

CLAIMS

1. A sealed and thermally insulating tank for storing a fluid comprising a secondary thermal insulation barrier which is retained on a carrier structure, a secondary sealing membrane, a primary thermal insulation barrier and a primary sealing membrane which is intended to be in contact with the fluid contained in the tank, the tank comprising a corner structure comprising:

- a first panel and a second panel forming a corner of the secondary thermal insulation barrier, and comprising an external face opposite the carrier structure and an internal face;

- a corner arrangement of the secondary sealing membrane, which arrangement is fixed to the first and second panels;

- a first insulating block and a second insulating block of a primary thermal insulation barrier which are fixed to the first and second panels, respectively, and which rest against the corner arrangement of the secondary sealing membrane; and

- a corner of a primary sealing barrier comprising a first wing and a second wing which are fixed to the first and second insulating blocks, respectively; wherein:

- the first and second panels each comprise a metal plate which is fixed to the internal face thereof and which carries a fixing member for an insulating block; and

- the corner arrangement of the secondary sealing membrane is of metal, has openings for the introduction of the fixing members for the insulating blocks and is welded, at the periphery of the openings, to the metal plates which carry the fixing members so as to ensure the sealing of the secondary sealing membrane.

2. The tank as claimed in claim 1, wherein the fixing members of the insulating blocks are threaded pins which cooperate with nuts, the insulating blocks each comprising an opening for the introduction of a pin and a recess which communicates with the opening for the introduction of a pin and which has an abutment surface for a nut bounding the opening for the introduction of a pin.

3. The tank as claimed in claim 2, wherein the first and second insulating blocks comprise a lateral edge adjacent to the tank corner, a

lateral edge opposite the tank corner, and an internal face which cooperates with the corner of a primary sealing barrier and wherein the recesses open at the lateral edge opposite the tank corner and/or in an internal face portion which is contiguous with the lateral edge opposite the tank corner and which is not covered by the corner of a primary sealing barrier.

4. The tank as claimed in claim 3, comprising insulating elements for closing the recesses.

5. The tank as claimed in claim 3 or 4, wherein the recesses are formed by indentations comprising a base which forms the abutment surface of a nut and which opens at a portion of the internal face of the insulating blocks extending, in the direction toward the lateral edge opposite the tank corner of the insulating blocks, beyond an edge of the corner of a primary sealing barrier.

6. The tank as claimed in claim 5, wherein the corner has edges which are provided with cut-outs which are arranged opposite the indentations which open at the internal face of the first and second insulating blocks.

7. The tank as claimed in claim 3 or 4, wherein the recess is formed by a recess of the lateral edge opposite the tank corner, providing a lug which carries the abutment surface of a nut.

8. The tank as claimed in one of claims 1 to 7, wherein the corner arrangement of the secondary sealing membrane comprises a first metal sheet which is fixed to the first panel, a second metal sheet which is fixed to the second panel and a metal corner which is welded to the first and second metal sheets.

9. The tank as claimed in one of claims 1 to 8, wherein the wings of the corner of a primary sealing barrier each comprise an external face which is provided with a pin, projecting outward, for fixing the corner to the first and second insulating blocks.

10. The tank as claimed in one of claims 1 to 9, wherein the corner structure comprises a plurality of first and second insulating blocks which are distributed over the first and second panels, respectively, and a plurality of corners of a primary sealing barrier which are each fixed to a first insulating block and a second insulating block.

11. The tank as claimed in one of claims 1 to 10, comprising a planar wall, at one end of which the corner structure is arranged, the secondary sealing membrane of the planar wall being welded to the corner arrangement of the secondary sealing membrane and the primary sealing membrane of the planar wall being welded to a wing of the corner of a primary sealing barrier.

12. The tank as claimed in claim 11, wherein the secondary sealing membrane of the planar wall comprises a plurality of metal plates comprising undulations extending in two perpendicular directions.

13. The tank as claimed in claim 12, wherein the secondary thermal insulation barrier of the planar wall comprises a plurality of heat-insulating panels, between which gaps are provided, and wherein the undulations of the metal plates of the secondary sealing membrane project toward the outer side of the tank and are inserted in the gaps.

14. An assembly method for a tank as claimed in claim 10, comprising:

- the assembly of a plurality of preassembled modules each comprising a corner of a primary sealing barrier and a first insulating block and a second insulating block, the assembly step comprising, for each preassembled module, the fixing of a corner of a primary sealing barrier to a first insulating block and a second insulating block; and
- the fixing of the plurality of preassembled modules to the first and second panels forming a corner of the secondary thermal insulation membrane.

15. The assembly method as claimed in claim 14, wherein a first plurality of preassembled modules are fixed to the first and second panels in the workshop and a second plurality of preassembled modules are fixed to the first and second panels in situ in the tank.

16. A tanker for transporting a fluid, the tanker comprising a double hull and a tank as claimed in one of claims 1 to 13, wherein the double hull forms the external carrier structure of the tank.

17. A method for loading or unloading a tanker as claimed in claim 16, wherein a fluid is conveyed through the insulated channels

from or toward a floating or ground-based storage installation toward or from the tank of the tanker.

- 5 18. A transfer system for a fluid, the system comprising a tanker as claimed in claim 16, insulated channels which are arranged so as to connect the tank which is installed in the hull of the tanker to a floating or ground-based storage installation and a pump for driving a flow of fluid through the insulated channels from or toward the floating or ground-based storage installation toward or from the tank of the tanker.