

CLEANING AGENT, CLEANING METHOD, AND SUPPLEMENTARY LIQUID

ABSTRACT

An object is to provide a cleaning agent capable of removing an organic substance and copper oxide that are attached to a copper wiring surface while suppressing etching of copper. The cleaning agent contains a water-soluble carboxylic acid and hydrogen peroxide, the concentration of hydrogen peroxide is less than 0.75% by weight, and the pH of the cleaning agent is less than 2.5. Copper oxide can be removed from the copper wiring surface by the water-soluble carboxylic acid. Organic substances attached to the copper wiring surface can be removed by hydrogen peroxide. This is considered to be because hydrogen peroxide reacts with the water-soluble carboxylic acid to produce a percarboxylic acid in the cleaning agent. Etching of copper wiring can also be suppressed. This is considered to be because the water-soluble carboxylic acid is adsorbed onto the copper surface. Since it is less than 0.75% by weight, etching can be further suppressed. Since the pH is less than 2.5, a greater amount of copper oxide can be removed.