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Effects of Various Amounts of Calcium Carbonate on the Degree of Saturation of Some Iowa Soils with Bases

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The second "break" is due to a combination of the two types of adsorption.

DEPARTMENT OF CHEMISTRY,
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PLATINUM-CADMIUM ALLOYS

K. W. RAY

Platinum-cadmium alloys containing as high as 50 per cent platinum have been prepared by heating the two metals together. Solid platinum dissolves in hot molten cadmium to form a series of alloys, the melting points of which are relatively low. The thermal diagram of a portion of the system has been investigated by means of thermal analysis, microscopic study and X-ray examination. Two intermetallic compounds are formed, Pt_2Cd_9 and $PtCd_2$. The compound Pt_2Cd_9 decomposes at a temperature of 615 into cadmium and $PtCd_2$. The compound $PtCd_2$ melts at 725°C. Pt_2Cd_9 and cadmium form a eutectic at 2 per cent cadmium which melts at 315°C.

All platinum-cadmium alloys having more than about 6 per cent of platinum are very brittle and are much harder than either platinum or cadmium. Alloys containing as much as 35 per cent platinum are exceeding brittle, and have a hardness nearly equal to that of hardened steel. The alloys are white and dissolve in hydrochloric or sulphuric acids to form the corresponding cadmium salts. The platinum is left undissolved as black sponge.

The cadmium volatilizes rapidly when attempts are made to form alloys containing more than 50 per cent platinum and a pasty mass is obtained which cannot be melted except under pressure.

STATE UNIVERSITY OF IOWA,
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EFFECTS OF VARIOUS AMOUNTS OF CALCIUM CARBONATE ON THE DEGREE OF SATURATION OF SOME IOWA SOILS WITH BASES

R. H. WALKER AND P. E. BROWN

Untreated Grundy silt loam was found to contain 9.30 M.E. of exchangeable hydrogen and 14.03 M.E. of exchangeable bases per

100 grams of soil in the base exchange complex. Six months after the same soil had been treated with chemically pure calcium carbonate at the rate of six tons per acre the exchangeable hydrogen content was only 1.15 M.E. and the exchangeable base content was 24.54 M.E. The calcium carbonate treatment, therefore, increased the degree of saturation with bases from 60.13 per cent to 95.52 per cent.

In similar experiments calcium carbonate at the rate of six tons per acre increased the degree of saturation of Shelby loam from 63.82 per cent to 100 per cent, while calcium carbonate at the rate of five tons per acre was sufficient to increase the degree of saturation of Tama silt loam from 58.95 per cent to 100 per cent.

IOWA STATE COLLEGE,
AMES, IOWA.

SOME REARRANGEMENT REACTIONS OF ORGANOSODIUM AND ORGANOLITHIUM COMPOUNDS

HENRY GILMAN AND FRITZ W. BREUER

In continuation of rearrangement reactions of organometallic compounds, it was desirable to ascertain whether R-Metal combinations (free of halogen or other acidic groups) would react after the manner of benzylmagnesium chloride types with compounds like formaldehyde, for example. This last reaction gives not only the normal product (*beta*-phenylethyl alcohol), but also *o*-tolyl carbinol. It has been shown that the corresponding organosodium and organolithium compounds behave in a similar manner. Incidentally, it is possible to prepare some organolithium compounds, like phenyl-lithium, very conveniently, in a short time, and in excellent yields in the customary three-necked flasks.

IOWA STATE COLLEGE,
AMES, IOWA.

ORGANOMAGNESIUM COMPOUNDS CONTAINING SOLUBILIZING AMINO GROUPS

HENRY GILMAN, STANTON A. HARRIS AND CHUAN LIU

There is an uncommon demand, particularly in cancer and related studies, for organomagnesium compounds which contain amino groups to increase the solubility of products and also endow