

ABSTRACT

The object of the present invention is to provide: an etching agent for a titanium-based metal on a semiconductor substrate, which suppresses decomposition of hydrogen peroxide, has a long liquid service life, and has less need for controlling the concentration of hydrogen peroxide in the etching agent, even in the cases where the etching agent is used for a semiconductor substrate having the titanium-based metal and a metallic copper or a metal alloy; an etching method; and an etching agent preparation liquid for use by mixing with hydrogen peroxide.

The present invention relates to: an etching agent for a titanium-based metal on a semiconductor substrate, having a titanium-based metal and a metallic copper or a copper alloy on the upper part of the titanium-based metal, comprising an aqueous solution containing at least (A) hydrogen peroxide, (B) phosphonic acid-based chelating agent having a nitrogen atom in the structure, (C) alkali metal hydroxide, and (D) organic acid having at least one hydroxyl group and at least three carboxyl groups; an etching method, which comprises using the etching agent; and an etching agent preparation liquid for use by mixing with hydrogen peroxide.