CHEMICAL COMPOSITION OF THE EFFECT OF ORGANIC FERTILIZERS ON DETAILS OF AGRICULTURAL TECHNIQUES

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Abstract: *Mineral fertilizers are divided into simple and complex types. Simple fertilizers - nitrogen, phosphorus, potassium, and they consist of one element. The remaining elements will be the quantity. Nitrogen fertilizers in feathery form are divided into nitrate, ammonia, ammonia-nitrate and amide fertilizers. Nitrate fertilizers contain nitrogen in the form of nitrates - salts of nitric acid, they dissolve well in water and are very active in terms of corrosion. Nitrates include sodium, calcium and potassium nitrates. these show their negative effect on details.*

Key words: *Machine-tractor, agricultural machinery, cultivators, seeders, plows, fertilizing machines, chemical plants, corrosion, corrosion-mechanics, organic, mineral, chemical, technical, composition, rust, modifier, soil, oxygen, hydrogen, formula, laboratory, reaction.*

Corrosion of metal parts of agricultural machinery means the decomposition of fertilizer residues on the metal surfaces, various technological residues under the influence of atmospheric moisture under the direct electrochemical reaction with the metal [1, 2, 3].

Mineral fertilizers simple and complex species divided into Simple fertilizers - nitrogen, phosphorus, potassium and they are one basic from the element consists of. The rest elements or amount will be. Nitrogenous fertilizers of nitrogen feathered shape depending on nitrate, ammonia, ammonia- nitrate and amidli fertilizers divided into [3].

Nitrate fertilizers contain nitrogen in the form of nitrate - salts of nitric acid (nitrate). they are well soluble in water and very active in terms of corrosion. Nitrate nitrates include sodium $NaNO_3$, calcium $Ca(NO_3)_2$, and potassium KNO_3 nitrates [3, 4].

Nitrogen in ammonia fertilizers is in the form of ammonia (ammonium). they include liquid (anhydrous) ammonia, ammonia water, ammonium sulfate, ammonium chloride. In terms of corrosion, salts of water-soluble NH_4Cl and $(NH_4)_2SO_4$ nitric and sulfuric acids are dangerous [5].

Ammonia-nitrate fertilizer - ammonium nitrate NH_4NO_3 contains 35% nitrogen in the form of ammonia and nitrate. Ammonium nitrate is a salt of nitric acid that dissolves well in water, has strong hygroscopic properties and has strong corrosion activity [6].

A mi dli fertilizers including urea (urea), calcium cyanamide and urea - formaldehyde fertilizers enters. Urea $SO(NH_2)_2$ solid nitrogenous fertilizers. The amount of nitrogen between more - up to 46 per cent which was fertilizer. Urea corrosion activity his isomers - cyanate ammonium amount with determined [7].

Calcium cyanamide and urea - formaldehyde fertilizers - are slow-acting fertilizers and their corrosion activity is not great.

Potassium fertilizers are divided into three groups:

Concentrated - chlorinated potassium KSl, sulfur-alkaline potassium K_2SO_4 , potassium and magnesium sulfate $K_2SO_4MgSO_4$, both potassium salts - potassium Silvinite, carnallite, 30–40 percent potassium salts [7].

Basic and eng concentrated potassium son dog - this is potassium chloride and contains 53-62 percent K_2O. Mainly Silvinite ore again performance way with is obtained and oz amount borsh qa potassium from ores is obtained. Crystal powder in view in water _ good melts, little hygroscopic feature has strong condensed [8].

Silvinite - crushed sivinitch glyphs, large crystals red - gray.

Silvinite contains at least 22 % potassium chloride and 67-72 % sodium chloride in a ratio of 1: 3 by weight. The insoluble residue in the fertilizer (2–7 %) - is clay and barium, iodine, bromine and other trace elements [8].

Due to the presence of chlorine or acid residues, all forms of potassium fertilizers have a strong corrosion activity.

Phosphorus fertilizers are divided into 3 main groups depending on the degree of melting: 1) water-soluble - superphosphate, double superphosphate, ammophos, diammophos; 2) insoluble in water - tomasillak, phosphate - manganese slag, fluorinated phosphate, presynetate; 3) Insoluble phosphates - phosphate and bone meal. The solubility of phosphorus fertilizers is determined by the conditions of their application [7, 8].

The main phosphorus fertilizer is superphosphate - $Ca(R_2RO_4)_2 * N_2O + 2SaSO_4$, in which free phosphoric acid N_3RO_4 is present as a small amount of the mixture. about half of the phosphorus fertilizers produced worldwide account for the share of superphosphate. Superphosphate is obtained by chlorination of crushed natural phosphates (apatite concentrate or phosphorites) with sulfuric acid.

Physical properties improve in the form of superphosphate granules is given .

Double superphosphate $Sa(N_2RO_4)_2 * N_2O$ is a concentrated phosphorus fertilizer, which has good physical properties and can be used in the preparation of concentrated tuko mixtures [8].

Ammonium superphosphate $Ca(N_2RO_4)_2 * N_2O + NH_4H_2PO_4$ is obtained by saturating superphosphate with anhydrous ammonia, ammonia solution, or ammonia. This fertilizer has good physical properties and is a valuable element in the preparation of mixed fertilizers [8, 9].

Water-soluble phosphorus fertilizers have corrosion activity during the onset of rusting. The resulting rust products contain salts of phosphoric acid, which have good protective properties and slow down the rusting process.

In recent years, more than 50 percent of the range of mineral fertilizers consists of complex feathers. The increase in the production of complex fertilizers for agriculture is based on the fact that they have a number of advantages over conventional fertilizers. Complex fertilizers are obtained by decomposing phosphate raw materials with nitric acid. That's it in a way obtained feathers nitro hoses (binary) and nitro process (triplets) called. Phosphates are nitric acid with in disintegration free phosphoric acid and calcium nitrate taken [10]:

$Sa(RO_4)_3G' + 10NNO_3 = 5Ca(NO_3)_2 + 3H_3PO_4 + HF$

Depending on the method of separation or precipitation of calcium nitrate, nitrophosphates are divided into nitric sulfate acid, nitrogen-sulfate, carbonate and ice-melted species. In nitrophosphates, nitrogen is present in nitrate and ammonium forms.

In the process of nitrophosphate production, the conversion of ammonium nitrate and potassium chloride to potassium nitrate and ammonium chloride occurs:

$NH_4NO_3 + KCl \rightarrow KNO + NH_4Cl$

Thus, nitrophosphate contains salts of nitric and nitric acids, which are characterized by its corrosive activity by the satisfaction of deep pitgites in the metal.

Liquid complex fertilizers (SKO) are an aqueous solution of nutrient salts consisting of two or three

main elements (nitrogen, phosphorus, potassium). The application of solutions allows mechanization of labor-intensive loading, transportation and grounding processes [9, 10].

As there is no free ammonia in SKO, it does not require storage in closed, airtight containers during transport and storage at a certain depth. The production of SKO allows for a 20 % reduction in capital investment compared to the production of hard hair.

Phosphoric acid watery and with anhydrous ammonia neutralization SKO is obtained through. The amount of nitrogen in the SKO increases urea and ammonium nitrate for or their mixture. This is added sea own in turn of the solution corrosion activity defines.

In agriculture, chemical pesticides and pesticides are also included in the rust-active environment.

From toxic chemicals that do not cause electrochemical corrosion, the corrosion activity of copper sulphate is very high, resulting in a proper reaction that takes iron ions instead of mic ions.

Thus, considering the description of rust-active environments in agriculture, it can be concluded that rust is a mineral and organic fertilizer that is hazardous in terms of corrosion, followed by chemical protection and senage of plants.

In agricultural machinery, carbon steel alloys, low and medium carbon structural steels, low alloy steels and cast irons are used to make the machines. Such metals are well-constructed metals, but when used unprotected in an aggressive agricultural environment, they corrode strongly under the influence of the environment [10]. The corrosion resistance properties of steels widely used in agricultural machinery in aggressive environments are shown in Table 1.

1- table. Materials decay properties

Fertilizers name	corrosion resistance properties g / cm ^{2}	Ammonium nitrate	Granelali seferphosphate	Urea	Simple superphosphate	Silvinite	Ammonium sulfate
P plague-3	340	340	340	340	340	340	340
P plague-35	494	494	494	494	494	494	494
P plague-45	522	522	522	522	522	522	522
P plague-5X	617	617	617	617	617	617	617
P plague-65G	541	541	541	541	541	541	541

This means that in an aggressive environment, up to 350 g 2 kg metal can be lost from a material with a surface area of 1 m^2. The direct impact of an aggressive environment on details and workpieces is noticeable throughout the year. Machine parts made of thin sheets corrode to such an extent that the depth of collapse 2 мм can be up to 1.5 and even punctured. The corrosion process develops especially rapidly between the welded parts, as technological residues remain during the cleaning process. As a result of corrosion, the performance of machine parts is lost, causing the machine to malfunction [8, 9, 10].

Minerals, organic fertilizers and various pesticides are the ones that lead to aggressive corrosion in the agricultural environment. These influences have the property of very strong corrosion, decay under moisture, which has a certain effect, forming a certain aggressive dust when added to the air in pollination, wind, and other weather conditions.

The degree of corrosion resistance of steel-3 varies depending on the type of fertilizer and toxic substances. The maximum decomposition rate of steel-3 is ammonium sulfate 1.5 kg/m^2 The minimum decomposition rate per year varies depending on the type of fertilizer and toxic drug. The maximum

degradation rate of steel-3 is ammonium sulfate 1.5 kg/m^2 and the minimum degradation rate is simazind 0.3 kg / m ^{2} per year [8, 9, 10].

The service life of unprotected parts of agricultural machinery operating in aggressive environments is reduced by 2-3 times when not in use due to corrosion.

Reduction of service life as a result of corrosion (erosion) during the operation and storage of existing agricultural machinery in the country will be a great loss for farms.

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