PCB

Region V - USA Dist V - Dec 75/Jan 76

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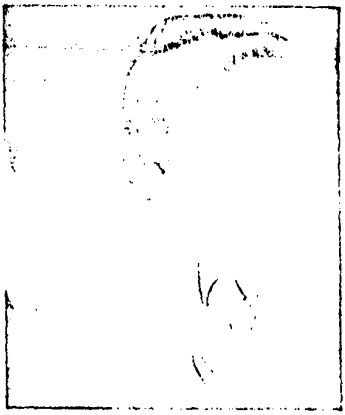
Train announces action on PCBs



Russell E. Train

EPA Administrator Russell E. Train has announced that the United States must move toward totally eliminating the use of polychlorinated biphenyls (PCBs) as rapidly as possible and must, in the meantime, make every effort to assure that PCBs do not enter the environment.

In announcing a comprehensive action plan of regulatory and administrative actions, Train cautioned that many years may pass before a significant decline in the level of PCBs occurs.

"The public should be under no illusions as to the difficulty of dealing with this problem," Train said. "We have absolutely no authority under existing law to stop or restrict uses of PCBs. Until the passage of Toxic Substances Control legislation by the Congress, we must rely heavily on voluntary actions by industry. In any event, it will not be possible to eliminate the use of PCBs overnight. Even if we could eliminate these uses immediately, we would have to face the fact that there are hundreds of millions of pounds of PCBs out there in the environment—in landfills, soils and the bottom sediments of rivers, lakes, and estuaries—decline in the levels of PCBs in the environment. Nevertheless, we must begin at once."

PCBs threaten to destroy the commercial fishing industries in the Hudson River, the upper Mississippi River, the Great Lakes and along the Southern California coast.

PCBs are extremely stable, fire resistant, low cost liquids used mainly as insulating fluids in electrical equipment, notably in power transformers and capacitors.

Actions to be taken

Train announced the following actions against PCBs:

—EPA regional offices were directed, in active cooperation with the States, to immediately establish requirements to virtually eliminate PCBs from the process wastes of all manufacturers of PCBs and of capacitors and transformers that utilize PCBs.

—The leadership of the manufacturers of PCBs and the major manufacturers of transformers and capacitors were called on to develop safe and environmentally acceptable alternatives for PCBs as rapidly as possible. Train scheduled a meeting in January with representatives of these manufacturers to discuss and lay out specific plans to achieve this end.

—The presidents of major electric utility companies and other major users of large capacitors and transformers, such as railroads, were asked to assume responsibility for controlling the use and disposal of their PCBs. To this end, Train invited representatives of the companies and their principal industrial associations to meet with him in January to discuss how this might be accomplished as rapidly as possible.

—Regulations were proposed to control the environmental damage that results from spills of hazardous substances, including PCBs. EPA will move as rapidly as possible to finalize these regulations after a public comment period.

—State Governors were asked to carefully examine and apply their authorities to deal with the PCB problem.

—Selected Federal agencies were asked to immediately inventory their uses of PCBs and PCB-containing materials and to develop plans to assure adequate management and safe disposal of these materials.

—In addition to these steps, Train initiated a number of other programs to find ways of eliminating the environment discharges from other sources of PCBs including paper recycling operations, the investment casting industry, and the disposal of electrical consumer products which contain PCBs.

No quick and easy reduction

"With regard to all of these actions," Train said, "I would again like to caution that they will not lead to a quick and easy reduction of the current levels of PCBs in our environment and particularly in the commercial and sports fish taken from those waters most contaminated. Hopefully, the control of discharges will help arrest the rapid growth of the problem. Ultimately, however, only the elimination of PCBs will yield a significant and permanent solution."

Prior to 1970, half the PCBs produced in the U.S. were sold for use as plasticizers in paints, plastics and sealants, as lubricant additives, hydraulic fluids, heat exchange fluids, and for use in carbonless copy paper and other products. In 1970, Monsanto, the sole U.S. manufacturer of PCBs, voluntarily restricted sales to uses in closed electrical systems.

(See chart on page 4)

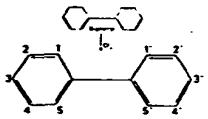
MONS 030306

CHEMICAL and PHYSICAL PROPERTIES of REPRESENTATIVE AROCHLORS

Properties	Arochlor 1221	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Arochlor 1262	Arochlor 1268
Physical state at 25°C	Mobile liquid	Mobile liquid	Viscous liquid	Viscous liquid	Sticky resin	Sticky resin	Sticky resin
Average molecular weight	192	258	299	328	372	390	446
Average number of chlorine atoms per biphenyl molecule	1	2	3	4	5	6	8
Chlorine content, % by weight	21	42	48	54	60	62	68
Density at 25°C (77°F), grams/cc	1.15	1.38	1.44	1.54	1.62	1.64	1.71
Specific gravity at 25°C (77°F)	1.18	1.38	1.41	1.50	1.58	1.64	1.71
Boiling point at 760 mm Hg, °C	275-290	325-366	340-375	365-390	385-420	390-425	420-450*
Boiling point at 760 mm Hg, °F	527-554	617-691	644-707	689-734	725-788	734-797	788-842*
Vapor pressure at 25°C (77°F), mm Hg	0.0406	0.00578	0.00133	0.00040	0.00004	0.00001	Negligible
Vapor pressure at 25°C (77°F), millitorr	40.6	5.78	1.33	0.40	0.04	0.01	Negligible
Water solubility at 25°C (77°F), ppm	240	42	5.9	0.34	0.027	0.003	Negligible
Water solubility at 25°C (77°F), mg/l	240	42	5.9	0.34	0.027	0.003	Negligible
Refractive index at 25°C (77°F)	1.6010	1.6120	1.6200	1.6250	1.6283	1.6283	Negligible
Flash point, °C	None	None	None	None	None	None	None
Flash point, °F	None	None	None	None	None	None	None
Fire point, °C	None	None	None	None	None	None	None
Fire point, °F	None	None	None	None	None	None	None
Autoignition temperature	None	None	None	None	None	None	None
Autoignition temperature	None	None	None	None	None	None	None

a-Source: Monsanto Corporation, St. Louis, Missouri
b-Currently Replacing Arochlor 1242 as a Capacitor Impregnant
c-Source: Caffaro S.P.A. Milano, Italy

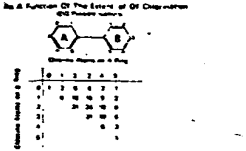
POLY CHLORINATED BIPHENYLS



CHLORINATED BIPHENYL MIXTURE

Commercial Grades As per ASTM-D-2281: 1221, 1232, 1242, 1248, 1254, 1260, 1262 and 1268
The latter two digits designate the percent Chlorine as per of each formulation

The Number of Compounds in a PCB Mixture
As A Function Of The Extent of Of Chlorination
(All Possible Isomers)



EXAMPLES OF PCBs

Arochlor 1242

Decachlorobiphenyl

PAST OR CURRENT MANUFACTURE OF PCB s

COMPANY	TRADE NAME	COUNTRY
Monsanto	Aroclor Thermoclor FR-1	U.S.A.
Bayer	Clophen	Germany
Prodelec	Phenoclor Pyralene	France
Caffaro	Fenclor Bifenile Clorurate Isolanti(BCI)	Italy
Kanegafuchi Mitsubishi	Kanechlor Santotherm	Japan

ASKARELS CONTAINING PCBs in U.S.A.

MANUFACTURER	TRADE NAME
Abbott	Hyvol
Allis Chalmers	Chlorextol
Ambemigas Corp	Adkarel
Cornell Dubilier	Dy Kanol
General Electric	Pyranol
Kuhlman Electric	Eskl-1 Kant
Mc Graw Edison	Inerteen
Sangamo Electric	Elektrol
Westinghouse Electric	Nothanol
Wagner Electric	Inerteen

USES AND APPLICATIONS OF PCBs

PCBs have been or are currently used for the following applications

As heating agents or impregnants in transformers and power capacitors
As hydraulic fluids
As a softener some of
In wax impregnations
As pesticides
In surface Coatings additives to paints and lacquers
As additives to waxes used for investment casting
As a component of wax in some lighting fluorescent, mercury vapor, and sodium
In the electrical controls of some air conditioners and refrigerators
In gear lubrication of centerless carbon paper

MONS 030307