Org. Chem.

MONSANTO

MONOISOPROPYLBIPHENYL & DIISOPROPYLBIPHENYL

Technical Data Sheet

June 1, 1957

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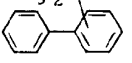
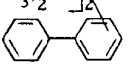
ST. LOUIS

DEVELOPMENT DEPARTMENT ORGANIC CHEMICALS DIVISION
MONSANTO CHEMICAL COMPANY, 800 NORTH 12TH BLVD., ST. LOUIS 1, MISSOURI

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.

	MIPB	DIPB
Formula:	$(CH_3)_2CH$ 	$[(CH_3)_2CH]_2$ 
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

	MIPB	DIPB
Refractive Index, N_D^{25}	1.5808	1.563
Specific Gravity	**MIPB**	**DIPB**
at 25°C. (77°F.)	0.979	0.953
at 100°C. (212°F.)	0.925	0.902
at 200°C. (392°F.)	0.857	0.840
at 300°C. (572°F.)	0.776	0.756

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TOWOLDMON0043832
WATER_PCB-00028301

	MIPB	DIPB
Specific Heat, (Cal/gm, °C. or BTU/lb, °F.)		
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
Specific Heat, (BTU/#)	**MIPB**	**DIPB**
	$Cp = 0.37 + 0.00048t$ (t = °F.)	$Cp = 0.386 + 0.0004$ (t = °F.)
Viscosity (Centistokes)	**MIPB**	**DIPB**
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
Boiling Range (at 760 mm Hg)	295-300°C.	321-333°C.
Vapor Pressure (mm Hg)	**MIPB**	**DIPB**
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
Flash Point	139°C. (282°F.)	171°C. (340°
Fire Point	152°C. (306°F.)	185°C. (365°
Pour Point	-54°C.	-31°C.

Thermal Conductivity (over temperature range of 100°C. - 220°C.)

	MIPB	DIPB
$Cal/(cm^2)(°C./cm)(sec)$	28.8×10^{-5}	28.1×10^{-5}
$BTU/(ft^2)(°F/ft)(hr)$	0.070	0.068

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	MIPB	DIPB
N_H (atoms of Hydrogen/cc)		
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

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

* Treated with activated alumina

	MIPB	DIPB
Dielectric Strength (60 cycles, 0.1 inch gap)	40KV or greater	40 KV or greater
Dielectric Constant	MIPB	DIPB
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
Power Factor	MIPB	DIPB
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%

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WATER_PCB-00028303

Toxcity

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
Printed in U. S. A.

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WATER_PCB-00028304