REPLACEMENT SUGGESTIONS

FOR

AROCLOR PLASTICIZERS

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Furthermore, nothing contained herein shall be construed as a recommendation to use any product in conflict with existing patents covering any material or its use.

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In conjunction with our removal of Aroclor plasticizers from the market, Monsanto has attempted to put together a list of replacement suggestions for this line of products. Anyone who has had experience with Aroclors will recognize that this is a difficult task. The combination of thermal and chemical stability, good compatibility, low cost, and fire retardance make Aroclors difficult products to replace.

On the following pages, you will find listed products produced by Monsanto and by other competitive suppliers which could be used as a starting point in reformulation work. This list has been compiled based upon our understanding of the requirements of the various application areas and not necessarily upon extensive application research. Therefore, the list should not be construed to be a blanket recommendation.

Monsanto would be happy to discuss replacement reformulation questions as they arise. Listed below are several people who have had contact with the various application areas involved. Please feel free to contact them.

Dr. A. William Coaker (314) 694-2486	Polysulfides Acrylics Adhesives
Dr. Charles P. Farley (314) 694-2438	Polyurethane Foam Rubber
Mr. John H. Orem (314) 694-2489	Melamines Phenolics Coatings Carpet-backing
Mr. L. David Press (314) 694-2487	Polyurethane Film Pigments Film and Sheeting Coated Fabrics

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AROCLOR REPLACEMENT SUGGESTIONS

Application Area	Polymer/Binder	Aroclor Used	Replacement Suggestions Supplier	Product
Adhesives				
Delayed Tack	SBR, PVAc, PS	6090, 5460	Monsanto	DCHP, DPP Santicizer 1-H Santolite MHP
Emulsion	PVAc, SBR Acrylic-VAc Acrylic-Ethylene	1221-B, 6040, 6050	Monsanto	Santicizer 218-A Santicizer 885 Santicizers 8, B-16, M-17
			FRP	Isoester A, B, C
Pressure Sensitive	Natural Rubber, SBR, Cl Rubber	1221-B, 6062, 5460	Monsanto	Santicizers 140, 148, 160 Triphenyl Phosphate
			FRP	Isoester B
Hot Melt	EVAc, PVC, Phenoxies, Polyamides	5460, 5060 Montar 5	Monsanto	Santicizers 9, 1-H Santowax OM DCHP/Santicizer 150 Triphenyl Phosphate DPP
			Picco	Piccotex 75
			Velsicol	Klyrvels
			Goodyear	Wingtac
			FRP	Isoester D

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AROCLOR REPLACEMENT SUGGESTIONS

Application Area	Polymer/Binder	Aroclor Used	Replacement Suggestions Supplier	Product
Adhesives (Continued)				
Hot Melt (Continued)			Hercules	Staybelite

1. Potentially available in mid-February. Not available now.
2. Alkali dispersible hot melt systems.

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AROCLOR REPLACEMENT SUGGESTIONS

Application Area	Polymer/Binder	Aroclor Used	Replacement Suggestions Supplier	Product
Sealants	Polysulfide, Nitrile, Epoxy, Polyurethane	1254, 5432 Santicizer 261/ 5460	Monsanto	HB-40 [2.]
				Santicizer 261 [2.]
				Santicizer 278 [2.]
				Santicizer 358 [1.]
				Santicizer 898 [3.]
			Thiokol	ZP-680
			ICI	Cereclor 4985
Caulking Compounds	Acrylic, Butyl	5060, 6070	Monsanto	Santicizers 412, 429
				Santicizer 8
				Santicizer 261
				Santicizer 278
				DCHP/DPP
				Santicizer 148
Surface Coatings				
Paints	PVAc, PVC, Nitriles Styrene Acrylics Cl Rubber	5460, 6062, 6070, 6090	Monsanto	Santicizers 160, 261, 278
				Santicizer 898
				Santicizers 140, 148
				DCHP, Santolite MHP
			FRP	HMP, Filtrez [4.]
			ICI	Cereclor 42
				Cereclor 70

1. Developmental Item - Refer to P. R. Graham.
2. Recommended primarily for resin system.
3. Recommended primarily for catalyst dispersion system.
4. Several products available under this code name.

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AROCLOR REPLACEMENT SUGGESTIONS

Application Area	Polymer/Binder	Aroclor Used	Replacement Suggestions Supplier	Product
Surface Coatings (Continued)				
Lacquers	Alkyd Ethyl Cellulose Nitro Cellulose	5460, 6062, 6070, 6090	Monsanto	Santicizers 8, 9, B-16, M-17 DCHP Santolite MHP Santicizers 261, 278
			FRP	Isorosin, Filtrez [1]
			Neville	
			Diamond Shamrock	
Varnish	Polysulfide Other	6070, 5460	Monsanto	Santicizer 261 Santicizer 278
			FRP	Filtrez [1]
Paper Coatings	Ethyl Cellulose	6040, 6050	Monsanto	Santicizers 8, 9, B-16, M-17 DCHP Diphenyl Phthalate Santolite MHP

1. Approximately twenty Filtrez products are available.

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Application Area	Polymer/Binder	Aroclor Used	Replacement Suggestions Supplier	Product
Surface Coatings (Continued)				
Lacquers	Alkyd Ethyl Cellulose Nitro Cellulose	5460, 6062, 6070, 6090	Monsanto	Santicizers 8, 9, B-16, M-17 DCHP Santolite MHP Santicizers 261, 278
			FRP	Isorosin, Filtrez [1]
			Neville	
			Diamond Shamrock	
Varnish	Polysulfide Other	6070, 5460	Monsanto	Santicizer 261 Santicizer 278
			FRP	Filtrez [1]
Paper Coatings	Ethyl Cellulose	6040, 6050	Monsanto	Santicizers 8, 9, B-16, M-17 DCHP Diphenyl Phthalate Santolite MHP

1. Approximately twenty Filtrez products are available.

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AROCLOR REPLACEMENT SUGGESTIONS

Application Area	Polymer/Binder	Aroclor Used	Replacement Suggestions Supplier	Product
Printing Inks	Nitrocellulose Acrylic Vinyl	5460, 6062, 6070, 6090	Monsanto	Santicizers 160, 261, 278 Santicizers 8, 9
			FRP	Filtrez [1]

1. Approximately twenty Filtrez products are available.

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AROCLOR REPLACEMENT SUGGESTIONS

Application Area	Polymer/Binder	Aroclor Used	Replacement Suggestions Supplier	Product
Lost Wax Casting	Wax	5460	Monsanto	Santicizer 9, 9P DCHP, DPP
Epoxy Systems	Epoxy	6062, 6070	Monsanto	Mod-Epox Santicizer 8 Santicizer 9 Phosgard C-22-R Other [1]
Laminating Resins	Phenolic	5460, 1221, 5432, 6070	Monsanto	Santolite MHP Santicizer 8 Santicizer 9 Phosgard 2XC-20 Phosgard C-22-R Other [1]

1. Monsanto has development products in this area. Contact L. O. Raether

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LIST OF SUPPLIERS

Monsanto	Monsanto Industrial Chemicals Company 800 North Lindbergh Boulevard St. Louis, Missouri 63166 W. S. Clark (314) 694-2518
Diamond Shamrock	Diamond Shamrock Chemical Company 300 Union Commerce Building Cleveland, Ohio 44115 (216) 621-6100
FRP	FRP Company P. O. Box 349 Baxley, Georgia 31513 (912) 367-3616
Goodyear	Goodyear Tire and Rubber Company 1144 East Market Street Akron, Ohio 44316 (216) 794-4390
Hercules	Hercules, Inc. 910 Market Street Wilmington, Delaware 19899 (302) 656-9811
ICI	ICI America, Inc. 151 South Street Stamford, Connecticut 06904 (203) 327-3200
Neville	Neville Chemical Company Neville Island Pittsburgh, Pennsylvania 15225 (412) 331-4200
Picco	Pennsylvania Industrial Chemicals Corp. 120 State Street St. Clairton, Pennsylvania 15025 (412) 233-8600

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LIST OF SUPPLIERS (Continued)

Thiokol	Thiokol Chemical Corporation 930 Lower Ferry Road Trenton, New Jersey 08607 (609) 396-4001
Velsicol	Velsicol Chemical Corporation 341 East Ohio Street Chicago, Illinois 60611 (312) 467-5700

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