CLAIMS

What is claimed is:

1. A method of managing refrigerant reclamation, comprising:

returning used refrigerant to a facility for reclamation;

identify, via an analyzer unit including an infrared optical sensor, type of the used refrigerant;

analyzing, via the analyzer unit, composition of the used refrigerant;

determining, via the analyzer unit, purity of the used refrigerant;

determining weight of the used refrigerant based on the purity of used refrigerant;

based on the type and purity of the used refrigerant, by a single entity, transferring the used refrigerant to a system consisting essentially of: a pure gas collection vessel for storage, an impure gas collection vessel for a reclamation process, or a blended gas collection vessel for an adjusting process; wherein:

if the used refrigerant contains pure gas, the used refrigerant is processed on-site and tested for industry standards,

if the used refrigerant contains non-volatile impurities, the used refrigerant is processed on-site for reclamation and tested for industry standards, and after the reclamation process, the used refrigerant is packed, recertified, and branded as a new reclamation refrigerant, corresponding to a pure gas, and

if the used refrigerant contains blended gas, the used refrigerant is processed on-site or off-site for the adjusting process; and

generating a deposit credit to be used on-site or remotely.

2. The method according to Claim 1, wherein:

(i) if the gas is determined to be pure (> 99.5%) and of a single type by the analyzer unit, the used refrigerant is collected and transferred to the pure gas collection vessel containing pure refrigerant;

(ii) if gas is determined to have a purity of greater than 98%, (a) if the weight of the used refrigerant is less than a predetermined threshold, the deposit credit is in the form of money, or (b) if the weight of the used refrigerant is greater than the predetermined threshold, the deposit credit is in the form of money or free refrigerant;

(iii) if the analyzer unit determines that the used refrigerant is a blended gas that contains mixed gases or has a purity of < 99.5%, the used refrigerant is collected into the blended gas collection vessel and transported to a central facility to be reprocessed by a regenerator for adjustment of the mixed gases; or

(iv) if the analyzer unit determines that the used refrigerant has a purity of less than 99.5% but greater than 98%, the used refrigerant is collected and transferred to the impure gas collection vessel containing impure refrigerant.

3. The method according to Claim 2, wherein for (i), the deposit credit is based on a weight of the pure gas.

4. The method according to Claim 1, wherein for (ii), the used refrigerant is selected from the group consisting of R-410A, R-407A, R-407B, R-407C, R-407D, R-407E, R-407F, R-407G, R-407H and R-404A. R448A, R449A, R513A, R454A, R454B, and R454C, R514A, R515B, R444A., R463A.

5. The method according to Claim 1, wherein if the used refrigerant is found by the analyzing unit to contain non-volatile impurities, the used refrigerant is collected into the impure gas collection vessel to be reprocessed by a regenerator for a reclamation process and tested to meet AHRI Standard 700 purity specifications.

6. The method according to Claim 5, wherein the non-volatile impurities are selected from the group consisting of oil, water, dirt, and acid.

7. The method according to Claim 1, wherein the analyzer unit is a portable device or a handheld device.

8. The method according to Claim 1, further comprising regeneration of the used refrigerant by a regenerator including a computing system configured to execute the regeneration processing and create regeneration data.

9. The method according to Claim 8, wherein the regeneration data is one or more types of information selected from the group consisting of quality of the regenerated refrigerant, refrigerant composition of the regenerated refrigerant,

weight of the regenerated refrigerant, and an indication that the regenerated refrigerant has been regenerated.

10. A system, comprising:

one or more processors; and

one or more non-transitory computer readable storage media communicatively coupled to the one or more processors and storing instructions that are executable by the one or more processors to:

return used refrigerant to a facility for reclamation;

analyze type and composition of the used refrigerant;

determine, via the analyzer unit, purity of the used refrigerant;

determine weight of the used refrigerant based on the purity of used refrigerant;

based on the type and purity of the used refrigerant, by a single entity, transferring the used refrigerant to a system consisting essentially of: a pure gas collection vessel for storage, an impure gas collection vessel for a reclamation process, or a blended gas collection vessel for an adjusting process; wherein:

if the used refrigerant contains pure gas, the used refrigerant is processed on-site and tested for industry standards,

if the used refrigerant contains non-volatile impurities, the used refrigerant is processed on-site for reclamation and tested for industry standards, and after the reclamation process, the used refrigerant is packed, recertified, and branded as a new reclamation refrigerant, corresponding to a pure gas, and

if the used refrigerant contains blended gas, the used refrigerant is processed on-site or off-site for the adjusting process; and

generate a deposit credit to be used on-site or remotely.

11. The system according to Claim 10, wherein:

(i) if the gas is determined to be pure (> 99.5%) and of a single type by the analyzer unit, the one or more processors are configured to collect and transfer the used refrigerant to the pure gas collection vessel containing pure refrigerant;

(ii) if gas is determined to have a purity of greater than 98%, (a) if the weight of the used refrigerant is less than a predetermined threshold, the deposit credit is in the form of money, or (b) if the weight of the used refrigerant is greater

than the predetermined threshold, the deposit credit is in the form of money or free refrigerant;

(iii) if the analyzer unit determines that the used refrigerant is a blended gas that contains mixed gases or has a purity of < 99.5%, the used refrigerant is collected into the blended gas collection vessel and transported to a central facility to be reprocessed by a regenerator for adjustment of the mixed gases; or

(iv) if the analyzer unit determines that the used refrigerant has a purity of less than 99.5% but greater than 98%, the used refrigerant is collected and transferred to [[a]] the impure gas collection vessel containing impure refrigerant.

12. The system according to Claim 11, wherein for (i), the deposit credit is based on a weight of the pure gas.

13. The system according to Claim 11, wherein for (ii), the used refrigerant is selected from the group consisting of R-410A, R-407A, R-407B, R-407C, R-407D, R-407E, R-407F, R-407G, R-407H and R-404A. R448A, R449A, R513A, R454A, R454B, and R454C, R514A, R515B, R444A, R463A.

14. The system according to Claim 10, wherein if the used refrigerant is found by the analyzing unit to contain non-volatile impurities, the one or more processors are configured to collect the used refrigerant into the impure gas collection vessel to be reprocessed by a regenerator for a reclamation process and tested to meet AHRI Standard 700 purity specifications.

15. The system according to Claim 14, wherein the non-volatile impurities are selected from the group consisting of oil, water, dirt, and acid.

16. The system according to Claim 10, further comprising an analyzer unit, wherein the analyzer unit is a portable device or a handheld device.

17. The system according to Claim 10, further comprising a regenerator including a computing system configured to execute a regeneration processing and create regeneration data.

18. The system according to Claim 18, wherein the regeneration data is one or more types of information selected from the group consisting of quality of the regenerated refrigerant, refrigerant composition of the regenerated refrigerant, weight of the regenerated refrigerant, and an indication that the regenerated refrigerant has been regenerated.

19. The system according to Claim 10, wherein analyzing the type and composition of the used refrigerant is performed by an analyzer unit;