For example, Patent Document 1 (JP 3580887) describes a cover member comprising a sealant layer having salt barrier and waterproof properties, a protective layer, and a cover layer stacked. On use, it fails to prevent the entry of rainwater over a long period of time, and sometimes rust generates at the bottom of the outdoor tank.

[0004]

Also Patent Document 2 (JP 4076673) describes a sealing member having a fold, made of vulcanized EPDM base rubber or unvulcanized rubber base butyl rubber. On use, it fails to prevent the entry of rainwater over a long period of time, and sometimes rust generates at the bottom of the outdoor tank.

[0005]

On use of the cover member comprising a sealant layer having salt barrier and waterproof properties, a protective layer, and a cover layer stacked, described in Patent Document 1, the multilayer construction raises the problem that sheeting steps are complex and dimensional stability during sheeting is low.

[0006]

Also, on use of the sealing member having a fold, made of vulcanized EPDM base rubber or unvulcanized rubber base butyl rubber, described in Patent Document 2, the multilayer construction raises the problem that sheeting steps are complex and dimensional stability during sheeting is low.

SUMMARY OF INVENTION

TECHNICAL PROBLEM

[0007]

~~An object~~ Embodiments of the invention~~, which has been made under the above circumstances, is~~seek to provide an outdoor tank waterproof sheet which ~~is~~may be effective for preventing the entry

of rainwater over a long period of time, inhibiting rusting at the bottom of the outdoor tank, and preventing tank failure, and a method for the waterproof treatment of an outdoor tank.

SOLUTION TO PROBLEM

[0008]

Making extensive investigations to attain the above object, the inventors have found that a waterproof sheet consisting of a single layer elastomer ~~is~~may be effective, preferably the elastomer has a specific hardness, tensile strength, elongation and tear strength, and in particular, a single layer sheet formed of silicone rubber as the elastomer is important from the standpoints of weather resistance, heat resistance and freeze resistance.

It has also been found that in the waterproof treatment of a boundary region between the bottom of an outdoor tank and a foundation using the waterproof sheet, application of a sealant to both side edges of the waterproof sheet is important.

[0009]

~~The above object is attained by~~ Embodiments of the invention ~~which~~ provide~~s~~ an outdoor tank waterproof sheet and a method for the waterproof treatment of an outdoor tank as defined below.

[1] An outdoor tank waterproof sheet which is attached to a boundary region between the bottom of an outdoor tank installed on a foundation and the foundation so as to extend from the outdoor tank to the foundation for forming a liquid tight cover to the boundary region, the waterproof sheet consisting of a single layer elastomer having flexibility.

[2] The waterproof sheet of [1], consisting of an elastomer having a Durometer Type A hardness of 15 to 90, a tensile strength of at least 3 MPa, an elongation of 100 to 800%, and a tear strength of at least 3 kN/m.

[3] The waterproof sheet of [1] or [2] wherein the elastomer is silicone rubber.

[4] A method of waterproof treating an outdoor tank installed on a foundation, a boundary region being defined between the bottom of the outdoor tank and the foundation, the method comprising the steps of attaching the waterproof sheet of any one of [1] to [3] across the boundary region so as to extend from the outdoor tank to the foundation, for thereby forming a liquid tight cover to the boundary region, and applying a sealant over side edges of the waterproof sheet.

[5] The waterproofing method of [4] wherein the waterproof sheet is directly attached to the outdoor tank and the foundation, without a primer.

[6] The waterproofing method of [4] or [5] wherein a plurality of waterproof sheets are juxtaposed to form a liquid tight cover to the boundary region and liquid-tightly overlapped to define an overlap between adjacent waterproof sheets, the overlap having a width of at least 5 mm, and a sealant is applied to the overlap.

[7] The waterproofing method of any one of [4] to [6] wherein the sealant is a silicone base sealant.

[8] The waterproofing method of any one of [4] to [7] wherein the foundation is made of concrete, mortar, asphalt concrete, asphalt mortar, or asphalt sand.

ADVANTAGEOUS EFFECTS OF INVENTION

[0010]

~~The~~Embodiments of the invention provide~~s~~ a waterproof sheet and a waterproof treatment method, for an outdoor tank, typically a large volume tank as often installed in oil refinery plants or the like, which ~~are~~may be effective for preventing rainwater from entering the boundary region between the bottom side of the tank and the foundation. The waterproof sheet ~~is~~may be easy to

form and may improved in dimensional stability, and the method for the waterproof treatment of an outdoor tank may ensures to waterproof the bottom side of the outdoor tank in a simple treatment way.

BRIEF DESCRIPTION OF DRAWINGS

[0011]

[FIG. 1] FIG. 1 is a schematic cross-sectional view showing the installation of an outdoor tank.

[FIG. 2] FIG. 2 is a partially cutaway cross-sectional view showing one embodiment of the waterproofing method of the invention.

[FIG. 3] FIG. 3 is a partially cutaway cross-sectional view showing another embodiment of the waterproofing method of the invention.

[FIG. 4] FIG. 4 shows a further embodiment of the water-proofing method of the invention, (A) being a partially cutaway plan view of waterproof sheets disposed to cover the outdoor tank, foundation and boundary region therebetween and (B) being a cross-sectional view of an overlap between waterproof sheets.

[FIG. 5] FIG. 5 is a partially cutaway cross-sectional view showing a still further embodiment of the waterproofing method of the invention wherein outer peripheries of a waterproof sheet are bonded with a sealant.

DESCRIPTION OF EMBODIMENTS

[0012]

The present invention relates to a method for the waterproof treatment of an outdoor tank made of steel or the like and installed on a foundation and aims to prevent rainwater from entering the boundary region between the bottom of the outdoor tank and the foundation. With the