INNOVATIVE TECHNOLOGICA
METHODICAL RESEARCH JOURNAL
ISSN: 2776-0987 Volume 2, Issue 6, June, 2021

LOSSES IN STORAGE OF CLEAN OIL PRODUCTS STORED IN AGRICULTURAL ENTERPRISES

Zulunov Z.T.
Teacher

Mirzaev I. G.
Candidate of Technical Sciences. Docent

Mamadalieva G. Turakulov A.
Assistant, Andijan Institute of Agriculture and Agrotechnology

Annotation
The proposed device can be used in the chemical industry, oil refining industry or in the storage of petroleum products in agricultural enterprises.

Keywords. Oil, diffusion, products, volatile, generator, capacitor, cooling department, zmeevik, absorber, valve, jalousie, reservoir.

Evaporation losses occur during the storage of clear petroleum products. The higher the ambient temperature, the greater the loss of clear petroleum products from evaporation. When we analyzed the losses of crude oil products and preventive devices, they showed that they had some shortcomings. [2,3,4] The authors of the scientific work did not take into account the physicochemical properties of crude oil products in preventing the loss of crude oil products. because it is a complex process, we have chosen a method of reducing the losses by condensing it, rather than by preventing the loss of clear oil products from evaporation. Of course, cold condensation is required to condense the oil vapors. We get this cold by using an absorption-diffusion cooler powered by solar energy. "Gas return system for tanks for storage of volatile liquids" at the Andijan Institute of Agriculture and Agrotechnology A.S. UZ№IAP 03301. The device was created on 16.06.2004. "

The problem can be solved as follows, the gas return system for tanks for storage of volatile liquids is made of cylindrical condenser, heat exchanger, solar heater, secondary heat exchanger in the form of a coil, cylindrical condenser inner and outer wall. There is a gap between the walls. In this cavity there is a first heat exchanger in the form of a snake (Fig. 1), the lower end of which is connected to the ammonia vapor

ISSN: 2776-0987 Volume 2, Issue 6, June, 2021

generator through the second heat exchanger, the upper end is connected to the first end of the absorber, the outlet end of the absorber is connected to the ammonia vapor inlet the inlet end is connected to the outlet end of the absorber, the outlet end of the ammonia vapor generator is connected to the second inlet end of the absorber, the outer wall of the condenser is made of heat-insulating material and the inner wall is made of heat-conducting material.

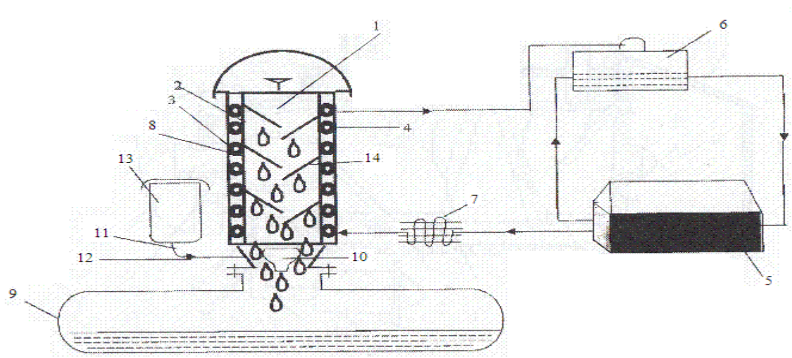
In addition, the second side of the inner wall of the condenser is mounted blinds at a certain angle, and the throttle nozzle to the bottom of the inner wall of the system.

The gas return system for tanks for storage of volatile liquids works as follows:

The ammonia vapor generator inside the solar heater 5 evaporates ammonia from the saturated water-ammonia solution. The pressures in absorber 6, evaporator 4, and condenser 1 are the same. Because the ammonia vapor generator and the second condenser 7 are connected to each other, the pressure in them is equal. A water-ammonia solution of various concentrations circulates continuously between the absorber 6 and the ammonia vapor generator.

The poor water-ammonia solution is slowly transferred from the ammonia vapor generator to the absorber 6. This solution absorbs the ammonia vapors in the absorber and becomes a rich solution again, and the condenser 1 passes from evaporator 4 to absorber 6. The rich solution passes from the absorber 6 to the ammonia vapor generator. [8] An ammonia vapor generator absorbs a certain amount of ammonia as a result of absorbing solar energy from a solar heater 5. And again this rich solution goes into the ammonia vapor generator. So the cycle can be repeated. [9]

The air purified from the volatile liquid vapors is discharged to the external environment through a nozzle and discharge valve, and the condensed liquid is returned to tank 9.

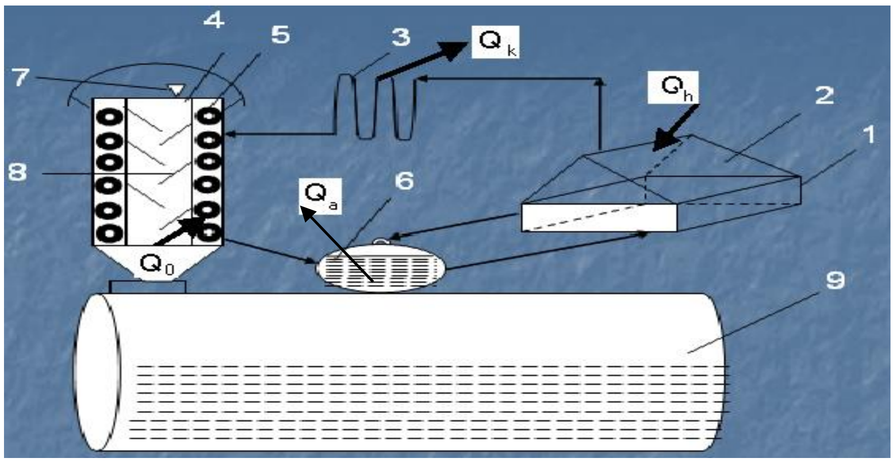


1. Picture. Reservoir gas return system.

1. Capacitor; 2. Two-layer wall of capacitor; 3. The gap between the two-layer wall; 4. The first heat exchanger; 5. Solar heater; 6. Absorber; 7. Secondary heat exchanger; 8. The inner surface of the capacitor; 9. Reservoir; 10. Throttle nozzle; 11. Patrubok; 12. discharge valve; 13. Air purifier; 14. Blinds.

The main function of the condenser is to trap vapors of clear petroleum products. [10] The operation and structure of the capacitor are shown in Picture 2.

The process of heat exchange in an absorption device condensing clear petroleum products [2,5].



Picture 2.

1.E evaporator; 2. Solar heat exchanger; 3. Capacitor; 4.Cooling department; 5.Zmeevik; 6.Absorber; 7. Valve; 8.Jalousie; 9. Reservoir.

Q_a is the amount of heat transferred from the absorber to the environment;

Q_k is the amount of heat transferred from the condenser to the environment;

Q_h is the solar heat received by the evaporator;

Q_o - Cooling ability, W;

The ability to develop cold is a key indicator, which is defined as follows:

$$Q_o = r \cdot G \qquad (1)$$

where: r is the phase transition temperature of clear petroleum products, (W sec) / kg [7];

G - The amount of condensed clear petroleum products, kg.

If the ability to develop cold is determined by the surface F of the condensate Q_o, we obtain the following formula:

INNOVATIVE TECHNOLOGICA
METHODICAL RESEARCH JOURNAL
ISSN: 2776-0987 Volume 2, Issue 6, June, 2021

$$Q_0 = \frac{\lambda}{\delta} \cdot (t_1 - t_2) \cdot F \qquad (2)$$

Comparing (1) and (2) we find the following accuracy: $r \cdot G = \frac{\lambda}{\delta} \cdot (t_1 - t_2) \cdot F \qquad (3)$

We determine the amount of condensed clear petroleum products, kg.

$$G = \frac{\lambda}{r \cdot \delta} \cdot (t_1 - t_2) \cdot F \qquad (4)$$

From formula (4) it can be seen that the amount of clear petroleum products being condensed is directly proportional to the condensation surface F. The condensation surface of the device we are proposing is determined by the following mathematical formula:

$$F = 2\pi \cdot R \cdot h + \frac{\pi \cdot R^2}{2} + d \cdot b - \frac{2\pi \cdot R}{\cos\alpha} \cdot b = 2\pi \cdot R\left(h + \frac{R}{4} - \frac{b}{\cos\alpha}\right) + d \cdot b \qquad (5)$$

If we put the value of Fni in formula (4), we get the following formula.

$$G = \frac{\lambda}{r \cdot \delta} \cdot (t_1 - t_2) \cdot 2\pi \cdot R\left(h + \frac{R}{4} - \frac{b}{\cos\alpha}\right) + d \cdot b \qquad (6)$$

(6) It can be seen from the formula that the amount of condensed clear petroleum products is directly proportional to the proposed device parameters.

References

1.Б.Андерсен. Солнечная энергия (основы строительного проектирования). М., Стройиздат , 1982 г. 373 стр.

2. Борзенков В.А. и др. «Оборудование стационарное складов нефтепродуктов. Технология технического обслуживания». М.: «ГОСНИТИ», с.106, 1984.

3. Руденко А.И. «Нефтехозяйство колхозов и совхозов». М.: «Колос». 66 с., 1975.

4.Абдуллаев Д.А., Зулунов З.Т., Йулдашев Р.Р.Конденсация потери от испарения светлых сортов нефтепродуктов при хранении в условиях сельскохозяйственных предприятиях. «Школа Науки» № 14 (25) Декабрь 2019. Стр 1-3.

5. Мирзаев И.Г., Зулунов З.Т., Турдиева М.Ё. Зависимость количества конденсируемых легкоиспаряющихся жидкостей от параметров конденсатора. Россия. г.Самара журнал «Научный аспект» РИНЦ (ИФ 0,03), стр2168…2172, 2020 г

6.Мирзаев И., Зулунов З.Т., Тудиева М.Ё. Расчёт потерь от испарения горизонтально - цилиндрических резервуаров. Россия. Г.Самара журнал «Научный аспект» РИНЦ (ИФ 0,03), стр2173…2178, 2020 г

ISSN: 2776-0987 Volume 2, Issue 6, June, 2021

7. Сергеенков В.А. «Исследование потерь автомобильных бензинов от испарения при приемоотпускных операциях на нефтескладах колхозов и совхозов». Диссертация на соискание уч.ст.к.т.н. М.: МИИСП, 1970.
8. Khudoyberdiev T. S, Tursunov B. N, M. Sh.Kholdarov, Norkulov Kh. M, & Ganiev O.O. (2021). RESERVES FOR REDUCING FUEL AND ENERGY COSTS FOR CULTIVATION OF COTTON IN THE CONDITIONS OF THE REPUBLIC OF UZBEKISTAN. Innovative Technologica: Methodical Research Journal, 2(05), 60–64. https://doi.org/10.17605/OSF.IO/WRG4N
9. S Kholdarova. “Study Of Corn Biology In Agriculture And The Technology Of Its Cultivation”. // INTERNATIONAL JOURNAL ON ORANGE TECHNOLOGIES// 3 (03), 55-61. 2021.
10. KS Rakhmatjonovna. “THE IMPORTANCE OF MICRONUTRIENTS IN PLANT LIFE.(IN THE EXAMPLE OF THE ELEMENTS BORON AND MANGANESE).” // World Bulletin of Public Health// 1 (1), 4-6. https://scholarexpress.net/index.php/wbph/article/view/2
11.И.А.Ефимов, З.Т.Зулунов Сокращение потерь нефтепродуктов на основе конденсационно-сорбционных дыхательных клапанов резервуаров. М., Механизация и автоматизация технологических процессов в агропромышленном комплексе. Часть IV стр. 106-107. 1989 г.
9. И.А.Ефимов, Е.А.Пучин, З.Т.Зулунов, «Снижение потерь от испарения светлых сортов нефтепродуктов при хранении на нефтескладах АПК». М.: Научно-технический информационный сборник, №2, с.24-27, 1990.
10. З.Т.Зулунов и др. А.С. № 1628434 «Газоотводная система резервуаров для хранения легкоиспаряющихся жидкостей». 15.10.1990.
11. Т.С.Худойбердиев и др. А.С. UZIAP 03301 «Газоотводная система резервуаров для хранения легкоиспаряющихся жидкостей». 16.06.2004.
12. Худойбердиев Т.С., Зулунов З.Т., Фозилов З.А. «Способ улавливания паров светлых сортов нефтепродуктов на основе конденсационно-абсорбционных клапанов резервуаров» Барнаул, «Аграрная наука-сельскому хозяйству» международная научно-практическая конференция, Сборник статей, Книга 2, 2006 г., 304…306 стр.
13.Михеев М.А., Михеева И.М. «Основы теплопередачи». М. «Энергия», 1977.