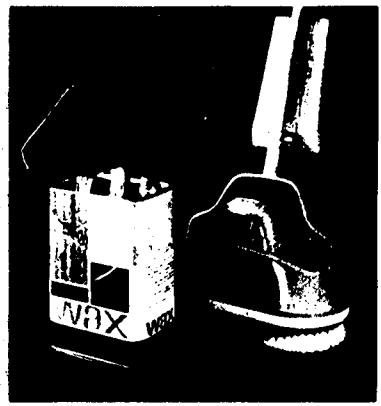
With the wax and polish market making new demands, formulators are looking more closely at...

AROCLOR®

SIRUPS and RESINS

A shelf of stubborn "do-gooders" for waxes, sealants, mastics



Compounders scratching their heads over plasticity, flow point, hardness, oxidation resistance, or volatility problems are discovering a bonanza of answers in low-cost Aroclor compounds. These various chlorinated biphenyls can fill a fair-sized laboratory shelf, and the range of physical modifications they impart is even wider. Besides their surprisingly close, predictable, and dependable modification of physical properties, compounders are getting bonuses in improvement of chemical properties. Most appealing, their cost per pound is in the cup of coffee and doughnut range.

Specialty wax formulators, polishing products makers, sealing compound producers, and mastic products compounders are finding new property improvements at their finger-tips . . . when they run their index finger down the list of available Aroclor compounds. Surprising, too, because the Aroclor "oils," "sirups," and "resins" have been around quite a while. And since their cost (in the 15-20¢/lb. range) is so low in relation to the functions they can perform, it could be assumed that by now virtually all floor polishes, wax coatings, caulking, and mastic sealing products would have some Aroclor liquid or resin in their recipes. But, to date, only manufacturers of top-quality investment casting waxes have adopted Aroclor compounds to give waxes high, sharp melting points and lower the cost of formulations.

Wherever polyethylene and Fischer-Tropsch waxes are bidding for the polish markets, formulators have overlooked what an Aroclor addition can do to modify the properties of these, as well as carnauba, candelilla, shellac, and micro-crystalline waxes.

The most intriguing possibility is this: manufacturers of the synthetic waxes could use the Aroclor compounds for "tailoring" their offerings; thus, with a given processed wax, they would have a wider range of properties and characteristics in the waxes they offer formulators. Recently, manufacturers of pressure sensitive adhesives have found combinations of ethylene/vinyl acetate with Aroclor give improved properties.

From a physical property standpoint alone, the Aroclor compounds appear to provide the wax product maker with a wide range of "do-good" compounds that have no peers. They all are fire-resistant and completely inert to chemicals, water, and weather. They impart these properties directly to formulations in which they are used. Most important, since they are virtually non-oxidizable and non-volatile the properties stay. The Aroclor compounds are agreeable to handle, too. They are compatible with practically all commercial chemical solvents, waxes, resins, and asphalt, and they can be made into water emulsions. This combination of properties that makes them suitable for liquid, paste, or cake formulations, recommends their consideration in auto polishes and floor waxes, as well as furniture and shoe polishes. In addition to durability, they impart toughness, without brittleness, and either maintain or enhance gloss. Unlike other modifying additives, the Aroclor compounds offer modifying effects without imparting tackiness.

Outside the polish field, the Aroclor compounds can serve a variety of special functions in specialty waxes, wax binders, and decorating or marking-ink vehicles.

Such uses stem from their characteristic melting points and the fact that they will "burn out" without ashing. Thus, Aroclor liquids and resins provide a choice of materials for property modification, for making dental-casting waxes, for the precision casting of aircraft parts, and for casting jewelry. They are highly useful in making powdered-metal binders, where the shaped product is fired and the binder must burn off without ashing or discoloration. A major use is for marking inks, used to decorate ceramic ware where the design and color is "fixed" in the glazing.

While Aroclor compounds have been widely adopted for improving the adhesion and chemical resistance of paints and surface coatings, their use in wax modification, asphalt sealants, and mastic has just begun. Manufacturers of wax-based products and polishes are just beginning to discover that they represent a whole shelf of "do-gooders" for wax and resin type formulations.

For further information on Aroclor compounds and their use in modifying and improving wax, asphalt, and resin-based products, request a copy of Specialty Data Report CS-18. Write to: MONSANTO, Organic Chemicals Division, Department 214, St. Louis, Missouri 63166.

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