CLAIMS

[Claim 1] An inside air control apparatus (100) for adjusting a composition of inside air in a storage (2), comprising:

an adsorber (234, 235) containing an adsorbent for adsorbing nitrogen and configured to separate outside air outside the storage into a first gas having a higher concentration of nitrogen and a lower concentration of oxygen than the outside air and a second gas having a lower concentration of nitrogen and a higher concentration of oxygen than the outside air;

a first gas passage (244) through which the first gas flows; and

a second gas passage (245) through which the second gas flows,

the inside air control apparatus (100) being configured to perform

a decrease operation for decreasing a concentration of oxygen in the inside air by introducing the first gas to an inside of the storage (2) through the first gas passage (244); and

an increase operation for increasing a concentration of oxygen in the inside air by introducing the second gas to the inside of the storage (2) through the second gas passage (245), and

in the increase operation, the second gas is introduced to the inside of the storage (2) through the second gas passage (245), and the first gas is introduced to the inside of the storage (2) through the first gas passage (244).

[Claim 2] The inside air control apparatus (100) of claim 1, wherein

the second gas passage (245) is able to switch between an introduction mode for introducing the second gas to the inside of the storage (2) and a discharge mode for discharging the second gas to an outside of the storage (2).

[Claim 3] The inside air control apparatus (100) of claim 2, wherein the second gas passage (245) includes

a trunk passage (246) connected to the adsorber (234, 235),

a supply passage (248a) communicating with the inside of the storage (2),

a discharge passage (248b) communicating with the outside of the storage (2), and

a switching mechanism (249) allowing the trunk passage (246) to communicate with the supply passage (248a) in the introduction mode and allowing the trunk passage (246) to communicate with the discharge passage (248b) in the discharge mode.

[Claim 4] The inside air control apparatus (100) of claim 2 or 3, further comprising:

an oxygen sensor (161) configured to measure a concentration of oxygen in the inside air; and

a controller (110) configured to switch the second gas passage (245) between the introduction mode and the discharge mode based on a value measured by the oxygen sensor (161).

[Claim 5] The inside air control apparatus (100) of any one of claims 1 to 4, further comprising:

a flow rate regulation mechanism (272) configured to regulate a flow rate of the first gas introduced to the inside of the storage (2) in the increase operation.

[Claim 6] The inside air control apparatus (100) of claim 5, further comprising:

a first gas discharge passage (271) having ends, one of which is connected to the first

gas passage (244) and the other one of which communicates with the outside of the storage (2), wherein

the flow rate regulation mechanism (272) is a valve provided in the first gas discharge passage (271).

[Claim 7] The inside air control apparatus (100) of any one of claims 1 to 6, wherein

the adsorber includes a first adsorber (234) and a second adsorber (235) each containing the adsorbent, and

the inside air control apparatus (100) alternately repeats

a first operation for making the second gas flow out from the first adsorber (234) by supplying the outside air to the first adsorber (234) and for making the first gas flow out from the second adsorber (235), and

a second operation for making the second gas flow out from the second adsorber (235) by supplying the outside air to the second adsorber (235) and for making the first gas flow out from the first adsorber (234).

[Claim 8] A refrigeration apparatus, comprising:

the inside air control apparatus (100) of any one of claims 1 to 7; and

a refrigerant circuit (11) configured to perform a refrigeration cycle to adjust a temperature of the inside air.

[Claim 9] A transportation container, comprising:

the refrigeration apparatus (10) of claim 8; and

a container body provided with the refrigeration apparatus (10) and constituting the

storage (2).