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Supersedes March 1, 1945

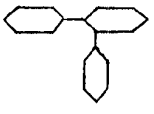
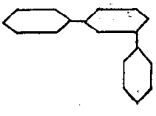
...ical Company St. Louis, Mo.

...Chicago-Philadelphia-Boston-Birmingham-Charlotte-Cincinnati-Detroit-Los Angeles-San Francisco-Seattle-Montreal

THE TERPHENYLS

The TERPHENYLS are a series of hydrocarbon solids ranging in melting point from a little above room temperature to as high as 210°C (410°F). To facilitate selection of the proper Terphenyl for a specific purpose, the physical properties are tabulated as follows:

Physical Properties of the Terphenyls

Terphenyl	Ortho	Meta	Para
			
Color - NPA	<1.5	<3.5	<2.0
Density - g./cc.	1.14	1.164	1.236
Melting Point: Completely liquid	55°C (131°F)	90°C (194°F)	213°C (415°F)
Solidification Temp. First crystals	--	<90°C (<194°F)	209-213°C. (408-415°F)
Hold point	53-55°C (127-131°F)	83-85°C (181-185°F)	--
Distillation Range D-20 (Corrected)	330-350°C. (626-662°F.)	368-378°C. (694-712°F.)	381-388°C. (718-730°F.)
Flash point	171°C.(340°F.)	207°C.(405°F.)	207°C.(405°F.)
Flame point	193°C.(390°F.)	229°C.(445°F.)	238°C.(460°F.)
Viscosity at 210°F. (Saybolt Univ. Sec.)	40.6 See chart attached	39.3	28.8 (225°C.)

Stability - No detectible effect on boiling Terphenyls in 10% Sulfuric Acid or Caustic Soda.

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Vapor Pressure - Mm. of Mercury:

T°C	Mm. Hg. Ortho	Meta	Para	
90	0.17	-	-	
100	0.3	-	-	
110	0.5	0.15	-	
120	0.9	0.3	-	
130	1.5	0.5	-	
140	2.4	0.8	0.15	
150	3.7	1.3	0.3	
160	5.7	2.0	0.6	
170	8.2	3.0	1.0	
180	12.0	4.6	1.9	Solid
190	18.0	6.8	3.2	
200	25.0	9.8	5.5	
210	35.0	14.0	9.1	
220	46.0	19.0	14.0	
230	62.0	26.0	19.0	
240	82.0	36.0	26.0	
250	110.0	48.0	35.0	
260	140.0	63.0	46.0	
270	180.0	83.0	61.0	
280	230.0	110.0	80.0	
290	290.0	140.0	101.0	
300	360.0	180.0	130.0	
310	450.0	220.0	165.0	
320	550.0	270.0	210.0	
330	670.0	340.0	260.0	
340	810.0	410.0	320.0	
350	990.0	500.0	390.0	
360	1160.0	610.0	470.0	
370	1390.0	730.0	570.0	
380	1600.0	870.0	680.0	

Electrical Properties

	Dielectric Constant	Resistivity - ohm-cm 100°C.	250°C.
Ortho Terphenyl	2.54	8200×10^9	-
Meta Terphenyl	2.62	2600×10^9	-
Para Terphenyl	-	-	30×10^9

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Comparative Hardness

(Smaller figure denoting greater hardness)

Wax	Load --	Average Penetration in cm x 10^{-2} in 60 seconds at 25°C under load indicated. ASTM D-5-25.		
		50 Grams	150 Grams	250 Grams
Meta Terphenyl		0	0	2.3
Para Terphenyl		0	0	3.3
Carnauba Wax		0	2.3	4.7
Candelilla Wax		0	3.3	4.7
Ortho Terphenyl		1.3	4.0	10.7
50% Paraffin & 50% Meta Terphenyl		3.7	12.3	18.0
75% Paraffin & 25% Meta Terphenyl		7.3	18.0	25.3
Ceresine Wax		9.3	15.7	26.0
95% Paraffin & 5% Meta Terphenyl		10.7	21.0	29.7
98% Paraffin & 2% Meta Terphenyl		11.7	26.0	32.7
Paraffin Wax		14.3	23.3	31.3
Montan Wax		15.0	28.7	37.3
Mixed Isomeric Terphenyl				
Aged 24 hours		28.7	-	-
Unaged		60.0	-	-

Solubility (See attached graphs)

Compatibility of the Terphenyls

Other Component	Meta Terphenyl % Meta Terphenyl in Mixture 10	25	50	75	90
Paraffin (120/125°F)	Incompatible with 2% or more Meta Terphenyl				
Barnsdall Wax (160/165°F)		C	B	I	I
Ceresin	I		I		I
Carnauba Wax	C		C	C	I
Candelilla Wax	C	C	I		I
Montan Wax	I		I		I
Beeswax	I		I		I
Japan Wax	C	I	I		
Opal Wax	C	C	I		I
I. G. Wax O	I		I		I
Stroba Wax	I		I		I
Acra Wax	C		C		B
Stearic Acid	I		I		I
Shellac	C		I		I
Manila Resin (Loba B)	C		I		I
Ester Gum	C		I		I
"N" Wood Rosin (Hercules)	C	C	I		I
Piccolite Resin (85°)	C		I		I
Staybellite Resin	B		I		I

Note: C = Compatible; I = Incompatible; B = Almost Compatible.

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Ortho Terphenyl

Other Component	% Ortho Terphenyl in Mixture 10	25	50	75	90
Paraffin (120/125°F)	C		C		C
Barnsdall (160/165°F)	C		C		C
Beeswax	C	C	C		I
Opal Wax	C		I		I
Stearic Acid	I	I	I		I
"N" Wood Rosin	C	C	I	I	

Para Terphenyl

Other Component	% Para Terphenyl in Mixture 0.5	1-2	3	5	10-75
Paraffin (120/125°F)	I				
Paradene No. 1				C	I
Paradene No. 2		C	I		
"N" Wood Rosin					I

Availability

The Terphenyls are available in limited quantities.

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The information in this bulletin is based on our experience, represents our best judgment in the matter, and is intended to be helpful, but we cannot assume responsibility for loss or accident that may result from its use.

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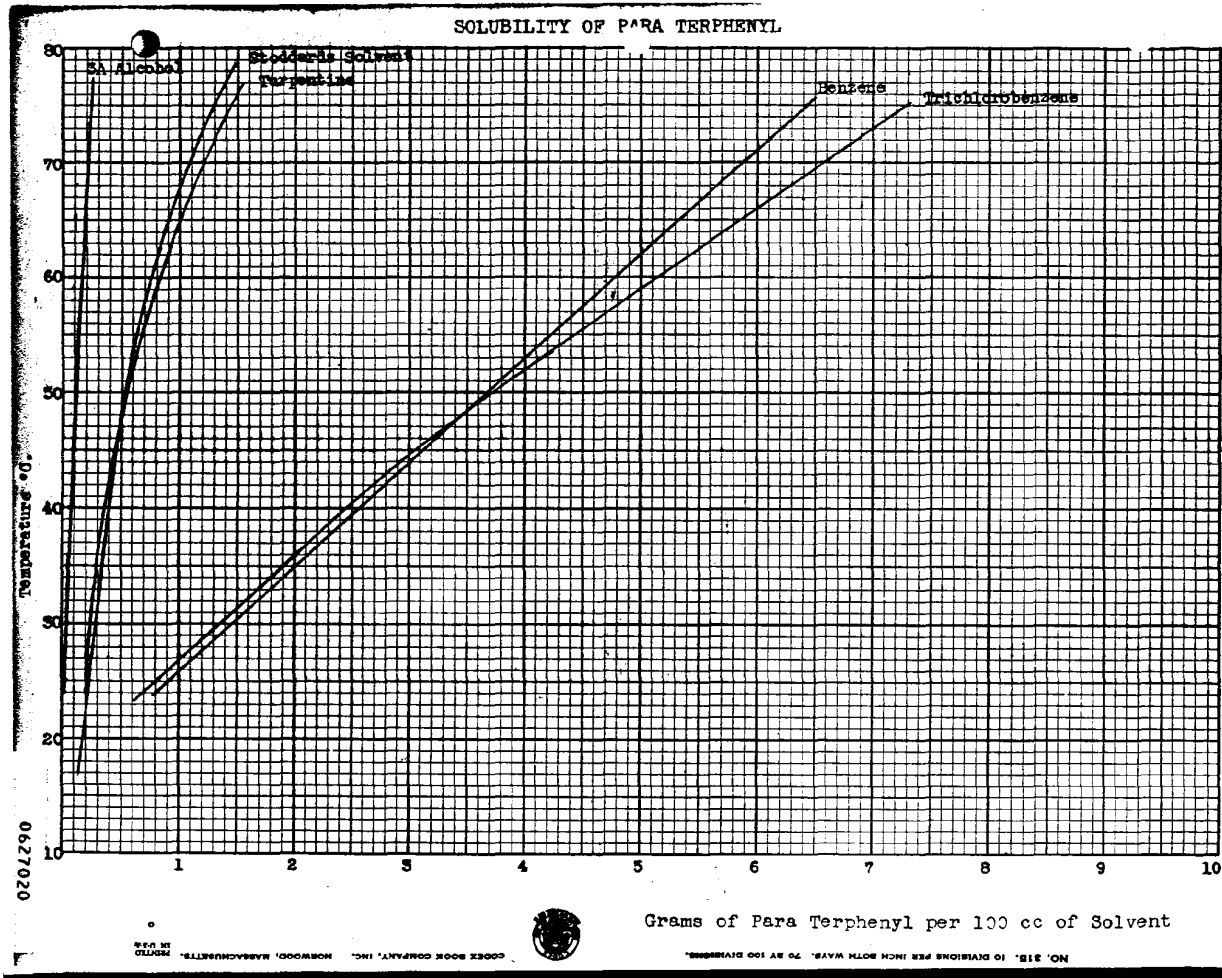

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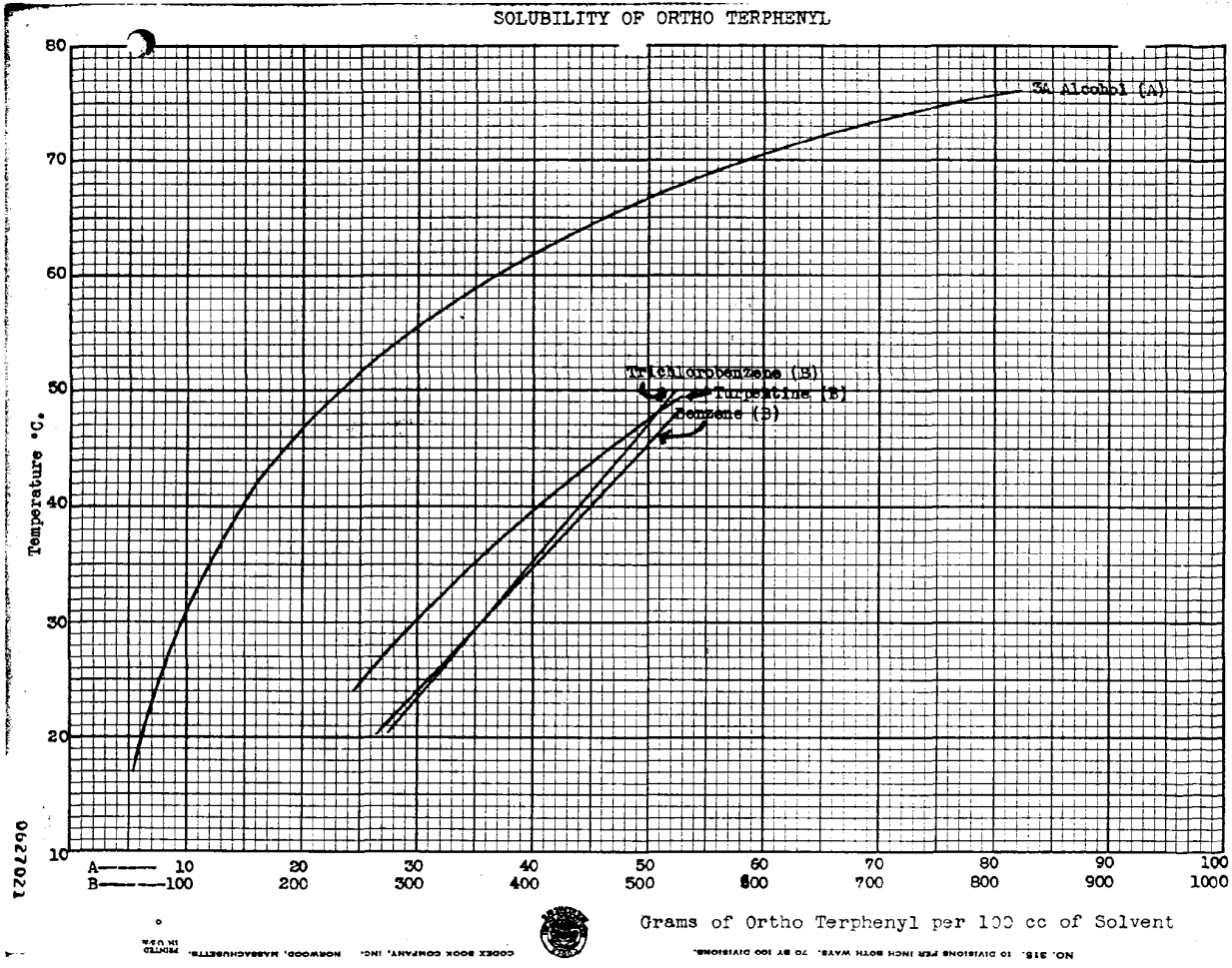

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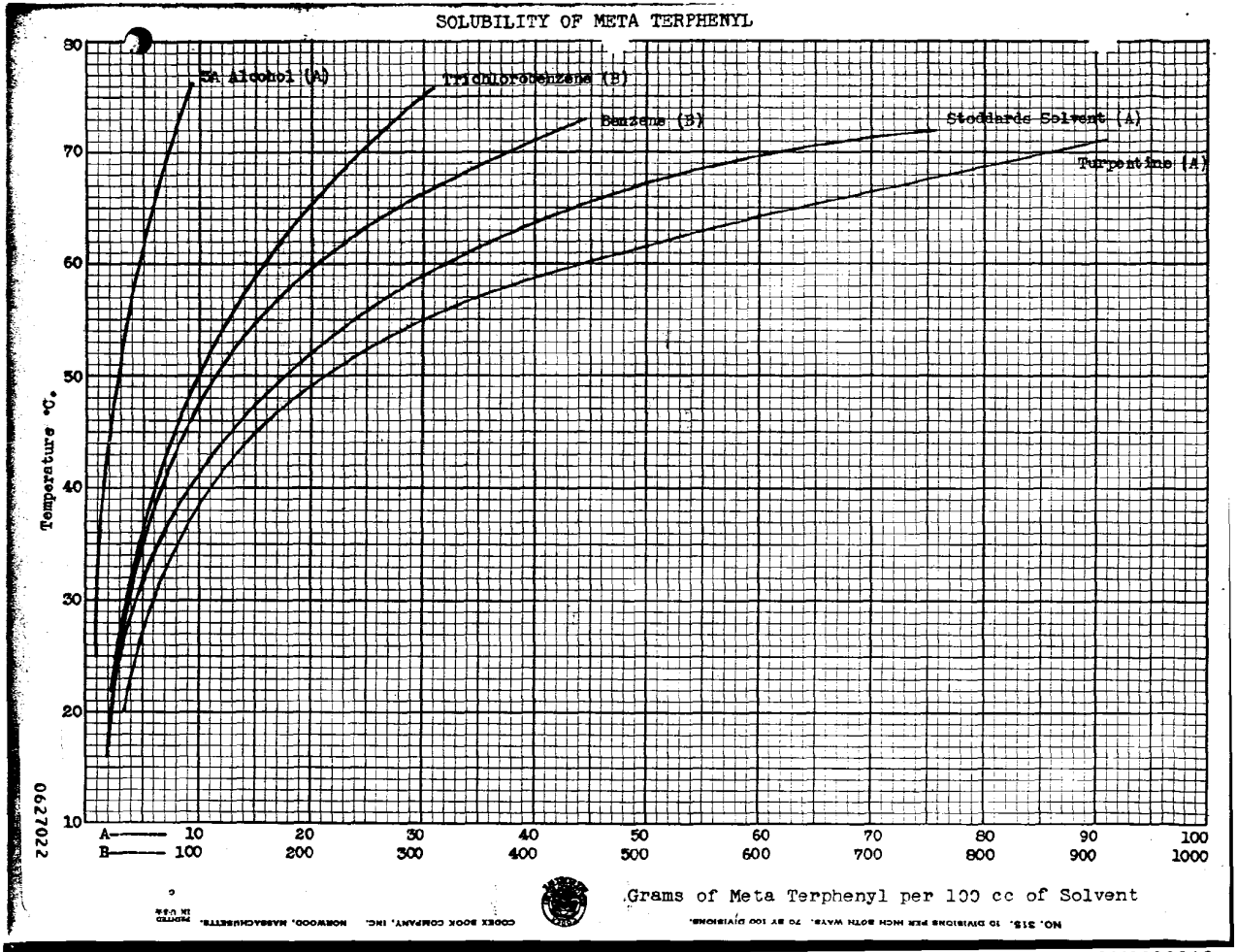

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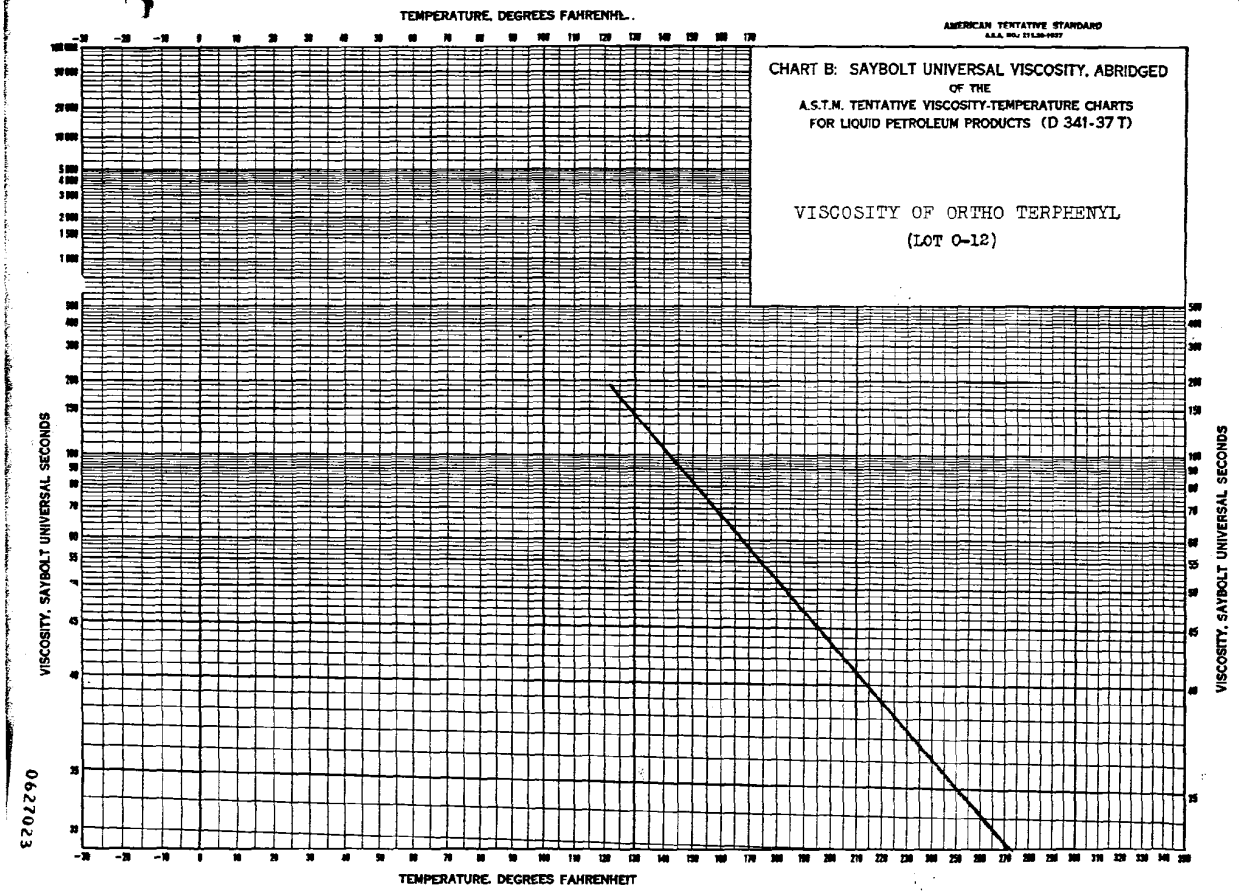

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