

"Payroll per Employee" (includes all employees) for SIC 28 increased at an average rate of 3.5 percent annually in the 1959-64 period and 4.1 percent annually from 1964 to 1969. In the latest five-year period Agricultural Chemicals (SIC 287) had the highest rate increase with 6.3 percent per year. The lowest payroll rate increase occurred in Paints and Allied Products (SIC 2851) with a 3.1 percent annual rate.

The data indicate the relatively wide divergence in productivity changes within the chemical and allied products industry and, as might be expected, even greater differences appear if the analysis is extended to the 4-digit industry level.

POLYCHLOROBIPHENYLS FOR USES OTHER THAN AS NONCOMBUSTIBLE ELECTRICAL INSULATING LIQUIDS TO BE DISCONTINUED

Polychlorobiphenyls (PCB's) have been available commercially for 40 years. Recently PCB's have claimed the attention of ecologists after they were discovered in the environment in 1966 in Sweden and in 1967 in the United States. Since then, traces of PCB's have been found in fish, bird, water sediment, and other environmental samples when tests for PCB's were made. Samples collected from England, Scandinavia, North Sea, The Netherlands, Antarctica, Central America, and many parts of the U.S.A. attest to their ubiquity.

The properties that made PCB's industrially useful are cause for their persistence in the environment. They resist oxidation and hydrolysis, are soluble in organic solvents and are compatible with organic materials. PCB's have become associated with living tissue with resultant toxic effects.

An interdepartmental task force of six Federal agencies has been established to coordinate a Government-wide investigation into PCB's contamination of food and other products. The Food and Drug Administration says that, based on current scientific knowledge, the Government sees no imminent threat to the safety of the food supply or to the public health from these chemicals.

Polychlorobiphenyls are manufactured by one U.S. firm, Monsanto, and by others in Japan and Europe. Production also is known in East Germany, Czechoslovakia, Rumania, and the USSR.

The chemical stability of polychlorobiphenyls, their usefulness at high temperatures and their high dielectric constants for insulation have made PCB's desirable industrial materials. Various products have been available which are either liquids or resins.

A wide spectrum of applications for the PCB's has developed from utilization of their useful properties. In electrical application they are nonflammable insulator liquids to transformers; insulators in fluorescent fixture components; and insulating and fire resistant plasticizers in wire and cable coatings. Other uses have developed through PCB's thermal stability and fire resistance. They have had application in hydraulic fluids; specialized lubricants and gasket sealers; heat transfer agents; and machine tool cutting oils. Miscellaneous uses are protective coating formulations for wood, metal and concrete; adhesives; and in encapsulated form, in carbonless reproducing paper.

Information of past U.S. utilization of PCB's are now available following the release of these figures by Monsanto, the only

Table 4.—U.S. Production and Sales Polychlorinated Biphenyls (PCB)

(Short tons)

Year	U.S. production	Domestic sales		U.S. export sales, all uses
		Electrical insulating liquids uses*	All other uses**	
1971 (est.)	20,238	14,417	4,401	4,908
1970	42,827	20,268	16,283	8,826
1969	38,194	18,564	15,034	8,312
1968	41,427	20,568	11,990	8,616
1967	37,856	20,387	10,846	4,082
1966	32,926	18,997	10,842	3,426
1965	30,240	18,203	8,995	2,117
1964	25,417	13,769	8,698	2,048
1963	22,367	11,448	7,618	1,824
1962	20,998	11,983	7,309	1,899
1961	20,333	11,108	7,991	2,079
1960	20,788	12,444	6,183	1,827

* Closed systems—transformers and capacitors.

** Including heat transfer systems, hydraulics/lubricants, plasticizers.

Source: Monsanto Industrial Chemicals Company.

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U.S. producer, when their decision was made to phase out certain uses. The company said substantial further reduction will be accomplished in 1972. The attached table provides data of production and sales of PCB's for the past ten years and an estimate of 1971 usage as the company will end sales for all non-insulating liquid usage. For insulating use the liquid is in sealed electrical components for the life of the equipment where it acts as a fire-resistant safety fluid.

Monsanto's report shows that closed system domestic electrical uses from 1960 to 1970 accounted for 61 percent of total

usage. Nonelectrical sales are being phased out as installed equipment requiring PCB's is replaced. Monsanto's domestic and foreign sales to paints, plasticizers, sealants, adhesives and all other open-system uses have been discontinued resulting in the reduction in 1971 of the sales from 16 thousand short tons in 1970 to an estimated 4.4 thousand short tons in 1971.

Estimates of foreign production are not available; however, Monsanto's past exports indicate the United States has been an important source for world markets.

DEVELOPMENT OF THE VENEZUELAN PLASTICS INDUSTRY

The Venezuelan Association of Plastics Industries (AVIPLA) held the Second National Plastics Exposition in Caracas from October 31 through November 7, 1971. The exposition consisted of 57 locally recruited exhibitors with over 100 stands, almost filling the exhibition hall utilized by the first U.S. Solo Exhibition of 1967. The showing included plastic products as well as machinery in operation. Only German and Italian machinery was shown. AVIPLA sold slightly over 50,000 tickets, and business was reported to be brisk. Practically all machinery exhibited was sold off the stands.

The show indicated that the Venezuelan plastics industry has experienced impressive development, which AVIPLA attributed primarily to import restrictions. The industry now not only produces consumer goods, toys and expendables, but has also entered into the production of such items as boats up to 62 feet long, industrial tubing, plastic pumps, unitary shower stalls and bathrooms, construction material and automobile parts.

Some statistics will show the present size and scope of the industry:

Number of companies (AVIPLA members)	196
Total invested capital	\$84,000,000
Total employment	5,333
Sales	\$60,000,000
Consumption per capita	8 kilograms

Consumption of raw material has shown considerable increases. According to official statistics, Venezuela imported 9,381 metric tons of resins in 1960, 27,774 metric tons during 1965 and 70,004 metric tons in 1970. AVIPLA reports the following consumption figures among its members during 1970. The data do not include raw materials used for the production of synthetic textile fibers. A difference of approximately 6,000 tons

between the sum of these figures and actual imports is due to the fact that not all plastics companies are AVIPLA members.

Material	Metric tons
ABS	80
Phenolics	800
Melamines	785
Polyesters	189
Silicones	32
Urea-formaldehyde	100
Polyurethane	1,547
Acetates	24
Cellulose based	88
Cellulose acetate in sheets	70
PVC (emulsion)	3,589
PVC (suspension)	8,980
PVC (compound)	16,000
Acrylics	813
Polyamides	186
Polystyrene (general purpose)	2,710
Polystyrene (high impact)	3,421
Polystyrene (expandable)	1,134
Polyethylene (low density)	11,888
Polyethylene (high density)	5,887
Polypropylene	1,618
Plasticizers	3,817
Glass fiber	46

The United States supplied about half of the plastics materials consumed in Venezuela in 1970. Our exports to the country, as reported by the Bureau of the Census, are given in the table below. West Germany, England, Japan, France, and Canada were other major suppliers. Trade sources report that the price differences are minimal but that credit terms vary considerably and are often the determining factor.