Product-Building for Profits with Monsanto Plasticizers

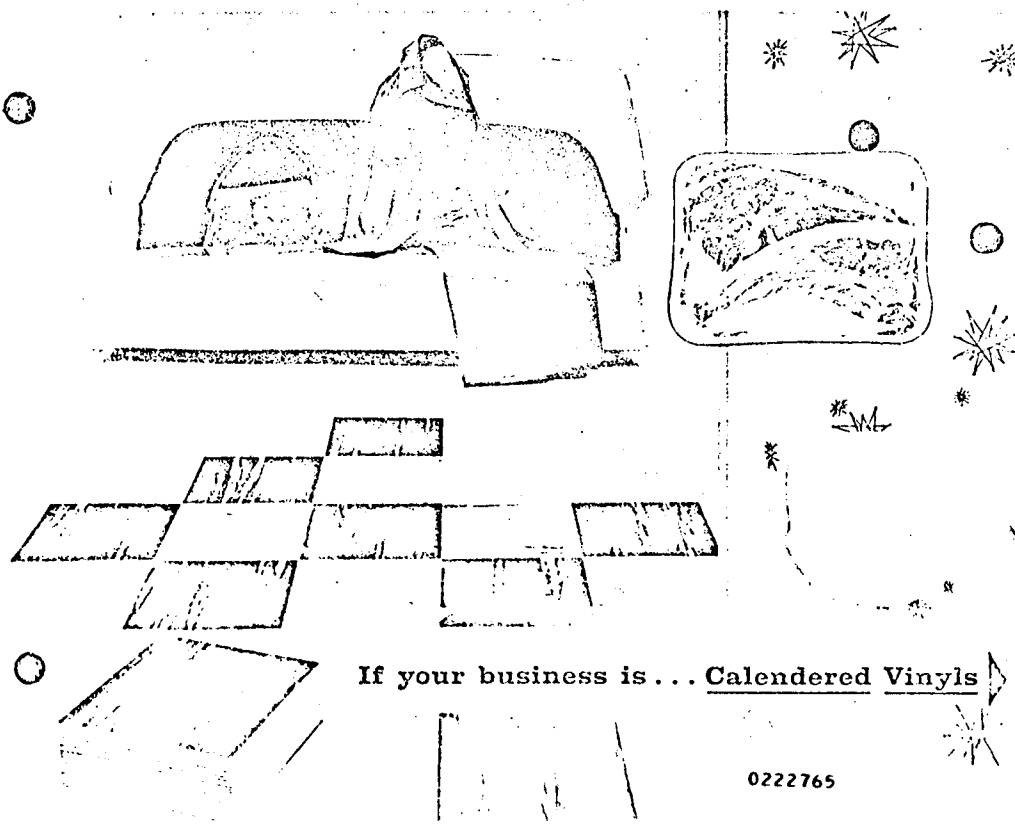
Your choice of plasticizers affects a wide variety of processing and end-product characteristics. The right plasticizer, or system of plasticizers, will help you avoid processing bottlenecks . . . can speed up production and cut your manufacturing costs.

Monsanto is America's most diversified manufacturer of plasticizers . . . originator of the industry's standard plasticizer, dioctyl phthalate . . . only source for chlorinated polyphenyls . . . supplier of SEVEN BASIC TYPES including almost FIFTY different types of plasticizers.

Call on Monsanto for one-stop service—mixed bulk shipments at bulk prices—expert technical guidance, formulating know-how for vinyls, cellulosics, styrenes, phenolics, melamines, ureas, epoxies.

"Plasticizers' Council Service". . .

For specific information on plasticizer systems to increase your processing efficiency or to improve your finished products, contact your Monsanto Sales Representative. He can offer you "Plasticizers' Council Service" on new products—or on established formulations—to help you solve formulating problems quickly and profitably.

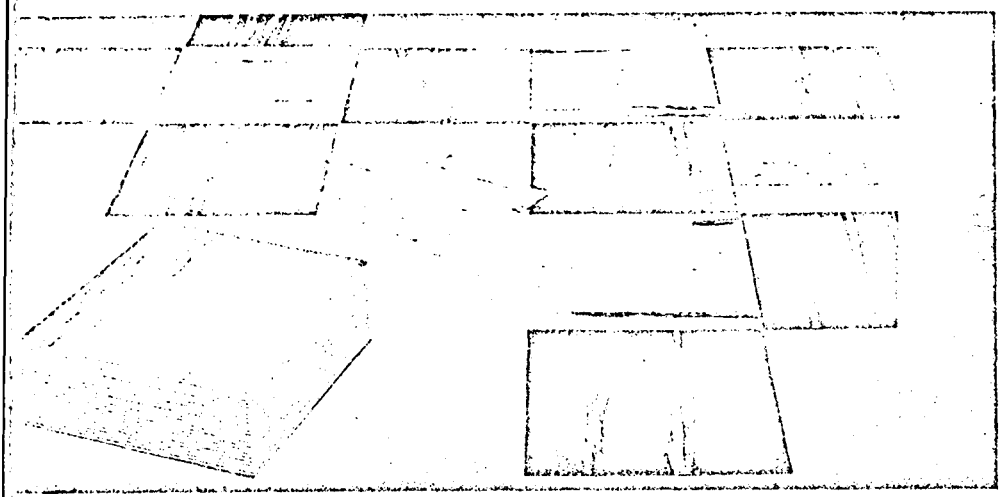


If your business is . . . Calendered Vinyls

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You can build product quality, reduce costs of...



...Floor Coverings

Stain Resistance . . . Nothing destroys a flooring material's appeal quicker than permanent stains that refuse to be wiped up—difficult food stains like mustard or catsup, ugly asphalt or tar stains tracked on by traffic, stubborn grease stains. Many product-wise manufacturers use Santicizer 160 in their formulations because they know Santicizer 160 offers more resistance to staining than any other monomeric or polymeric plasticizer—gives them extra assurance that their floorings will look better longer. *Important: Santicizer 160 is one of the most economical primary plasticizers on the market!*

Faster Processing . . . Fast-fusion plasticizers such as Santicizer 141, Santicizer 140, and Santicizer 160 help you cut processing costs by boosting rates of dry-blending, Banburying, milling, and calendering . . . may also allow you to reduce power input requirements because they sustain fusion even at reduced temperatures. This is especially important in a process such as manufacture of vinyl-on-felt floorings, where heat must be reduced to avoid damage to raw materials. To know how Monsanto fast-fusion plasticizers can increase your processing rates, check typical (Banbury) fusion times in the table (above right).

Banbury Fusion Time Test

(50 parts plasticizer per 100 parts of resin)	Fusion Time (seconds)
Dioctyl phthalate	71
Santicizer* 141	49
Trieresyl phosphate	56
Santicizer 160	47
Santicizer 140	39
Polymeric "A"	106
Polymeric "B"	283

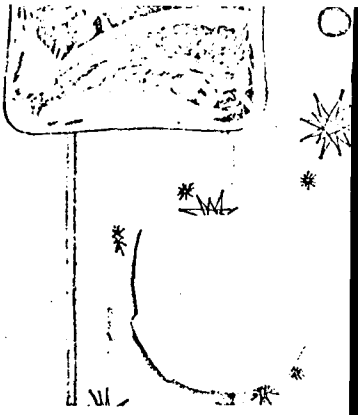
Higher Gloss . . . a consumer appeal you can't ignore in vinyl flooring. Monsanto offers you *three* plasticizers—Santicizer 140, Santicizer 160, and Monsanto TCP—to improve gloss. They mean your floor tile will collect less dirt, clean easier, and need less waxing for that "like new" sheen.

Dimensional Stability . . . How do you keep floor tile from changing its dimensions? One approach is to plasticize with *low-volatile* Monsanto DIDP. The best way, however, is to use fast-fusion plasticizers such as Santicizer 140 or Santicizer 160—to help prevent internal stresses during calendering that later result in dimensional changes. Ask your Monsanto representative for additional information.

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Calendered Vinyls



...Vinyl Film

Non-Toxicity . . . Monsanto has pioneered in the development of non-toxic plasticizers for food packaging products. Santicizer 141 and Santicizer B-16 fully meet the requirements of both B. A. I. and F. D. A. You can use Santicizer 141 and Santicizer B-16 for aqueous, fatty, and non-fatty foods. Monsanto DOP and DIOP plasticizers are approved for vinyl film wraps for foods with high water content.

Soapy-Water Resistance . . . Monsanto DIDP resists the strong extracting action of soap and detergent solutions, and helps vinyl film products resist early discoloration, cracking, and other damage caused by frequent laundering. Test results (right) show how well Monsanto DIDP resists the extracting action of plain water, soap solution, detergent solution, and boiling water.

% Plasticizer Lost (in 24 hrs.) (4-mil film, 45-p.h.r. plasticizer)

	Dioctyl Phthalate	Monsanto DIDP
Plain Water (50°C.)	0.44	0.25
1% Ivory† Soap (50°C.)	11.1	3.3
1% All* (50°C.)	1.45	0.1
1% Tide† (50°C.)	7.40	4.95
Boiling Water	12.9	9.0

†IVORY and TIDE Reg. Trademarks of Procter & Gamble Mfg. Co.

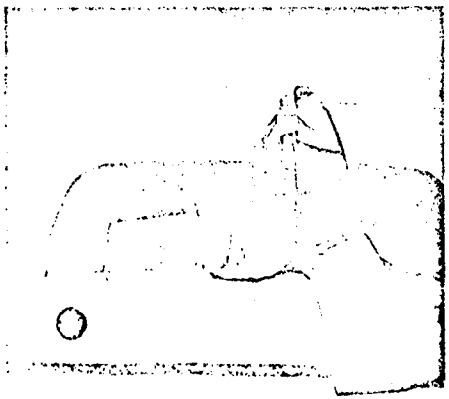
Tear Strength . . . Films plasticized with Santicizer 160 or Santicizer 141 may have as much as *double the tear strength* of those plasticized with straight dioctyl phthalate (right).

Elmendorf Tear Test on 4-mil Film (50 parts plasticizer per 100 parts resin)

	Tear Strength (grams/mil) Machine	Transverse
Dioctyl phthalate	155	275
Santicizer 160	425	555
Santicizer 141	435	530

Light Stability . . . In a recent outdoor exposure test, compounds (40-mil sheeting) plasticized with straight dioctyl phthalate failed in slightly over one year's exposure. Samples in which five parts of the dioctyl phthalate were replaced with five parts Santicizer 141 still have shown no visible deterioration—even after a total of *more than two years' exposure.*

...Vinyl Sheeting and Coated Fabrics



Less Migration . . . A small concentration of Monsanto HB-40* in vinyl formulations helps prevent "marring" or "lifting" of surfaces coated with nitrocellulose lacquers that come in contact with the vinyl. An added advantage of Monsanto HB-40 is its *low cost*—which makes it a money-saving replacement for part of the higher-cost primary plasticizers in your formulation.

Flame Resistance . . . Monsanto Santicizer 141 imparts flame resistance to sheetings and coated fabrics—also much-improved light stability, and resistance to weathering. Santicizer 141 reduces costs when you use it instead of more expensive phosphate esters, or antimony oxide.

Low-Temperature Flexibility . . . The volatility of Monsanto DIDA is only about one-third that of dioctyl adipate; it contributes the excellent low-temperature flexibility of the adipates, but with much lower volatility. *DIDA is economical—practically odorless—and you can use it to replace your present high-cost low-temperature plasticizer.*

*Reg. U. S. Pat. Off.

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How buying from a one-stop source saves money

Case 1

Supplier		Three Suppliers—Three Shipments
A	DOP	5,000 pounds
B	TCP	5,000 "
Monsanto	Santicizer 160	10,000 "

Total Cost $6,500 (LTL)

		One Mixed Truckload From Monsanto
Monsanto	DOP	5,000 pounds
"	TCP	5,000 "
"	Santicizer 160	10,000 "

Total Cost $6,300 (TL)

You Save $200 on 20,000 pounds

Case 2

Supplier		Two Suppliers—Two Shipments
A	DOP	10,000 pounds
A	TCP	10,000 "
Monsanto	Santicizer 160	10,000 "

Total Cost $9,850 (TL & LTL)

		One Mixed Tank Truck From Monsanto
Monsanto	DOP	10,000 pounds
"	TCP	10,000 "
"	Santicizer 160	10,000 "

Total Cost $9,150 (TT)

You Save $700 on 30,000 pounds

Costs based on price schedules of February 15, 1956.

Monsanto Plasticizers

Phthalates
Dibutyl phthalate
Diethyl phthalate
Dimethyl phthalate
Diphenyl phthalate
Dioctyl phthalate
Diisooctyl phthalate
Di-n-octyl-n-decyl phthalate
Diisodecyl phthalate
Santicizer* 160
Santicizer 602
Santicizer 603
Santicizer 606
Santicizer 611
Santicizer 613

Adipates
Diisodecyl adipate
Dioctyl adipate

Phosphates
Tricresyl phosphate
Triphenyl phosphate
Santicizer 140
Santicizer 141

Phthalyl Glycolates
Santicizer E-15
Santicizer B-16
Santicizer M-17

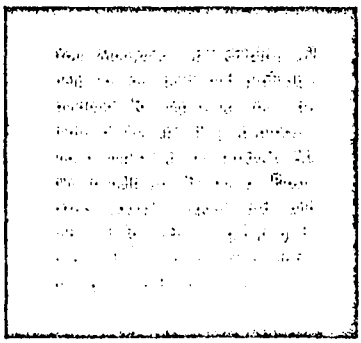
Sulfonamides
Santicizer 1-H
Santicizer 3
Santicizer 8
Santicizer 9

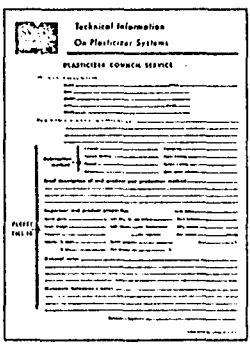
Sulfonamide Resins
Santolite* MHP
Santolite MS-80%

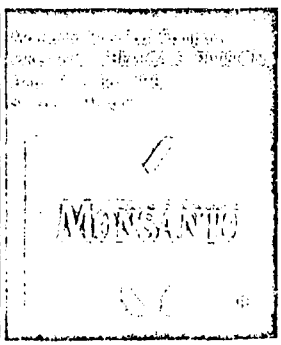
*Reg. U. S. Pat. Off.

Specialties
HB-40*
HB-20*
Santowax* R
Aroclor* 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260
Aroclor 1262
Aroclor 1268
Aroclor 4465
Aroclor 5442
Aroclor 5460
Aroclor 2565

For Formulating Guidance . . .







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