

CLAIMS

1. A mobile storage assembly for storing and transporting a perishable organic liquid, comprising:
 - a tank having a cavity defined by a wall, wherein the wall includes a sealable port for receiving and storing a perishable organic fluid within the tank, wherein the perishable organic fluid is chilled prior to transfer to the tank;
 - a heat exchange structure at least partially located between an inner and outer wall surface of the wall, wherein prior to receiving the perishable organic fluid the heat exchange structure is configured to chill the cavity; and
 - a sparging structure located within the tank, wherein the sparging structure is in fluid communication with a source of a conditioning agent, wherein the sparging structure is configured to:
 - transfer a first portion of the conditioning agent into the tank to purge the tank prior to receiving the perishable organic fluid; and
 - sparge and pressurise the perishable organic fluid with a second portion of the conditioning agent after transfer and sealing within the tank.
2. The mobile storage assembly according to claim 1, wherein perishable organic fluid is raw milk.
3. The mobile storage assembly according to claim 1 or 2, wherein the heat exchange structure is a heat exchange conduit structure in fluid communication with a heat exchange fluid source, wherein an insulating material is located between the inner and outer surface of the wall to assist with maintaining a temperature of the perishable organic fluid within the tank after pressurising and sparging.
4. The mobile storage assembly according to any one of claims 1 to 3, wherein the conditioning agent is carbon dioxide.
5. The mobile storage assembly according to any one of claims 1 to 4, wherein the sparging structure is in fluid communication with the source of the conditioning agent via a further conduit which is at least partially located between the inner and outer surface of the wall of the tank.

6. The mobile storage assembly according to claim 5, wherein the cavity of the tank is chilled to a temperature between 0°C to 0.5°C prior to receiving the perishable organic fluid.
7. The mobile storage assembly according to any one of claims 1 to 6, wherein the sparging structure is configured to sparge the perishable organic fluid with the conditioning agent at a concentration of between 0.06 grams per litre to 1.2 grams per litre.
8. The mobile storage assembly according to any one of claims 1 to 7, wherein the sparging structure includes a lattice structure of open conduits extending within the cavity of the tank.
9. The mobile storage assembly according to any one of claims 1 to 8, wherein the sparging structure is configured to pressurise the perishable organic fluid to a pressure of between 1kPa to 400kPa above atmospheric pressure.
10. A method of storing and transporting a perishable organic liquid using a mobile storage assembly, comprising:
 - chilling a cavity defined by a wall of a tank of the mobile storage assembly using a heat exchange structure at least partially located between an inner and outer wall surface of the wall;
 - transferring, from a source of conditioning agent and via a sparging structure located within the tank, conditioning agent into the tank to purge the tank;
 - transferring chilled perishable organic fluid within the tank;
 - sealing the tank; and
 - sparging and pressurising the perishable organic fluid sealed within the tank with the conditioning agent via the sparging structure.
11. The method according to claim 10, wherein perishable organic fluid is raw milk.
12. The method according to claim 10 or 11, wherein the method includes pumping a heat exchange liquid through the heat exchange structure in a recirculating manner.
13. The method according to claim 12, wherein the heat exchange liquid is recirculated through the heat exchange structure after being cooled by a cooling device external to the heat exchange structure.

14. The method according to claim 12 and 13, wherein the heat exchange structure is a heat exchange conduit structure in fluid communication with a heat exchange fluid source, wherein an insulating material is located between the inner and outer surface of the wall to assist with maintaining a temperature of the perishable organic fluid within the tank after pressurising and sparging.
15. The method according to any one of claims 10 to 14, wherein the conditioning agent is carbon dioxide.
16. The method according to any one of claims 10 to 15, wherein the method includes chilling the cavity to a temperature between 0°C to 0.5°C prior to receiving the perishable organic fluid.
17. The method according to any one of claims 10 to 16, wherein the method includes sparging the perishable organic fluid with the conditioning agent at a concentration of between 0.06 grams per litre to 1.2 grams per litre.
18. The method according to any one of claims 10 to 17, wherein the method includes pressurising the perishable organic fluid to a pressure of between 1kPa to 400kPa above atmospheric pressure.
19. A system including:
 - a stationary storage assembly comprising
 - a tank having a cavity defined by a wall, wherein the wall includes a sealable port for receiving and storing a perishable organic fluid within the tank;
 - a sparging structure located within the tank, wherein the sparging structure is in fluid communication with a source of a conditioning agent, wherein the sparging structure is configured to:
 - transfer a first portion of the conditioning agent into the tank to purge the tank prior to receiving the perishable organic fluid; and
 - sparge and pressurise the perishable organic fluid with a second portion of the conditioning agent after transfer and sealing within the tank; and

a heat exchange system configured to cool and maintain a storage temperature of the perishable organic fluid within the tank; and

a mobile storage assembly configured in accordance with any one of claims 1 to 12, wherein the mobile storage assembly is locatable substantially adjacent to and in fluid communication with the stationary storage assembly such that the perishable organic fluid stored within the stationary storage assembly is transferrable to and storable within the tank of the mobile storage assembly.

20. The system according to claim 19, wherein the perishable organic fluid is raw milk and the stationary storage assembly is located at a farm or milking facility.

21. The system according to claim 19 or 20, wherein the heat exchange system includes a heat exchange structure at least partially located between an inner and outer wall surface of the wall of the tank of the mobile storage assembly, wherein prior to receiving any perishable organic fluid, the heat exchange structure is configured to chill the cavity, and wherein the insulating material is configured to assist with maintaining a temperature of the perishable organic fluid within the tank after pressurising and sparging.

22. A method comprising:

a) transferring, from a first source of a conditioning agent and via a sparging structure located within a tank of a stationary storage assembly, conditioning agent into the tank to purge the tank;

b) filling the tank of a stationary storage assembly with an amount of a perishable organic fluid, wherein the amount of perishable organic fluid is less than the maximum capacity of the tank, wherein the tank of the stationary storage assembly has a cavity defined by a wall including a sealable port for receiving and storing the perishable organic fluid within the tank of the stationary storage assembly;

c) sparging and pressurising the perishable organic fluid with the conditioning agent after sealing within the tank of the stationary storage assembly;

d) repeating steps a) to c) until the tank has reached maximum capacity; and

e) locating a mobile storage assembly adjacent the stationary storage assembly;

wherein the mobile storage assembly is configured according to any one of claims 1 to 9, wherein the perishable organic fluid contained within the tank of the stationary storage assembly is

transferred and stored within the tank of the mobile storage assembly using a method according to any one of claims 10 to 17.

23. The method according to claim 22, wherein the perishable organic fluid is raw milk and the stationary storage assembly is located at a farm or milking facility.

24. The method according to claim 22 or 23, wherein the heat exchange system includes a heat exchange structure at least partially located between an inner and outer wall surface of the wall of the tank of the mobile storage assembly, wherein prior to receiving any perishable organic fluid, the method includes chilling the cavity of the tank of the mobile storage assembly using the heat exchange structure.

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