CLAIMS

[1] An etching liquid for use in a step of removing a silicon nitride film from a substrate having the silicon nitride film and a silicon oxide film,

wherein the etching liquid is obtained by blending a solution containing silica and an alkali, phosphoric acid, and water together,

the solution is a silica solution in which at least a part of the silica is dissolved in the alkali,

the amount of phosphoric acid blended into the etching liquid is 70 mass% or more, and

the alkali is at least one selected from tetramethylammonium hydroxide, tetraethylammonium hydroxide, trimethylethylammonium hydroxide, benzyltrimethylammonium hydroxide, ethyltrimethylammonium hydroxide, methylbenzyltrimethylammonium hydroxide, tetraethylammonium hydroxide, sodium hydroxide, and potassium hydroxide.

[2] The etching liquid according to claim 1,

wherein silica before being dissolved in the alkali is at least one selected from fumed silica and colloidal silica.

[3] The etching liquid according to claim 1 or 2,

wherein the content of silica dissolved in the etching liquid is 0.0005 mass% to 1 mass% inclusive.

[4] The etching liquid according to any of claims 1 to 3,

wherein the etching liquid has a pH of 2 or less at 25°C.

[5] The etching liquid according to any of claims 1 to 4,

wherein the etching liquid has an etching temperature of 110°C to 180°C inclusive.

[6] An etching method comprising:

a step of removing a silicon nitride film from a substrate having the silicon nitride film and a silicon oxide film, using the etching liquid according to any of claims 1 to 5.

[7] A method for producing a semiconductor substrate, comprising:

a step of removing a silicon nitride film from a substrate having the silicon nitride film and a silicon oxide film, using the etching liquid according to any of claims 1 to 5.