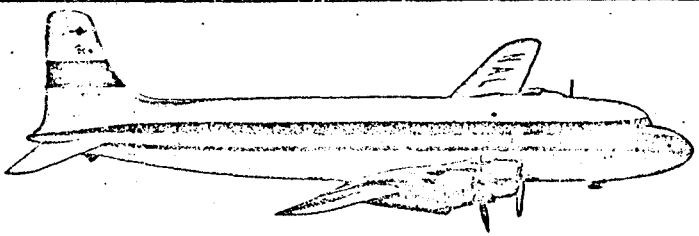
MONSANTO
CHEMICALS — PLASTICS

SKYDROL... up there with more and more big names!



Since Skydrol ® was announced in January 1949, the nonflammable-type hydraulic fluid has won amazing acceptance among the big names of aviation.

Today, every domestic air line flying DC-6's employs Skydrol in cabin superchargers or throughout the hydraulic systems. Skydrol now serves 11 major air lines in planes with total flying hours exceeding a half million. It also is used by a number of overseas lines.

In addition, the new Convair 340's, designed for Braniff International Airways and for United Air Lines, have Skydrol *throughout.* It is employed in Douglas DC-6B's and Super DC-3's.

Air lines employing Skydrol are: United Air Lines, American Airlines, Italian Air Lines, Delta Air Lines, Cia Mexicana de Aviacion, Panagra, Philippine Air Lines, Braniff International Airways, National, Capital Air Lines and Slick.

Skydrol means greater safety for planes in flight and while they are being serviced. It protects passengers, service personnel and the multimillion-dollar investment in aircraft. Skydrol also is an excellent lubricant. It lengthens the life of hydraulic systems' working parts, brings important savings in maintenance.

Skydrol exceeds the nonflammability requirements of Aeronautical Material Specification 3150 . . . has more than double the lubricity of ordinary hydraulic fluids . . . is stable at operating temperatures and pressures . . . *is noncorrosive to aircraft metals* . . . is nontoxic.

If your company operates a business plane, if you fly your own ship or if you are an air line executive, it will be worth while to get complete information on Monsanto Skydrol. Mail the coupon for a copy of Monsanto's new, 20-page, file-size booklet, *"Skydrol Nonflammable-Type Hydraulic Fluid for Aircraft."*

Score of railroads use penta wood preservative

More than a score of major railroads are among the hundreds of industries employing Monsanto Penta preservative to make wood last many years longer, thereby *reducing maintenance costs.*

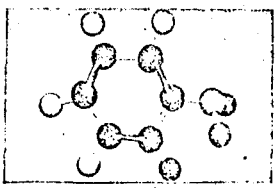
The following table gives the recommended retention of 5% penta solution in pounds per cubic foot:

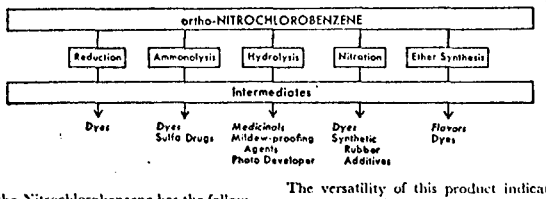
	Humidity average to low	Humidity average high
Sills and plates	6	8
Joists and girders	6	8
Screeds and subflooring	6	8
Factory flooring	6	8
Roof plank	6	8
Platforms and decking	6	8
Posts and fences	6	8
Cooling towers	..	8-10
Sign material	6	8
Millwork	6	8
Highway guardrails	6	8
Railway cars	6	8
Bridge timbers	8	10-12
Utility poles	8	8-10
Crossarms	6	8

NOTE: Higher treatments are recommended where wood is to serve under severe conditions, such as in the tropics. Recommendations will be furnished on request.

Ortho-NITROCHLOROBENZENE, an "intermediate's intermediate"

Monsanto ortho-NITROCHLOROBENZENE might be called "an intermediate's intermediate" because of its versatility in the manufacture of derivatives which serve as intermediates. Its wide service to industry is illustrated by the following chart:





Ortho-Nitrochlorobenzene has the following *physical properties:*

Molecular weight.....157.56
Standard form.....Crystalline mass
Color.....Greenish yellow
Crystallizing point..... 31.7° C. *Min.*

The versatility of this product indicates numerous applications yet to be discovered. If your research develops new uses, you may be sure of ample supply for production. Qualified chemists may get samples for experimentation by contacting the nearest Monsanto Sales Office or by *mailing the coupon.*

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...er 1
...ntrols mildew

Textiles, plastics, leather, insulation and protective coatings can be mildew-proofed efficiently and economically with Monsanto Milmer* 1 (copper 8-quinolinolate-T) Although highly effective against various fungi, Milmer 1 is practically nontoxic to man—is neither a skin irritant nor sensitizer.

Milmer 1 offers long-lasting protection. It is nearly odorless . . practically insoluble in water . . . stable at temperatures up to 400° F . . is exceptionally stable under exposure to sunlight and weather.

Milmer 1 meets many U S. Government specifications for treated fabrics, including: Mil-D-10860, Mil-T-10168A, Mil-M-5658, Mil-F-4143 and KKL-136-B.

For information, contact the nearest Monsanto Sales Office or mail the coupon.

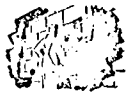
NOW AVAILABLE

AROCLORS

IN LARGER QUANTITIES

Additional capacity now installed makes the AROCLORS* (chlorinated biphenyl and chlorinated polyphenyls) freely available in larger quantities. For information on their use, contact any Monsanto District Sales Office, or write for any of the following Technical Bulletins: No. P-115, "THE AROCLORS" . . . No. P-124, "AROCLORS as used in chlorinated rubber" . . . No. P-126, "AROCLORS as used in Pliolite S-5" . . . No. P-131, "AROCLORS as co-plasticizers for polyvinylchloride."

Because of the growing recognition of the value of the AROCLORS in many types of chemical processing and formulating, some of the more important applications of these Monsanto chlorinated biphenyl and chlorinated polyphenyls are detailed in the columns at the right.



AROCLORS as used in Pliolite S-5

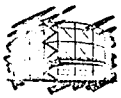
The AROCLORS are standard plasticizer and resin extenders used to impart desired properties to Pliolite S-5 protective and decorative coatings for application to—Concrete and Steel Structures . . . Railway Tank Cars . . . Concrete Floors and Walls . . . Stucco Construction . . . Wood and Metal Maritime Equipment.

These fast-drying paints provide excellent protection against acids and alkali, moisture and other common corrosive influences.



AROCLORS in die-casting machines

In the nonflammable hydraulic fluid field, particularly in die-casting machines, AROCLOR continues to be recognized as one of the most economical and effective of the nonflammable-type fluids used in transfer service. Die casters wishing to take advantage of the reduced fire hazard provided by AROCLOR, will find no difficulty in conversion. Ask for further information.



TOUGH PAINTS for tough jobs

If you are formulating a metal-surface paint that must be tough enough to resist water, acids, alkali and other corrosive actions, investigate the AROCLORS. They also contribute nonflammability, superior adhesion, high gloss. In addition, they possess good electrical properties.

Among the many uses of the AROCLORS in the coatings field are—Modified and synthetic rubber coatings . . . Lacquers . . . Hot-melt strip coatings . . . Vinyl protective coatings . . . Maintenance paints . . . Adhesives . . . Fire-resistant coatings . . . Wood-sealer formulations . . . Marine paints.



AROCLOR 1248 heat-transfer medium

AROCLOR 1248 (chlorinated biphenyl) is an ideal nonflammable liquid phase heat-transfer medium for temperatures up to 300° C. It has been successfully used for many years with gas-fired units, having capacities in the range of 200,000 to 400,000 B.t.u. per hour—and more recently in much larger units. Other small electrically heated stationary and portable units, with capacities around 40,000 B.t.u. per hour, are also in service.

Some of the more important characteristics of AROCLOR 1248 are—Freedom from fire hazards . . . Viscosities permitting pumping at room temperatures . . . Boiling point sufficiently above 300° C. to assure a liquid condition at all times . . . Stability against heat . . . Controllable vaporization losses . . . General freedom from corrosive action.

For application information, send for Monsanto Technical Bulletin No. P-130, "An Indirect AROCLOR Heater for Unit Chemical Operations."

AROCLORS and biological resistance

Some recent tests which involved the standard screening procedure using the shake-flask method showed that Monsanto AROCLORS exhibited distinct resistance against fungi and bacteria. The presence of this resistance in a commonly used plasticizer indicates that further study of the AROCLORS could prove highly interesting where various types of organism attack are encountered. Excellent termite and other soil mite repellency are additional AROCLOR features.

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MONSANTO CHEMICAL COMPANY, 1700 S. Second Street, St. Louis 4, Missouri. District Sales Offices: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle. In Canada, Monsanto Canada Limited, Montreal.

*Reg. U. S. Pat. Off.

MONSANTO
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SERVING INDUSTRY . . . WHICH SERVES MANKIND

SEND INFORMATION: ☐ Penta. ☐ Milmer 1.
SEND LITERATURE: ☐ Skydrol.
Technical Bulletins: ☐ No. P-115, The AROCLORS. ☐ No. P-124, AROCLORS as used in chlorinated rubber. ☐ No. P-126, AROCLORS as used in Pliolite S-5. ☐ No. P-131, AROCLORS as co-plasticizers for polyvinylchloride. ☐ No. P-130, An Indirect AROCLOR heater for unit chemical operations.
SEND SAMPLE: ☐ Ortho-Nitrochlorobenzene.

MONSANTO CHEMICAL COMPANY
1700 South Second Street, St. Louis 4, Missouri
Please send, without cost or obligation, information, sample or literature as indicated at the left.

Name.....Title.....
Company.....
Street.....
City.....Zone.....State.....

...& Engineering Chemistry, April; Chemical Week, April 12;
... April 28, 1952.

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