FOREIGN LEAD PLANTS

N22726

KE 0022976

discharged from the tetraethyl lead buildings is of the order of 6 lbs. per unit of equipment. No doubt there are variations from day to day, but the comparative uniformity in the results from three buildings justify the assumption that these are fairly representative figures.

A review of available literature indicates that the pollution of streams with lead becomes of considerable practical consequence when the lead concentration exceeds 0.1 mg. Pb per liter of water. This is due not to the qualities of the water for drinking, since the lead being in colloidal or suspended form filters out readily, but rather because the flora and fauna of the stream are damaged or destroyed by concentrations in excess of this figure. (According to my information, there are at present no federal or state (Ohio) regulations on this matter.)

Doubtless considerable amounts of the lead introduced into a stream settle out, and there is an indication that this has occurred in the drainage canal of the plant (see the result on the ditch water outside the sludge pit) before the swamp or river had been reached. On the other hand the sedimentation of large quantities of lead compounds in natural streams becomes a recurrent danger with flooding, since flooded soil is made arid through the deposition of resuspended lead. Allowing for no sedimentation of lead compounds emptied directly into a stream such as the Ohio or Mississippi River, the amount of lead discharged by one unit of plant equipment, through one cycle of use would require dilution with 6-1/2 million gallons of water in order to become

cu.feet of water per second. At its lowest (drought 1930) it was 1900 cu. feet per second. Thus if the discharge water from a plant were introduced into the flow of the stream, the operation of 16 units would produce a maximal lead concentration about 1/4 of that which is described as harmful. (For 16 units about 14 million cubic feet of water would be required as a diluent. At 1900 cubic feet per second the flow of the Ohio River in 8 hours is equivalent to almost 55 million cubic feet).

There is very little doubt that the requirements as to a dilution could be enormously reduced by the sedimentation of the effluent water before discharge into the river. I can see no good reason why this should not be done.

In accordance with the foregoing information, I can see no reason why a manufacturing plant could not be operated on such an inland river as the Ohio.

Robert A. Kehoe, M.D.

Lead Found - 1.7867 gms 492.2 p.p.m 0.49% by Volume

Total water discharged into sludge pit during an 8 hr cycle

21,600 gallons

Total lead discharged into sludge pit during an 8 hr cycle

88.7 lbs

16 autoclave charges

Average of 5.5 lbs of lead discharged from each autoclave charge

Sample submitted by Mr. J. H. Schaefer of Manufacturing Department of Ethyl Gasoline Corporation at Wilmington, Delaware.

3-10-34

Volume - 3600 c.c.

Lead found 1.8592 gms =c= 516.4 p.p.m. =c= 0.52% by volume

Total <u>water</u> discharged into sludge pit during an 8 hour cycle

21,600 gallons

Total <u>lead</u> discharged into sludge pit during an 8 hour cycle

93.1 lbs.

16 autoclave charges

Average of 5.8 lbs of lead discharged from each autoclave charge.

3-10-34

Volume - 3640 c.c.

Lead Found 1.9348 gms. =c= 531.2 p.p.m. =c= 0.53% by volume

Total water discharged into sludge pit during an 8 hour cycle.

21,600 gallons

Total lead discharged into sludge pit during an 8 hour cycle.

95.7 lbs.

16 autoclave charges

Average of 6.0 lbs. of lead discharged from each autoclave charge.

3-10-34

Volume - 3600 c.c.

Lead found 0.0836 gms. = 23.2 p.p.m. = 0.023% by volume

Total water discharged into drainage ditch during an 8 hour cycle.

252,600 gallons.

Total lead discharged into drainage canal during an 8 hour cycle.

48.9 lbs.

3-10-34