
(7 A 1)	Naphthenic 240		240	B	G 8	260	.978		8.15
(7 A 7)	Naphthenic 230		230	B	G 8	260	.978		8.15
(7 C 12)	Naphthenic, Ref								8.15
(7 A 3)	Naphthenic, Crude		Dark						
(7 C 6)	Lactic, 50%								9.2
700	Benzoic, 98%	M							
7 C 5	Benzoic, Tech	M 121							
7 Y 3	Benzoic, 95%								
7 L 1	Ptbutyl benzoic	166	315				1.142	10.5	
7 A 4	Naphthalene acetic								
sc 750	Di- & Polybasic								
751	Oxalic, dihydrate	M 101	885				1.653	7.3	
(7 C 11)	Oxalic A sol'n								7.55
755	Maleic anhydride	M 52	1150					8.1	
757	Fumaric	M 287	946				1.64	7.3	
7 C 10	Malic	M 100	837					7.5	
7 F 1	Malic	M 100	837					7.5	
7 C 17	Tartaric							6.8	
7 C 1	Diglycolic, 98%	M 138							
7 C 13	Citric, monohyd	M 153					1.542	7.8	
7 C 4	Adipic	M 295	767			376			
7 A 8	Azelaic	M 203	567						
765	Phthalic, flake	M 130			Pt 55			7.8	
770	Phthalic, molten	M 130			Pt 55			7.8	
7 C 7	Phthalic, crude		(.8% non-sublimable)					7.8	
7 C 8	Phthalic, crude		(.4% " ")					7.8	
7 Y 1	Phthalic, tech	M 190							
7 Y 2	Phthalic, recov.								
7 C 18	Isophthalic acid	M 669	665					7.5	
7 C 19	Tetra-cl phthalic an.	M 154							
7 A 9	Chlorendic anhydride	M 239	303					6.94	
7 C 3	Bromo TS		(sub class 8800)						
(7 M 1)	Menthadiene		(sub class 340)						

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June, 1956

Remarks

- (7A2) Is limited to drier manufacture
- (7A1) For driers is preferred over (7A7) which is more available.
- 755 Should be used only where 757 drier is not satisfactory.
- 707 And related impure grades of phthalic anhydride should not be used in general alkyd formulations.

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R. S. Taylor
Cleveland
May 15, 1954

CLASS 800

Soaps or salts of carboxylic acids of classes 600 and 700 containing metals of the first three major and minor periodic groups, including mixed soaps also derived from phenols. (Rosin salts are classified 3320-3329.)

800 - 819 Major Group I plus ammonia (Li, Na, K, Rb, Cs)

820 - 839 Minor Group I (Cu, Ag, Au)

840 - 859 Major Group II (Be, Mg, Ca, Sr, Ba, Ra)

860 - 879 Minor Group II (Zn, Cd, Hg, Phenyl Hg Oleate)

880 - 899 Group III, Major and Minor (Al, Al Stearate, Etc.)

0007-PMC-000000180

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May 15, 1954

Number	%	Metal	Salt or Soap	NVM %	Body GHT	Color Card Max.
1122		Potassium	Flaxoap MI	42.5*		
813		Sodium	Ivory Soap Powder	100		White
(8A1)		Sodium	Ivory Soap Solution	10%		White
8C15		Copper	Oleate	100		
(824)	8	Copper	Naphthenate	73		Green
(8D22)	11.8	Copper	Hydroxy Naphthenate			
(8A9)	3.5	Magnesium	Octoate	53	2 1/4"	8
8F3		Magneisum	Stearate	100		White
(2236)	4.	Calcium	Naphthenate	57-60		11
(8C20)	4	Calcium	Naphthenate	60	R	10
(2235)	5	Calcium	Octoate	48	W	5
1826		Calcium	Stearate	100		White
8A10	13.5	Calcium	Soyate Pulp	30%		White
8C28	9.3	Calcium	Linoleate Pulp	30-36%		White
(8C26)		Calcium	Linoleate Base			
(5096)	8	Zinc	Naphthenate	54	E-F	8
(8L1)	8	Zinc	Octoate	50		8
1409	14	Zinc	Stearate	100		White
8D60		Zinc	Stearate N/C Disp.			
8C27		Zinc	Vistex #20	100		
(8A12)	10	Mercury	Phenyl Hg Succinate (Super Ad-It)	22	A5	9
(8C19)		Mercury	Phenyl Hg Oleate	10		9
8P3	59.5	Mercury	Phenyl Hg Acetate	100		
1938	6.0	Aluminum	Tristearate	100		White
547	8.3	Aluminum	Distearate	100		White
8A11	11	Aluminum	(Mixed) Stearate			White
(8Pl4)		Aluminum	Stearate Gel	7	Gel	White
(8C22)		Aluminum	Stearate Primer	5		White
8A7	16	Aluminum	Palmitate	100		White
(8D80)	6	Cerium	Naphthenate			
(8Y4)	4	Rare Earths	Naphthenate	25.6		12

*Volatile as Water

0007-PMC-000000181

MP°C R&B	Remarks	FP°F TOC	Bulk G/100#	Sp.Gr. 75°F.	#/Gal. 75°F.	Number
	Emul. & Detergents		11.8			1122 813 (8A1)
				0.912	7.60	
	Fungicide	105	11.4	1.03	8.6	8C15 (824)
	Lacquer Chips			1.195	9.95	(8D22)
145	S-W Mfr., IOM Sherdye	140	11.7	0.906	7.55	(8A9) 8F3
	Drier	105		0.944	7.87	(2236)
	Ferro Only	105		0.936	7.80	(8C20)
	Kem-Glo	105		0.914	7.62	(2235)
150	Suspending Agent		11.61			1826
			11.9			8A10
	Use 8A10 8C28 in Varnish		11.9			8C28 (8C26)
	Drier	105		0.966	8.05	(5096)
	Try (5096)	105		0.900	7.50	(811)
115-120	Flatting Agent		11.0			1409
	Industrial Lacq.	50	12.6			8D60
	Kem Dura		12.6			8C27
	Fungicide	104		0.971	8.10	(8A12)
	Fungicide	100		0.827	6.87	(8C19)
149	Fungicide					8F3
91-99	Flatting Agent		11.9			1938
145-160	Thickening Agent		11.1			547
160	Graphic Arts		11.9			8A11
				0.783	6.52	(8F4)
	Primer			0.865	7.20	(8C22)
200	Thick. & Susp. Agent		11.2			8A7
	Drier			0.936	7.80	(8D80)
	Drier (Baked)			0.883	7.35	(8Y4)

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May 15, 1954

Remarks

Calcium naphthenate is frequently used to replace a lesser amount of lead drier in varnishes exhibiting a poor tolerance for lead to help prevent precipitation. In some cases, complete replacement of lead obtains equal or better drying when the calcium is activated by the presence of cobalt and manganese.

Calcium often eliminates the tendency of the enamels and dipping varnishes to exhibit silking or blooming. It has pigment wetting and dispersion characteristics in grinding liquids.

Zinc naphthenate is noted for its ability to inhibit the wrinkling which is often induced by sizeable quantities of cobalt, especially in baked finishes. Use of three parts zinc to one part cobalt practically eliminates this tendency. While zinc slows the initial set and dry, it does not usually affect the overall drying time. It is said to have a pronounced tendency to inhibit gelation. This inhibition is also said to be an effective preventative of skinning in some alkyds.

Because of its wetting power for pigments, zinc is used as a mixing and grinding agent. It also is used as a fungicide.

Copper naphthenate is of prime interest as a fungicide and preservative. Use as a drier is severely restricted by its color.

Aluminum stearates are used as flatting agents and suspending and bodying agents.

Rare Earth naphthenate must be baked, it cannot be used in air dry finishes. It will gel coconut fatty esters.

0007-PMC-000000183

Page 9-1
May 15, 1954
R. S. Taylor
Cleveland

CLASS 900

Soaps or salts of carboxylic acids of classes 600 and 700 containing metals of the 4th through 8th major and minor periodic groups, including mixed soaps also derived from phenols. (Rosin salts are classified 3320 - 3329).

- 900 - 919 Group IV, major and minor (lead, tin, Ti, etc.)
- 920 - 929 Group V, major and minor (antimony, Bi, Va, etc.)
- 930 - 939 Group VI, major and minor (chromium, molybdenum, etc.)
- 940 - 949 Group VII, major and minor (manganese, etc.)
- 950 - 969 Group VIII, (cobalt, iron, nickel, etc.)
- 970 - 999 Combinations of any class 9 compounds with or without class 8 compounds.

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Page 9-2
May 15, 1954

Number	%	Metal	NVM %	Body GHT	Color Gard. Max.	Remarks	#/G 75°F.
<u>ACETATES</u>							
9A13	55	Lead(.3H ₂ O)	100	Solid	White	Drier Mftr.	4.8(Bulk)
9A49	25.4	Mang.(2.5H ₂ O)	100	Solid	Pink	Drier Mftr.	7.5 "
9A72	22.4	Mang.(.4H ₂ O)	100	Solid	Pink	Drier Mftr.	7.5 "
9A59	23	Cobalt(.4H ₂ O)	100	Solid	Pink	Drier Mftr.	7.1 "
<u>FATTY ACIDS (UNIDENTIFIED)</u>							
(9N2)	6	Zirconium	28	A	4	Flock Adhesives	7.40
(9L8)	24	Lead				Odorless; Lowe	
(9L7)	6	Cobalt				Odorless; Lowe	
<u>LINOLEATES</u>							
*(543)	1.2	Manganese	34.5	A	18		7.00
*(374)	(13	Lead	44	A	Dark		8.00
	1	Manganese					
<u>NAPHTHENATES</u>							
*(4090)	24	Lead	75	R-W	13		9.90
*(9C16)	24	Lead	100	240"	17	Hi Flash; Cut in oil	10.61
							9.58
*(4230)	10	Lead	32	A1	11		7.50
*(4091)	6	Manganese	57	A-K	16		7.73
(9C21)	6	Manganese	70	A-B	18	Restricted Source	7.98
*(9Y1)	6	Manganese	60-70	A-K	16	Rejected (4091) for (4231)	8.20
*(4231)	2	Manganese	20	A5-A1	16		6.87
*(4092)	6	Cobalt	56	A4	Dark		7.93
(9C22)	6	Cobalt	70	A1-H	Dark	Restricted Source	7.98
(9Y2)	6	Cobalt		A-B	Dark	Rejected (4092) for (4232)	7.85
*(4232)	2	Cobalt	16.8	A4-A	Dark		6.95
(3230)	6	Iron	80	J	Dark		8.37
(9D4)	6	Zirconium	28	A	4	Acme Automotive	7.40
(9D71)	13.5	Lead				Acme	8.46
	(0.48	Manganese					
9A70	(21	Lead		Paste		L.O.M.	8.62
	4	Manganese					

* S-W Manufacture

Note: Flash point of all liquids is 105°F. Minimum, TOC, unless otherwise stated.

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Number	%	Metal	NVM %	Body GHT	Color Gard. Max.	Remarks	#/G 75°F.
<u>OCTOATES</u>							
*(9A9)	24	Lead	60	A-B	10		8.90
(9C7)	24	Lead	63	A4-C	7		9.17
(9A14)	24	Lead	54		3	Std. Odorless	9.33
*(9A10)	10	Lead	30	A5-A	10		7.5
(9C9)	6	Manganese	44	A-D	Dark		7.5
(9A71)	6	Manganese	45			Odorless	7.5
(9C8)	2	Manganese	15		Dark		6.81
*(956)	6	Cobalt	37.7	A2	Purple		7.44
(2224)	6	Cobalt	45	B	Purple		7.58
(9A64)	6	Cobalt	40		Purple	Odorless	7.47
*(9C18)	2	Cobalt	14		Purple		6.73
(9T4)	2	Cobalt	14.4		Purple		6.86
<u>MISCELLANEOUS</u>							
(993)	44	Lead	79	Paste	Gray	Nuact Paste	13.9
(4066)			30	Gel	6 @5%	Nuade	7.0

*S-W Manufacture

Note: Flash point of all liquids is 105°F. Minimum, TOC, unless otherwise stated.

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May 15, 1954

Remarks

Lead naphthenate is widely used as a polymerization catalyst, promoting through drying. It must be used in combination with either cobalt or manganese, in order to effect a tough, resistant film. It cannot be used with aluminum paints because it destroys leafing properties.

Cobalt naphthenate is generally used with lead to promote rapid surface drying. Excessive use will promote wrinkling, particularly on baking.

Manganese naphthenate is regarded as an intermediate drier, having somewhat of an affect on both through- and surface-drying properties. It must be used carefully in white paints as a pink stain may develop. Use is primarily in baking finishes.

Page 10-1
R. D. Holzinger
Chicago, Ill.
August 11, 1952.

Class 1000 thru 1099 - Phenolic Compounds and their metal compounds, including halogen substituted, divided into the following subclasses:

- 1000 - 1009 - Phenol
- 1010 - 1019 - Cresols and Xylenols (Cresylic acids, etc.) and aryl
- 1020 - 1029 - All other alkyl and aryl phenols
- 1030 - 1039 - Phenols, halogenated (chloro-phenols)
- 1040 - 1049 - Naphthols
- 1050 - 1059 - Dihydric phenols (hydroquinone, bisphenol, etc.)
- 1060 - 1099 - Miscellaneous phenols not previously covered.

Since some of the materials in this class are used as fungicides, we quote the following from R. & P. Bulletin # 142 dated March 24, 1950:

- " 1. The following has been received from the Industrial Sales Department:
Generally speaking, on any material coming under the Federal or State Insecticide, Fungicide, and Rodenticide acts, the Technical Department will assume responsibility for technical preparation.

The Technical Department will then furnish information as to label analyses, directions for use, and precautions to be observed in use and handling of product and finished product.

The Sales Department will then prepare final label copy to be approved by legal and technical.
2. This ruling applies to such products as Kermwood Sealers, Wood Preservatives, and Stains that have incorporated into them certain poisonous or toxic components."

10-2
August 11, 1952

Number	Prev. No.	Name	Melting Point OF S.W.Method	Body
(10C2)	(3074)	Synthetic Phenol	104 454.51	
(10C4)	(4071)	1, 3, 5, Xylenol		Liquid
(10A5)	(889)	Cresylic Acid		Liquid
10C3	1874	Para Tert. Butyl Phenol	206-210 454.51	Flakes
10C1		Octyl Phenol	161-165	
1964		Pentachlorophenol, Tech.	345 454.51	Flakes
(10Y1)	OV733	Pentachlorophenol Sol.		A-
10C14	2260	Na Pentachlorophenate		Flakes
(10P4)		Toxic Preservative		A-
2052		Tetrachlorophenol	120-156 454.0	Flakes
(2231)		Tetrachlorophenol Sol.		A-
(10T1)	TV1105	Tetrachlorophenol Sol.		B
(10A3)	AV273	Beta Naphthol Sol.		A-
10C15	2210	B-oxy Naphthoic Acid		
10C6	2114	Bisphenol A	302 454.51	Flakes
1061	10A4	Hydroquinone	338 approx.	Crystals
(3065)	NV1283	Hydroquinone Sol.		A-
10C5	CW2800	Dichloro Diphenyl	351 approx.	Powder
		Dihydroxy Methane		
(1082)	(1764)	Tech. Guaiacol		A-
(1767)		Guaiacol Sol.		A-
10C13	1715	Sodium Ortho Phenyl		Flakes
		Phenate Tetrahydrate		

10-3
August 11, 1952

Color	%NVM	Solvent	Bulking Value Gals/100#	Flash Point °F TOC	#/Gal. @75°F	Number
Lt. Pink	100	None			8.92	(10C2)
Dark	100	None			8.44	(10C4)
Pale	100	None			8.60	(10A5)
White	100	None	13.2			10C3
White	100	None	12.75			10C1
Dark	100	None	14.1			1964
	41	(2650)		44	9.64	(10Y1)
Buff	100	None	34.0			10C14
12	43	79(348)12(4021)9(2003)			7.85	(10P4)
Tan	100	None	14.3			2052
10	20	50(4046)50(348)			7.60	(2231)
14	100	(2)			9.37	(10T1)
6	20	75(4046)25(1167)			7.43	(10A3)
Lt. Yellow	100	None	33.3			10C15
Cream	100	None				10C6
White	100	None	8.4			1061
WW	9.2	(1168)		35	7.62	(3065)
Off-White	100	None				10C5
10	100	None			8.95	(1082)
10	18.3	(348)		105	6.83	(1767)
White	100	None	18.6			10C13

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Page 10-4
August 12, 1952

Remarks

(1002)	Used in phenolic resin shell coatings.
(1004)	Used in 100% phenolic resin 2602.
1003	Used in 100% phenolic resins as 2600, 2601, 2604, and 4310.
1006	Used in phenolic and ether resins.
1964)	
(10Y1))	Used in the manufacture of wood preservatives.
(10Y4))	
10013)	
10014)	Used as emulsion preservatives.
1005)	
2052)	
(2231))	Used as a drier promoter.
(10T1))	
(10A3))	
1061)	Used as gas-checking and wrinkle inhibitors.
(3065))	
(1082))	Used as anti-skinning agent.
(1767))	
1001	Stabilizer in cable lacquers.

0007-PMC-000000191

Page 12-1
E. Kulish
Chicago
February 3, 1955

CLASS 1200

Esters of Monohydric Alcohols
and Monobasic Acids

- | | |
|-------------|--|
| 1200 - 1219 | Volatile esters with initial boiling points (ASTM D-1078) up to 100°C. |
| 1220 - 1239 | Volatile esters with initial boiling points (ASTM D-1078) above 100°C. |
| 1240 - 1249 | Mixtures of volatile compounds which contain a substantial fraction of volatile esters (many "thinners" for N/C and other lacquers, vinyl coatings, etc.). |
| 1250 - 1269 | Non-volatile esters derived from alcohols of C ₁ through C ₈ . |
| 1270 - 1289 | Non-volatile esters derived from alcohols of C ₉ and higher. |
| 1290 - 1299 | Open. |

0007-PMC-000000192

Material Number	Previous Number	Material
(1202)	(1168)	Ethyl Acetate
(12C13)		N. Propyl Acetate
(1204)	(2611)	Isopropyl Acetate
(12C6)		Propyl Isobutyl Acetate
(1222)	(1170)	N. Butyl Acetate
(12C7)		Isobutyl Acetate
(1223)	(1670)	Sec. Butyl Acetate
(12A1)		Methyl Acetate-Methanol
(12F1)		Methyl Cellosolve Acetate
(1225)		Amyl Acetate
(1234)	(1769)	Cellosolve Acetate
(1232)	(2624)	Methyl Amyl Acetate
(12C19)	(2046)	Butyl Lactate
(12F1)		Butyl Carbitol Acetate
(12C18)		Butyl 2,4-Dichloro-phenoxy acetate
(12C17)		Butyl 2,4,5-Trichloro-phenoxy acetate
(12C25)		Vinyl Acetate
(12C24)		Is-octyl Ester of 2,4 D Technical
(12C23)		Butyl Stearate
(1252)	(2688)	Butyl Stearate
(1253)	(1868)	Hercolyn
(12F6)		Hercolyn D
(12F5)		Plasticizer KP-120
(1242)	(1616)	Solvent Blend
(1243)	(1617)	Solvent Blend
(12F2)		Recovered Lacquer Thinner
(12Y3)		Lacquer Wash Thinner
(12D40)		Lacquer Thinner
(12C22)		Carnauba Wax Solution (20%)
12C9		Carnauba Wax
1272		Beeswax, Pure
12C16		Emulsowax 1214
12C8		Petrolite Crown 36
(12C11)		Emulsion Wax
12C20		Crown #15
12C12		Emulsion Wax 1530

Distil. Range °C. Test Method 430.3	Flash Point °F. - T.O.C. Test Method 429.5	Sp. Gr. 75° F. Test Method 401.2	Wt/Gal. 75° F.	Bulk Gal/100#	Soft Point °F. Test Meth. 451.12	Material Number
72-80	40	0.898	7.49			(1202)
93-105	63	0.877	7.31			(12C13)
84-90	54	0.866	7.22			(1204)
105-124		0.870	7.25			(12C6)
115-130	100	0.873	7.28			(1222)
110-119	90	0.862	7.18			(12C7)
103-115	85	0.859	7.15			(1223)
55-85	30		7.4			(12A1)
137-147	132	1.003	8.36			(12F1)
110-155	93	0.858	7.14			(1225)
145-160	150	0.970	8.08			(1234)
138-145	113	0.855	7.11			(1232)
165-190	176	0.979	8.16			(12C19)
235-250	240	0.975	8.13			(12F1)
	200	1.237	1.031			(12C18)
		1.332	1.110			(12C17)
	23		7.79			(12C25)
		1.136	9.47			(12C24)
	360	0.862	7.18			(12C23)
	370	0.853	7.09			(1252)
	361	1.017	8.48			(1253)
		1.017	8.48			(12F6)
		0.961	8.01			(12F5)
		0.831	6.93			(1242)
		0.808	6.74			(1243)
		0.837	6.98			(12F2)
		0.836	6.97			(12Y3)
		0.885	7.37			(12D40)
				12.0	82	(12C22)
						12C9
		0.957	7.98	12.5	144	1272
		0.984	8.20	12.2	162	12C16
		0.968	8.07		180	12C8
		0.968	8.07	12.4	180	(12C11)
						12C20
		1.056	8.80	11.4	181	12C12

Remarks

Because of their high solvent power for nitrocellulose, the esters are extensively used as an ingredient of nitrocellulose lacquers and other types of pyroxylin coatings. A blend of fast and medium boiling esters with appropriate alcohols and diluents yields thinners and solvent mixtures of excellent solvency and bluish resistance, good flow and leveling, and compatibility with various resins and oils. Esters are also solvents for camphor, mineral and vegetable oils, natural resins, and many synthetic resins. Ester, kauri, manila, pontianak, and dewaxed damar gums dissolve completely in most esters; shellac is partially dissolved; gum rubber is softened but not dissolved.

Butyl Lactate is not subject to auto-hydrolysis and is not hygroscopic. Although it is not a solvent for cellulose acetate, solutions of cellulose acetate containing butyl lactate deposit clear films on evaporation.

Butyl Stearate is a stable oleaginous material used in the manufacture of polishes and in coatings which are to be polished and is used as a lubricant in molding synthetic resins.

The waxes in this group are used in furniture cream, self-polishing wax, household wax, and many other such products.