[0008] According to a second aspect of the present invention, there is provided a system is provided for filling and pressurizing a container with firefighting liquid suppressant, the system comprising a receiving container defining an internal volume; a supply of nitrogen gas coupled to the receiving container for pressurizing the internal volume of the receiving container to an internal pressure; a supply of liquid suppressant; a transfer pump coupled to the receiving container and the supply of liquid suppressant for transferring the liquid suppressant to the receiving container against the internal pressure to define a head space pressure; a first valve configured to selectively isolate the supply of nitrogen gas from the receiving container; and a second valve configured to selectively isolate the supply of liquid suppressant and the transfer pump from the receiving container, wherein the supply of nitrogen gas is configured to be coupled to the receiving container while the second valve isolates the supply of liquid suppressant and the transfer pump from the receiving container. By monitoring the head space pressure in the container, the need for a weigh scale at the receiving container can be eliminated.

[0008a] According to a third aspect of the present invention, there is provided a method of charging a container with firefighting liquid suppressant, the method comprising: pressurizing a receiving container with a predetermined weight of nitrogen to provide a pressurized receiving container containing nitrogen gas at a predetermined pressure; and adding an amount of the firefighting liquid suppressant to the pressurized receiving container to define a nominal operating head space pressure within the pressurized receiving container, wherein the predetermined weight of nitrogen is a function of an internal volume of the pressurized receiving container, a predetermined weight of the firefighting liquid suppressant, and the nominal operating head space pressure.

Brief Descriptions of the Drawings

[0009] The accompanying drawings, which are incorporated herein and constitute part of this specification, illustrate exemplary embodiments of the invention, and, together with the general description given above and the detailed description given below, serve to explain the features of the invention.

[0010] FIG. 1 is a flow chart of a first embodiment of a preferred method of filling and pressurizing a container with liquid suppressant and nitrogen gas.

[0011] FIG. 2 is a flow chart of a second embodiment of a preferred method of filling and pressurizing a container with liquid suppressant and nitrogen gas.

[0012] FIG. 3 is a schematic view of a preferred system for carrying out the methods of FIGS. 1-2.

What is Claimed Is:

1. A method of charging a container with firefighting liquid suppressant, the method comprising:

providing a pressurized receiving container defining a volume and containing nitrogen gas at a predetermined pressure; and

adding an amount of the firefighting liquid suppressant to the pressurized receiving container to define a nominal operating head space pressure within the pressurized receiving container,

wherein providing the pressurized receiving container includes predetermining the pressure of the nitrogen gas from a calculated weight of nitrogen to saturate a predetermined weight of the firefighting liquid suppressant within the volume and provide the nominal operating head space pressure at ambient temperature.

2. The method of claim 1, wherein the nominal operating head space pressure within the pressurized receiving container ranges from at least 25 bar to less than 45 bar.

3. The method of claim 1, wherein adding the liquid suppressant includes transferring the liquid suppressant from a supply container and measuring a loss in weight of the supply container until the measured loss equals a predetermined weight value.

4. The method of any one of the above claims, wherein adding the liquid suppressant includes transferring an amount of NOVEC™ 1230 extinguishing agent to the receiving container.

5. A system for filling and pressurizing a container with firefighting liquid suppressant, the system comprising:

a receiving container defining an internal volume;

a supply of nitrogen gas coupled to the receiving container for pressurizing the internal volume of the receiving container to an internal pressure;

a supply of liquid suppressant;

a transfer pump coupled to the receiving container and the supply of liquid suppressant for transferring the liquid suppressant to the receiving container against the internal pressure to define a head space pressure;

a first valve configured to selectively isolate the supply of nitrogen gas from the receiving container; and

a second valve configured to selectively isolate the supply of liquid suppressant and the transfer pump from the receiving container,

wherein the supply of nitrogen gas is configured to be coupled to the receiving container while the second valve isolates the supply of liquid suppressant and the transfer pump from the receiving container.

6. The system of claim 5, wherein the supply of liquid suppressant is a supply container having a fixed volume of liquid suppressant.

7. The system of any one of claims 5-6, further comprising a pressure sensor to determine the head space pressure within the internal volume of the receiving container during transfer of the liquid suppressant.

8. The system of any one of claims 5-7, wherein the transfer pump transfers the liquid suppressant to the receiving container against the head space pressure, the head space pressure ranging from 25-45 bar.

9. The system of any one of claims 5-8, wherein the liquid suppressant is NOVEC™ 1230 extinguishing agent.

10. A method of charging a container with firefighting liquid suppressant, the method comprising:

pressurizing a receiving container with a predetermined weight of nitrogen to provide a pressurized receiving container containing nitrogen gas at a predetermined pressure; and

adding an amount of the firefighting liquid suppressant to the pressurized receiving container to define a nominal operating head space pressure within the pressurized receiving container,

wherein the predetermined weight of nitrogen is a function of an internal volume of the pressurized receiving container, a predetermined weight of the firefighting liquid suppressant, and the nominal operating head space pressure.

11. The method of claim 10, wherein the nominal operating head space pressure within the container ranges from at least 25 bar to less than 45 bar.

12. The method of claim 10, wherein adding the liquid suppressant includes transferring the liquid suppressant from a supply container and measuring a loss in weight of the supply container until the measured loss equals a predetermined weight value.

13. The method of claim 10, wherein adding the liquid suppressant includes transferring an amount of NOVEC™ 1230 extinguishing agent to the receiving container.