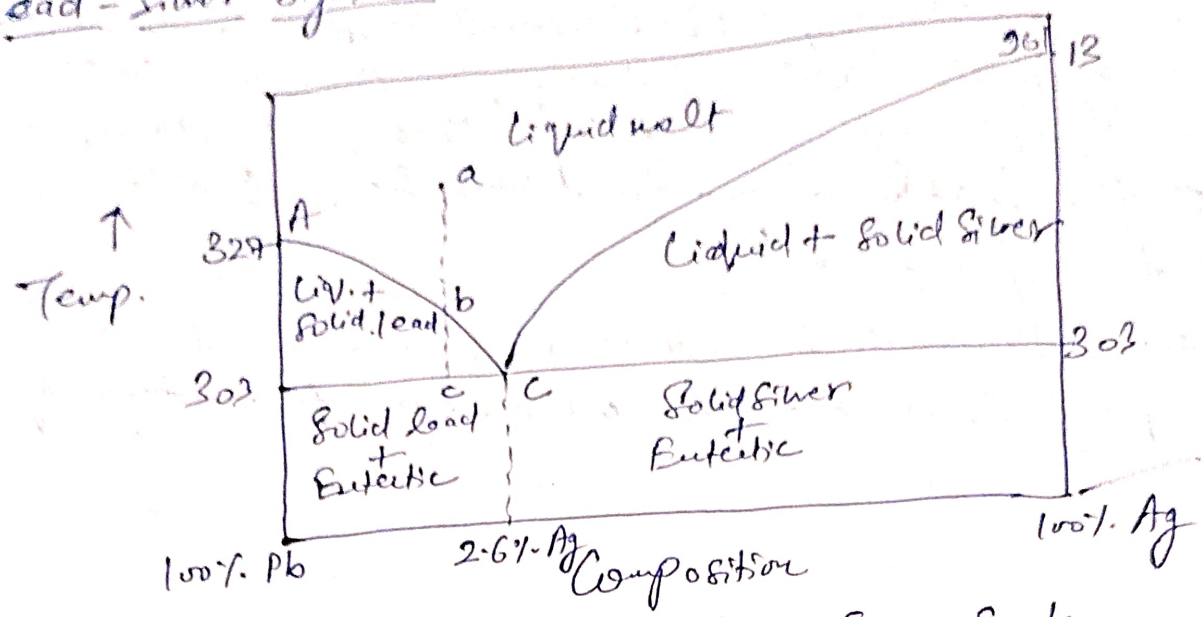
Lead - Silver System →



Phase diagram for lead-silver system

→ Pure lead melts at 327°C and the addition of silver lowers its melting point along AC.
→ AC is the f.pt. curve of lead containing various amounts of silver.
→ Pure silver melts at 961°C and the addition of lead lowers its melting point along BC.
→ BC is the freezing point curve of silver.
→ Along AC, solid lead and solution (melt) coexist while along BC, solid silver & solution (melt) coexist.
→ At constant pressure, the system is monovariant along AC as well as along BC.
→ C is the eutectic point where the three phases, solid lead, solid silver & their liquid solution (melt) coexist. It is invariant point.

Desilverisation of lead. → The argentiferous lead consisting of a very small percentage of silver is first heated to a temp. well above its melting point so that system consists only of the liquid phase represented, say by point a. It is then allowed to cool.

The temperature of the melt will fall along the line ab. As soon as the point b is reached, lead will begin to crystallise out and the solution will contain relatively increasing amounts of silver. Further cooling will shift the system along the line bc. Lead continues to separate out.

The melt continues to be richer & richer in silver until the point C is reached where the percentage of silver rises to 2.6.