

# Proceedings of the Iowa Academy of Science

---

Volume 38 | Annual Issue

Article 25

---

1931

## Platinum-Cadmium Alloys

K. W. Ray

*State University of Iowa*

Copyright ©1931 Iowa Academy of Science, Inc.

Follow this and additional works at: <https://scholarworks.uni.edu/pias>

---

### Recommended Citation

Ray, K. W. (1931) "Platinum-Cadmium Alloys," *Proceedings of the Iowa Academy of Science*, 38(1), 166-166.

Available at: <https://scholarworks.uni.edu/pias/vol38/iss1/25>

This Research is brought to you for free and open access by the Iowa Academy of Science at UNI ScholarWorks. It has been accepted for inclusion in Proceedings of the Iowa Academy of Science by an authorized editor of UNI ScholarWorks. For more information, please contact [scholarworks@uni.edu](mailto:scholarworks@uni.edu).

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

DEPARTMENT OF CHEMISTRY,  
COE COLLEGE,  
CEDAR RAPIDS, IOWA.

---

## 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,  
IOWA CITY, IOWA.

---

## 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