1929

The Heats of Adsorption of Organic Vapors on Charcoal at 25° and 50°

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262   ·   IOWA ACADEMY OF SCIENCE

mum within a range of 75° to 85°C. Tin shows an accumulation of sturdy corrosion product above 75°C while the chromium steel (Super-ascoloy) shows no apparent change.

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THE HEATS OF ADSORPTION OF ORGANIC VAPORS ON CHARCOAL AT 25° AND 50°

G. H. REED and J. N. PEARCE

The method of Pearce and McKinley, [J. Phys. Chem., 32, 360-79 (1928)] has been used to determine the heats of adsorption of certain organic vapors on charcoal at 25° and 50°. The vapors used — carbon tetrachloride, chloroform and methylene chloride — were chosen with the purpose of ascertaining the possible effect both of the molecular configuration and the number and nature of the substituents upon the heat of adsorption.

The results thus far obtained make possible only two conclusions: (1) if there is a temperature coefficient of heat of adsorption it is very small, and (2) the successive addition of chlorine atoms to a molecule does not produce a regular variation in the molecular heat of adsorption.

The heat of adsorption increases as the number of chlorine atoms in the molecule is increased.

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A THEORY OF SOLUBILITY

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The theory supposes that solubility is due to two forces; first, one which tends to arrange substances into the lattice forms which they would have in the solid state, second, to thermal forces tending to break up such lattice forms.

The fundamental assumption is made that lattice forms consisting of combinations of solvent and solute must tend to form where solution exists.

It is shown that an ideal solution based on tendencies to form lattice structures between solute and solvent equal to those of the original solute and solvent conforms to Raoult's Law.