

How can I extract calcium metal from electrolysis cell?

Answer: To obtain metallic calcium, you should perform the electrolysis of the molten (800 °C) salt mixture of the calcium chloride (80% w) and potassium chloride (20% w) with iron cathode and graphite anode. Salts should be purified and thoroughly dried before the electrolysis. Potassium chloride is used to decrease the solubility of metal calcium in calcium chloride and to decrease the melting temperature of the salt. At these conditions, solid calcium will deposit on the iron cathode.

If you performed the electrolysis of calcium salt solution in water, calcium will not be obtained, only the hydrogen reduction on the cathode will occur.

Only way to extract the metallic calcium from certain surface is to treat it with the molten metal (for e.g., copper) and after that distillate this molten calcium alloy in vacuum to obtain the pure metallic calcium.