

August 15, 1947
Supersedes March 1, 1945

Chemical 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:

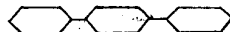
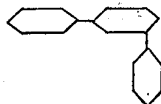
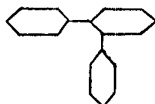
Physical Properties of the Terphenyls

Terphenyl

Ortho

Meta

Para



Color - NPA	<1.5	<3.5	<2.0
Density - g./cc.	1.14	1.164	1.236
<u>Melting Point:</u>			
Completely liquid	55°C (131°F)	90°C (194°F)	213°C (415°F)
<u>Solidification Temp.</u>			
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)	--
<u>Distillation Range</u>			
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.	40.6	39.3	28.8 (225°C.)
(Saybolt Univ. Sec.)	See chart attached		

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

MONSANTO TRADE LITERATURE
PERMANENT FILE

#- 0627016

TOWOLDMON0039610

2 -

-2-

Vapor Pressure - Mm. of Mercury:

<u>T°C</u>	<u>Ortho</u>	<u>Mm. Hg.</u> <u>Meta</u>	<u>Para</u>
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
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

Solid

Electrical PropertiesDielectric Constant

Ortho Terphenyl	2.54
Meta Terphenyl	2.62
Para Terphenyl	-

Resistivity - ohm-cm

<u>100°C.</u>	<u>250°C.</u>
8200 x 10 ⁹	-
2600 x 10 ⁹	-
-	30 x 10 ⁹

0627017

TOWOLDMON0039611

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.

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

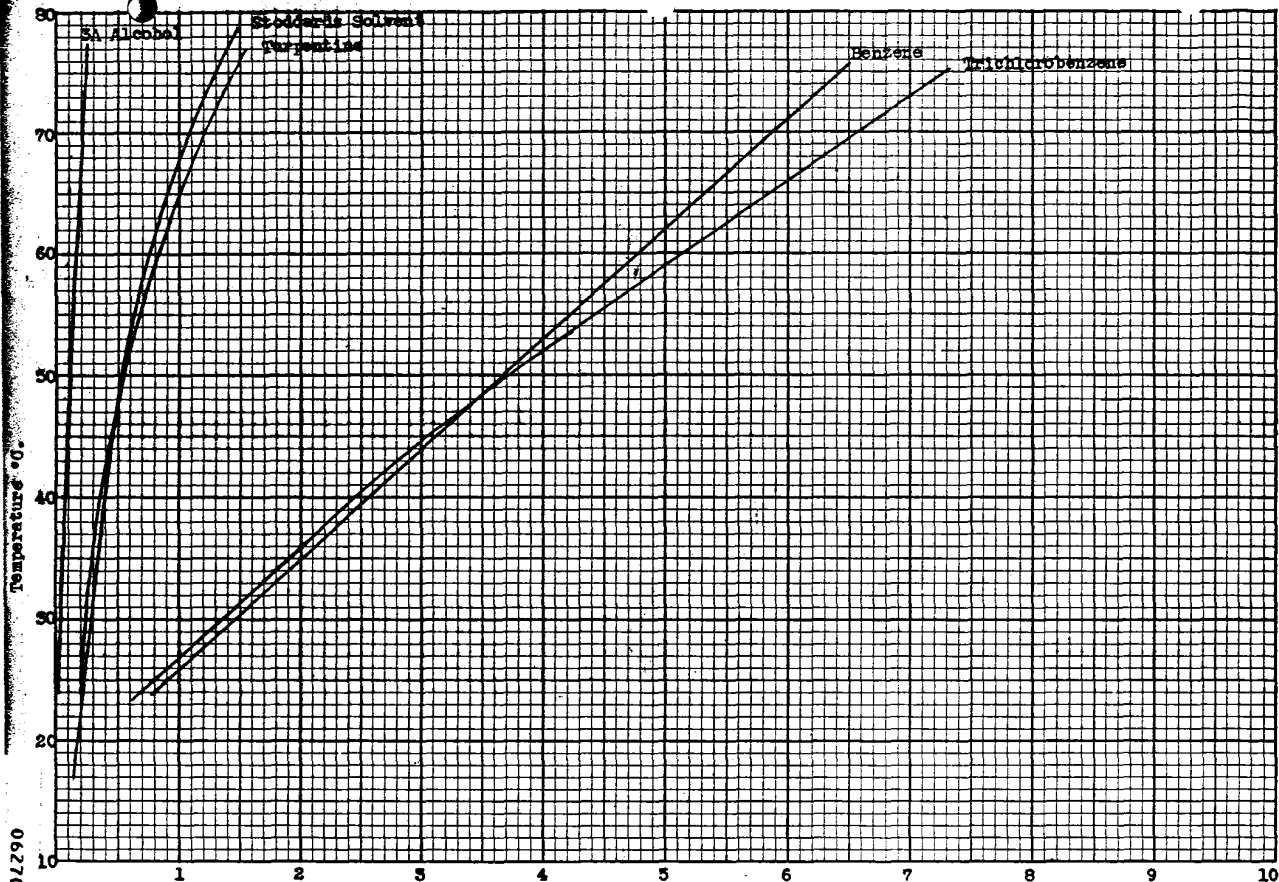
Availability

The Terphenyls are available in limited quantities.

* * * * *

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.

SOLUBILITY OF PARA TERPHENYL



0627020

COOK BOOK COMPANY, INC. NORWOOD, MASSACHUSETTS. PRINTED IN U.S.A.

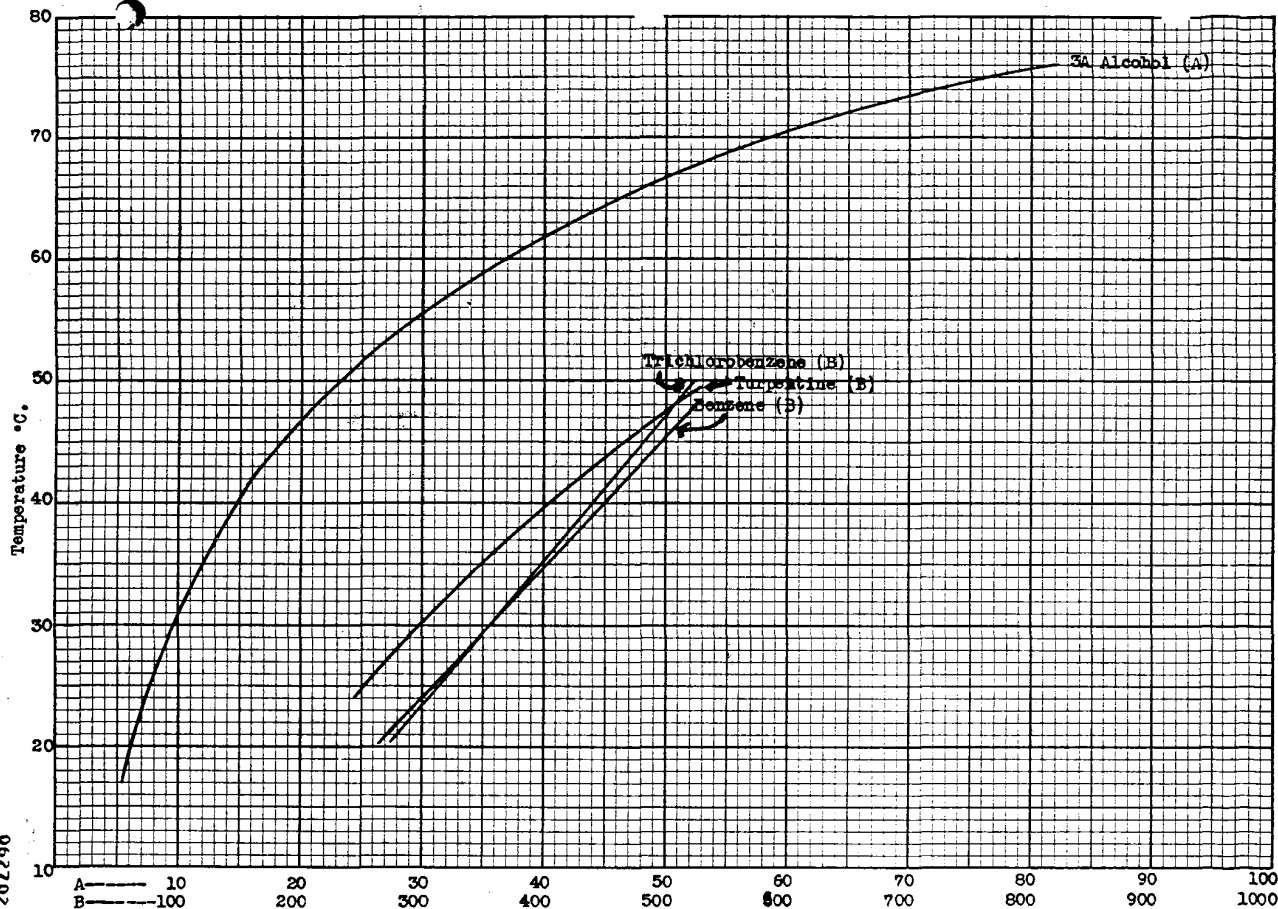


Grams of Para Terphenyl per 100 cc of Solvent

NO. 318, 10 DIVISIONS PER INCH BOTH WAYS. 70 AT 100 DIVISIONS.

TOWOLDMON0039614

SOLUBILITY OF ORTHO TERPHENYL



1201290
 PORTO IN U.S.A.
 CODING BOOK COMPANY, INC. NORWOOD, MASSACHUSETTS.

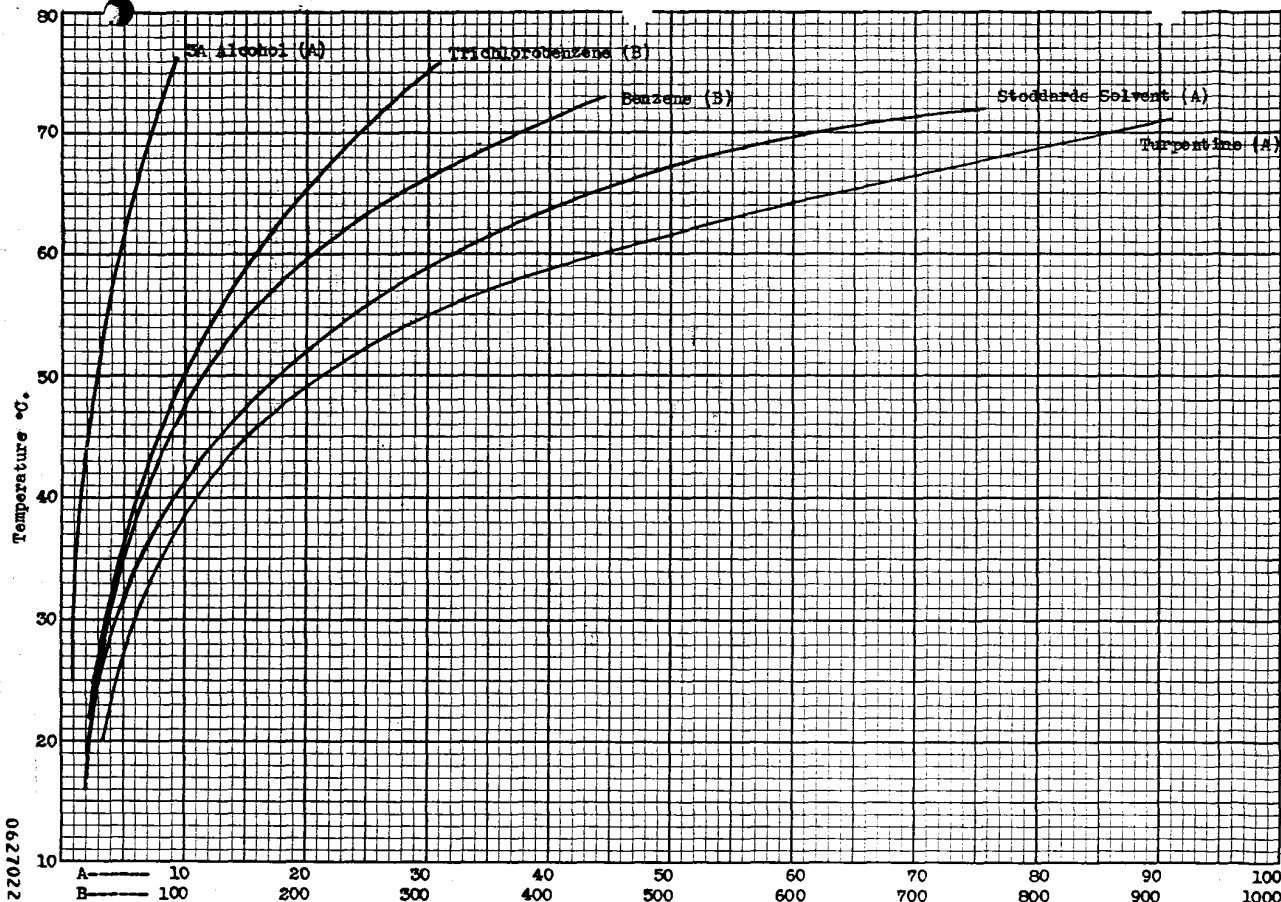


Grams of Ortho Terphenyl per 100 cc of Solvent

NO. 315. 10 DIVISIONS PER INCH BOTH WAYS. 70 BY 100 DIVISIONS.

TOWOLDMON0039615

SOLUBILITY OF META TERPHENYL



2201290

COOK BOOK COMPANY, INC. NORWOOD, MASSACHUSETTS. PRINTED IN U.S.A.



Grams of Meta Terphenyl per 100 cc of Solvent

NO. 315. 10 DIVISIONS PER INCH BOTH VERT. & HORIZ. 70 BY 100 DIVISIONS.

TOWOLDMON0039616

TEMPERATURE, DEGREES FAHRENHEIT.

AMERICAN TENTATIVE STANDARD
A.S.A. NO. 27.50-1927

CHART B: SAYBOLT UNIVERSAL VISCOSITY, ABRIDGED
OF THE
A.S.T.M. TENTATIVE VISCOSITY-TEMPERATURE CHARTS
FOR LIQUID PETROLEUM PRODUCTS (D 341-37 T)

VISCOSITY OF ORTHO TERPHENYL
(LOT 0-12)

VISCOSITY, SAYBOLT UNIVERSAL SECONDS

VISCOSITY, SAYBOLT UNIVERSAL SECONDS

TEMPERATURE, DEGREES FAHRENHEIT

0627020

TOWOLDMON0039617