AMERICAN JOURNALS
Open Access, Peer Reviewed Journals

American Journal of Research in Humanities and Social Sciences
ISSN (E): 2832-8019 Volume 14, | July, 2023

SAMPLE TASKS IN CHEMISTRY FOR MILITARY SPECIALTIES

M.Sh.Islamova
Associate Professor of the Department of Natural and Scientific Sciences, Ministry of Defense of the Republic of Uzbekistan, Chirchik Higher Tank Command Engineering Educational School, (PhD)
maftuna_islamova@inbox.ru

"Science, education and training are the foundation stone of development and the force that makes the country powerful and the nation great."
Sh.M.Mirziyoyev

A B S T R A C T	**K E Y W O R D S**
This article presents considerations on the methodology for improving the military competence of cadets of the higher military education system with the help of special exercises and tasks in chemistry lessons. The article provides examples of tasks suitable in the specialty for cadets of the military aviation direction.	military competence, chemicals, aviation, military practical task

Introduction

Chemistry is one of the most complex and important natural sciences, and in its teaching, special attention should be paid to classification indicators such as class, age characteristics, direction, specialization of students.

The Ministry of Defense of the Republic of Uzbekistan is using innovative educational methods and technologies that provide effective and practical results in teaching chemistry to future military personnel at the Department of Natural Sciences of the Chirchik Higher Tank Command Engineering Educational Institution.

For military personnel, understanding the basic concepts and laws of chemistry, the properties of substances and the mechanisms of reactions is lacking. Increasing the professional competence of military personnel in various emergency situations during war and peace, bringing the military characteristics to the level of a mature art, skillfully getting out of the situation, effective from the available potential (weapons, combat power, equipment, and other types of supplies) In order to develop the skills to neutralize and destroy the enemy using them, it is necessary to teach chemistry in a way that is tailored to specific military objectives.

In particular, the cadets of the "**Airborne Forces Tactical Command**" are required to have a thorough knowledge of military combat equipment, aircraft and helicopter models, functions and capabilities. In the process of teaching chemistry, the main attention should be focused on increasing their analytical ability, quick operational decision-making qualities, and also serve to repeat and strengthen the knowledge gained in specialized sciences. For this reason, cadets of this direction are required to be given questions and tasks of military practical content during practical training.

For example:

Military practical issue *- About 600 kg of rubber is used in the production of a combat aircraft. If the practical yield of divinyl from ethanol is 70%, and the yield of rubber during polymerization is 95%, calculate what volume of ethanol (density 0.8 g/cm3) is needed to obtain this mass of rubber by the Lebedev method.*

Activating questions of the problem:

1. 1. What do you know about the construction and functions of a fighter plane?
2. 2. Why do you think such a large amount of rubber is used to produce a fighter plane?
3. 3. What is the difference between rubber and ebonite? Can ebonite be used for the production of military equipment and aircraft?

We write the reaction equations for obtaining rubber from ethanol (C2H5OH):

$$2C_2H_5OH \rightarrow CH_2{=}\ CH-CH=CH_2 + H_2 + 2H_2O$$

$$nCH_2{=}\ CH-CH=CH_2 \rightarrow (\text{-}CH_2\text{-}CH{=}CH\text{-}CH_2\text{-})n$$

$$m_x = p_{x*v} \gg V = \frac{m_x}{p_x}$$

$$m_{rubber\ (100\%\ yield)} = (100\%\ productivity) = \frac{600}{0{,}95} == 631{,}578 \sim 631{,}6\ kg$$

$$m_{CH2=CH-CH=CH2\ (70\%\ productivity)} = (100\%\ productivity) = 631{,}6\ kg$$

$$m_{CH2=CH-CH=CH2\ (100\%\ productivity)} = \frac{631{,}6}{0{,}07} = 902{,}28 \sim 902{,}3\ kg$$

$$n_x = \frac{m_x}{Mr_x} = m_x = \frac{n_x}{Mr_x}$$

$$n_{CH2=CH-CH=CH2} = \frac{902{,}3}{0{,}054} = 16709{,}259 \sim 16709{,}26\ kmol$$

The Lebedev method is *to obtain divinyl by passing ethanol (C2H5OH) steam at a temperature of 400-500* ^{0}C *through a catalyst with a hydrogenating and dehydrating effect.*

$$nC_2H_5OH = 2 \times n_{CH2=CH-CH=CH2} = 2 \times 16709{,}26 = 33418{,}52\ \text{kmol}$$

$$m_{C2H5OH} = 33418{,}52 \times 0{,}046 = 1537{,}25\ \text{kg}$$

Let's calculate how much ethanol (C2H5OH) is needed to produce rubber: $V_{C2H5OH} = \frac{1537{,}25}{800} = 1{,}92\ m^3$

Answer: the volume of ethanol is 1.92 m^3.

Conclusion: In the process of carrying out a military practical problem, the cadets learned about the types and construction of combat air attack equipment, the importance of the chemical industry in their production, the need for rubber products to ensure the durability of military equipment, and presents and repeats theoretical and relevant information about the fact that ebonite is an important raw material for the production of wheels in military and civil aviation aircraft. Examples and exercises not only of a chemical but also of a general professional character will encourage cadets to speak, think freely, and understand the role and importance of chemistry in their profession and life.

References

1. Прогнозирование чрезвычайных ситуаций /сборник задач Самаркандский государственный технический университет 2014 г.
2. Islamova M.Sh. “Amaliy kimyo” amaliy mashg‘ulotlar to‘plami /o‘quv qo‘llanma/ M.Sh. Islamova Chirchiq 2023 -130 b.