

7. Epitaxy Growth of Metals Deposited on Mica, Calcite, Iceland Spar, Rock Crystal and Glass

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The reactions that reduces ammoniacal silver nitrate sol., or Fehling's sol. depositing Ag or Cu, are common practice in organic chemical analysis. But it is not known whether these deposited metals have oriented structure or not. In this study X-ray Laue method by Cu anticathode were applied for the elucidation of this problem with these deposited metals on mica, calcite, Iceland spar and rock salt face and glass surface.

Ammoniacal silver nitrate sol. was prepared as follows : 8 gr AgNO_3 was dissolved in 100 cc H_2O and then added conc. NH_4OH sol. until ppt. disappeared. Into this solution 20 cc $\text{H}\cdot\text{CHO}$ was added and various minerals were dipped.

As for Fehling's sol. 3.5 gr $\text{CuSO}_4\cdot 5\text{H}_2\text{O}$ was dissolved in 50cc H_2O , and 7.5 gr Roschell salt in 50cc and into these mixed solution $\text{H}\cdot\text{CHO}$ was added and several minerals were then dipped.

Laue pattern shows that the Ag deposited on mica cleavage from the sol. of ammoniacal silver nitrate by adding 8~10 drops of formaldehyde had two $\langle 110 \rangle$ fiber axes which intersect at 90° to each other and was found to be under stress. As for the Ag obtained from the sol. by adding 2~5 drops of $\text{H}\cdot\text{CHO}$ the same axes as above was found with no stress.

Laue pattern of the Ag deposited on rock crystal, calcite, Iceland spar and glass, and the deposited Cu from Fehling's sol. on mica, rock crystal, calcite, Iceland spar and glass show the continuous Debye rings indicating no oriented structure. If the ammoniacal silver nitrate sol. that was added with several drops of $\text{H}\cdot\text{CHO}$ sol., was evaporated at room temperature, hair-like silver deposited on the above minerals, but its orientation have not yet been determined.

8. X-Ray Studies on the Inner Structural Change Due to the Annealing in Aluminium

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In the preceding report, the relation between the reduction percentage and the hardness of the rolled aluminium plates as well as the variation of hardness