

186 ADEQUACY OF TECHNOLOGY FOR POLLUTION ABATEMENT

AIR QUALITY CRITERIA FOR OTHER CHEMICAL SUBSTANCES
(Values in ppm* Unless Otherwise Noted)

SUBSTANCE	Hygienic Standards For Daily Occupational Inhalation T L V "u"			Short Occupational Exposure Limits	Immediately Hazardous to Life	Emergency Occupational Exposure Limits (6) Exposure Time - Minutes		
	TVA (1)	VC Values (1)	Peak Values			15	30	60
Hydrogen Cyanide-Skin	10			30	270 ⁽²⁾	-	-	-
Hydrogen Fluoride	3		5	8	Unknown, but highest conc. tolerated for 1 min was 122 (10)	20	10	8
Hydrogen Sulfide	10		20 ⁽⁴⁾	50 ⁽⁴⁾	Unknown, but 600 fatal in 30 min (14)	200	100	50
Methyl Chloroform (1,1,1-trichloroethane)	350		500	1,000	30,000 ⁽³⁾	2000 ⁽⁴⁾	2000 ⁽⁴⁾	1000 ⁽⁴⁾
Methyl Chloride (dichloromethane)	500			2,000	Unknown, but short exposure above 10,000 may be dangerous. (3)			
Naphtha (coal tar)	100		200	400	Unknown	-	-	-
Naphtha (petroleum)	500		1,000	2,000	Unknown, but anesthetic death probable at 20,000- 30,000 (14)			
Perchloroethylene	100		200	400-500	Unknown, but 5,000 could only be tolerated for 2 to 3 minutes. (3)			
Sulphur Dioxide	5			10	Unknown, but 400-500 considered danger- ous. (3)	30	20	10
Toluene (toluol)	200		300 ⁽⁴⁾	500 ⁽⁴⁾	Unknown, but 8,000-12,000 rapidly fatal to mice. (3) An exposure to 4,000 for 5 min or less will probably allow self-rescue with no irreversible injury. (8)			
Toluene Diisocyanate	0.02			0.5 ⁽³⁾	Unknown, but 600 ppm for 6 hrs is lethal to rats. (8)			
Trichloroethylene	100		200	400 ⁽³⁾	Unknown, but % concentrations probably required.			
Trichlorotrifluoro- ethane (Freon 11 or -113)	1,000		5,000	10,000	Unknown, but saturated air concentrations at 40,000 can cause almost immediate incapacitation.			
Xylene (xylol)	100		200	400	Unknown	-	-	-

*ppm - Parts of vapor or gas per million parts of air by volume at 25°C and 760 mm Hg pressure.

FIGURE 6—(Continued)

ADMINISTRATIVE AND POLICY PROBLEMS

The manpower problem

There is a current shortage of persons with the requisite skills in both the technical aspects of pollution abatement and in the broad abstract approach to maintaining and improving environmental quality. The expansion of knowledge in the technical areas has not been matched by an accompanying expansion in the numbers of persons skilled in the various bioenvironmental and science and engineering areas. Many observers are quite aware of the fact that to deal with the technical and sociological problems an interdisciplinary approach is required. There is a need for both "generalists" as well as specialists and considerable attention in developing what amounts to a new technology in this area is a major necessity.

In 1962 there were only 4,900 individuals listed by the National Science Foundation's National Roster of Scientific and Specialists Personnel as practicing "sanitary engineering." At that time there were only 100 students in training. Requirements in the fields of air and water pollution and solid waste disposal for the next several years obviously outstrip the current availability of personnel. The military, medical, and civil engineering departments are facing increasing difficulties in obtaining and retaining qualified scientists and engineers to discharge our obligations under current directives. The increasing requirements in all of the allied health professions are similarly affecting our abilities to maintain a capability in the various sciences necessary to staff and administer our programs. It is our view it is vital to the Federal interest that those personnel working for Federal departments concerned with pollution control have equal or even better capabilities and technical know-how than those in industry or in the State and local administrative authorities. Without such capability neither the leadership desired in the Federal establishment can be provided, nor can the departments such as the Department of Defense be in a position to develop the adequate and economical procedures and programs necessary to conform to environmental pollution abatement regulations. The situation affects, we might add, the total medical service capability, as well as those relating to the problems of environmental pollution. At the present time, in the purely technical areas there are deficiencies in the output of the required engineers and scientists and there are also needs for expansion of the scope of the