



MONOISOPROPYLBIPHENYL
&
DIISOPROPYLBIPHENYL

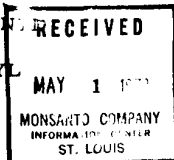
Technical Data Sheet

June 1, 1957

DEVELOPMENT DEPARTMENT

MONSANTO CHEMICAL COMPANY, 800 NORTH 12TH BLVD., ST. LOUIS 1, MISSOURI

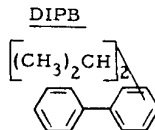
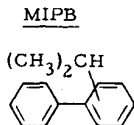
ORGANIC CHEMICALS DIVISION



Org. Chem.

TO ASSIST YOU IN THE EVALUATION OF THE ABOVE PRODUCT, WE HAVE OBTAINED THE INFORMATION CONTAINED IN THIS BULLETIN FROM LITERATURE SOURCES AND PRELIMINARY INVESTIGATION IN OUR OWN LABORATORIES. WHILE WE BELIEVE THE INFORMATION IS ACCURATE, WE ASSUME NO RESPONSIBILITY AND DISCLAIM ANY LIABILITY INCURRED IN USING THESE DATA OR SUGGESTIONS. ONLY QUALIFIED TECHNICAL PERSONNEL SHOULD WORK WITH THIS PRODUCT UNTIL SUBSEQUENT STUDIES JUSTIFY ITS USE IN YOUR PRODUCTS OR PROCESSES. OBVIOUSLY NOTHING IN THIS BULLETIN SHOULD BE CONSTRUED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIAL OR ITS USE.

Formula:



Mol. Wt.

196.3

238 (Approx)

Appearance and Color

Water white
liquid

Clear, slightly
amber liquid

Approximate Assay

62% meta isomer
38% para isomer

Mixed isomers

PHYSICAL PROPERTIES

Refractive Index, n_D^{25}

MIPB

1.5803

DIPB

1.563

Specific Gravity

MIPB

0.979

0.925

0.857

0.776

DIPB

0.953

0.902

0.840

0.756

at 25°C. (77°F.)

at 100°C. (212°F.)

at 200°C. (392°F.)

at 300°C. (572°F.)

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	<u>MIPB</u>	<u>DIPB</u>
<u>Specific Heat, (Cal/gm, °C. or BTU/lb, °F.)</u>		
at 100°C. (212°F.)	0.470	0.482
at 200°C. (392°F.)	0.555	0.564
at 300°C. (572°F.)	0.637	0.646
<u>Specific Heat, (BTU/#)</u>		
	<u>MIPB</u>	<u>DIPB</u>
	$C_p = 0.37 + 0.00048t$ (t = °F.)	$C_p = 0.386 + 0.0004$ (t = °F.)
<u>Viscosity (Centistokes)</u>		
	<u>MIPB</u>	<u>DIPB</u>
at 38°C. (100°F.)	4.655	12.527
at 99°C. (210°F.)	1.402	2.360
at 200°C. (392°F.)	0.56	0.77
at 300°C. (572°F.)	0.31	0.36
<u>Boiling Range (at 760 mm Hg)</u>		
	295-300°C.	321-333°C.
<u>Vapor Pressure (mm Hg)</u>		
	<u>MIPB</u>	<u>DIPB</u>
at 100°C. (212°F.)	-	-
at 150°C. (302°F.)	10	4
at 200°C. (392°F.)	63	28
at 250°C. (482°F.)	290	132
at 300°C. (572°F.)	950	450
at 350°C. (662°F.)	3.5 atm	1.7 atm
<u>Flash Point</u>		
	139°C. (282°F.)	171°C. (340°)
<u>Fire Point</u>		
	152°C. (306°F.)	185°C. (365°)
<u>Pour Point</u>		
	-54°C.	-31°C.
<u>Thermal Conductivity (over temperature range of 100°C. - 220°C.)</u>		
	<u>MIPB</u>	<u>DIPB</u>
Cal/(cm ²)(°C. /cm)(sec)	28.8×10^{-5}	28.1×10^{-5}
BTU/(ft ²)(°F/ft)(hr)	0.070	0.068

	<u>MIPB</u>	<u>DIPB</u>
<u>N_H (atoms of Hydrogen/cc)</u>		
at 100°C. (212°F.)	4.56×10^{22}	5.00×10^{22}
at 200°C. (392°F.)	4.21×10^{22}	4.63×10^{22}
at 300°C. (572°F.)	3.84×10^{22}	4.25×10^{22}

ELECTRICAL PROPERTIES

	<u>MIPB</u>	<u>DIPB</u>
<u>Resistivity (ohm-cm)</u>	1×10^{12} or greater 1×10^{14} or greater*	1×10^{12} or greater 1×10^{14} or greater*

* Treated with activated alumina

	<u>MIPB</u>	<u>DIPB</u>
<u>Dielectric Strength (60 cycles, 0.1 inch gap)</u>	40KV or greater	40 KV or greater
<u>Dielectric Constant</u>	<u>MIPB</u>	<u>DIPB</u>
at 25°C. & 60 cycles	2.66	2.57
at 25°C. & 1000 cycles	2.64	2.57
at 100°C. & 60 cycles	2.50	2.45
at 100°C. & 1000 cycles	2.50	2.45
<u>Power Factor</u>	<u>MIPB</u>	<u>DIPB</u>
at 25°C. & 60 cycles	0.09%	0.3%
at 25°C. & 1000 cycles	0.07%	0.08%
at 100°C. & 60 cycles	0.39%	1.7%
at 100°C. & 1000 cycles	0.16%	0.16%

Toxicity

Both MIPB and DIPB are of a low order of toxicity and, therefore, require no special handling. Available toxicity data may be summarized as follows:

Oral Toxicity (rats)

The Oral Lethal Dose in rats of 3.38 grams per kilogram classifies the material as "slightly toxic" from the standpoint of ingestion of single oral doses.

Skin Absorption (rabbits)

The material is not readily absorbed through the unbroken skin.

Skin and Eye Irritation (rabbits)

The sample produced no measurable irritation when applied to the skin for a period of 24 hours, nor did it cause any damage to eye tissues when instilled in the conjunctival sac.

Vapor Inhalation (rats)

Exposure to a high concentration of vapors for six hours failed to kill the rats.

Suggested Uses

Chemical Intermediate; Heat Exchanger Fluid where a pure hydrocarbon with excellent radiation resistance, thermal stability, and/or electric characteristics are required; Plasticizer and High Temperature Dielectric.

MM:sj 6/1/57-1000

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