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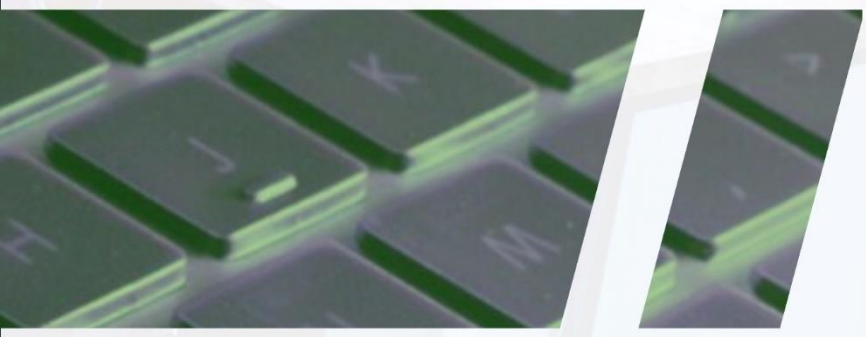

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PHYSICO-CHEMICAL ANALYSIS OF SURKOV COMPOSITE OBTAINED ON THE BASIS OF LOCAL RAW MATERIALS

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Abstract. This article *presents the IR spectra of the new cast composite obtained from local raw materials and the analysis of the tensile and deformation vibrations between the bonds of the obtained composite at a frequency of 400 cm $^{-1}$. In addition, the increase of surface tension by organic substances on the surface of steel wires and metal ion bonds passing through them are given.*

Key words: *surkov composite, infrared spectrum, calcium stearate , sodium stearate, talc, sodium sulfate, t emir (III) oxide,*

Introduction. In the world, a number of scientific researches are being conducted to obtain and create technology of dry cast composite used for metal processing . In particular, in this regard, by optimizing the calcium stearate and sodium stearate salts contained in the composite in obtaining dry-cast composites, increasing the variety of filler products, checking the composite's resistance to high temperatures, obtaining composites that allow working in different conditions, stretching steel wires and special attention is paid to the study of the physical and chemical properties of the dry-cast composite and testing in the metallurgical industry in order to obtain various products from it (wire, nails, syrup).[1,2]

Among the Uzbek scientists, O.G. Abdullayev developed a technology for obtaining dry casting composite from local raw materials for stretching steel wires. However, this obtained dry cast composite is not resistant to high temperature. As a result of the scientific research conducted by S.B. Mamajanov, it was possible to develop a new technology for obtaining a dry plaster composite and obtain this imported product based on local raw materials. However, it has been found that the amount of stearates in the composition of the obtained dry coating composite increases the amount of secondary residue formed when using the composite.[3,4]

In order to improve the quality of liquid steel in some factories in various developed countries, new variants of aggregate construction are being created. It leads to the emergence of new research and a variety of practical processes. But good quality steel work release of technology common principle is the only one. Various pouring methods

steels between differences always changed stands The main reason for this is that the iron from the mines contains different additives. [5]

Today, the main methods are: oxygen converter (above 50%), electric steel casting (about 20%) and marten furnaces (less than 30%). The scheme of metallurgical production of steel is carried out in two stages:

1. Cast iron from ore or enrichment in blast furnaces;
2. Oxidation of C, Si, Mn, P in steel casting aggregates is a method of removing sulfur, that is, obtaining steel of the required composition from cast iron.

Current at the time iron from ore directly get technology wide is being used . Straight away casting devices basically the following cases will be built:

- necessity when unnecessary from additions free has been get shi x ta and from him very high good quality steel melting

- necessity when enlargement difficult has been dust in the form of iron ores and work release waste (metal dust , dust holding staying devices using assembled dust and others) again work

- small work release to power have has been blast furnace syekhs to build economic in terms of efficient that it was not for so much big didn't happen used in the construction of factories (mini-factories) .

Surkov composites one how many in types is prepared . These are the types from each other significant difference does not But make it granular and work release technologies from each other differs. All type surkov in composites fillers, lubricants use possible. [7,8]

Belorussia Republic technical conditions based on work being released and being used surkov to composites to be placed on demand mainly , product getting ready from dried after humidity amount from 1.5 % not to exceed necessary work issuer this surkov to composites defined and shown in terms of packaging intact if one year can be saved . From this term after surkov composites in the composition humidity quantity change can[9]

Belorussia in the Republic work producers by present to be done dry surkov composites basically four different in type work is issued. These are the types above as said, from each other sharp difference if not , it will be extended steel type stretching conditions and conditions looking is selected .

Surkov material adhesion improve for surkov Additives are added to the composition of the composite to increase its adhesive properties. Rubbed surkov materials own function according to sim and stretching tyeshigi between directly reduces exposure. [10] Under construction the medium is adsorbed, i.e chemical connected reaction called a layer from the situation consists of will be His type and application method the material being used and stretching of the process to himself characteristic depend A lot layered surkov works relatively much expensive considered, it is mainly known one necessity in

cases is used . The invention relates to technological lubricants for metal forming, which can be used for drawing copper wire. [11,12]

Describes a lubricant for cold drawing of metals containing soap and water, its composition consists of organic salts as raw materials. Filler inorganic substances and secondary residual saponification products 25-75%; The rest are substances that improve the properties of lubricants.

For the preparation of the various drycast composites recommended in this work, which are used in the stretching of steel wires, soap, talc, borax, calcium stearate, sodium sulfate, zinc oxide, iron(III) oxide, potassium fluoride, lime flour are mainly needed. will be

Results. The fillers of this coating composite are among the raw materials that are common in all regions of our country. The process of making plaster composite is similar to dissolving the above mineral substances in liquid soap.

In this case, the soap is melted under the influence of heat, other substances are added to it, and it is intensively mixed until a homogeneous system is formed. If, in this process, the substances are thrown into the liquid soap in large quantities at once, the mixture reacts and hardens into a rubbery mass. Due to this, mineral additives at low temperature harden the soap and thus form a hard alloy with it.

A slight increase in temperature is required to melt this alloy. Mineral substances added for mixture liquefaction temperature of soap much difference does If this temperature to the system if given , soap charred , own property loss can

From this except temperature when increased from soap except another substances are also decomposed leaving or addition chemical processes happened to be as a result surkov of the composite composition to changes met , properties deterioration can

New the composite get for use nila digan of raw materials in our country The importance of the sources and composition of the composite is shown in Table 1 .

Table 1 Raw materials description .

No	Raw material	Importance	Work issuer	Raw material price	Liquefaction temperature
1	Calcium stearate	Oiling	Synthesis	20000	150-179
2	Sodium stearate	Oiling	Synthesis	17000	255-272
3	This is it	Friction reduce	Exchange	35000	1575
4	Sodium sulfate	Mechanic consistency	Surkhan Call (Karakalpoq district)	4000	884-1429

5	Iron (III) oxide	Graininess provide	Tashkent Lok-Boyok Factory "	20000	1597-2623
6	Kaolin	Friction improve	Angren (Tashkent v.) , (Karakalpoq r.)	14000	1750-1800
7	Talc	To corrosion against	Beruni (Karakalpakistan region) , Termiz (Surkhandarya region)	12000	1530
8	Sodium fluoride	Combustibility reduce	Exchange	20000	858-1505

The infrared spectrum was determined by the absorption area and peak of the ions listed in Table 2 . The absorption peaks formed in the fields of valence and deformation vibrations in the ionic state of inorganic substances were calculated. The infrared spectra of the composite obtained on the basis of the new technology were compared and analyzed with the initial samples and imported products.

Table 2

Absorption region of inorganic substances in the ionic state in the IR spectrum

Wave length cm^{-1}	Val and defor . swallowing field	Wave length cm^{-1}	Val and defor . swallowing field
536.210848	80.195464	2160,273920	97.598353
584.431248	88.392285	2362.799600	97.990371
696.302576	87.285311	2848.861232	95.252631
721.377184	92.229028	2918,298608	93.755254
877.611280	82.164474	3647,391056	96,043970
923,902864	76,095791	3687,896192	95,196878
964,408000	72,044451	1463,971344	92,505410
1008,770768	58,557374	1558,483328	90,076091
1029,987744	66,747226		
1095,567488	86,759626		
1421,537392	90,305486		
1444,683184	90,381683		

Physico-chemical analysis of imported, first sample and new technology samples of dry cast composites used for stretching metals was carried out by IR spectrum. Figure 2 is the IR-spectrum of the imported product imported from China. From this diagram, it

can be determined that the O=CO valence vibrations in the stearic acid molecule cm $^{-1}$ were observed in the deformation vibration fields at 1558.48 cm $^{-1}$ and 14468 cm $^{-1}$. NO-valent vibrations were observed in the fields of deformation vibrations in the region of 2918.30 cm $^{-1}$ and 2848.86 cm $^{-1}$.

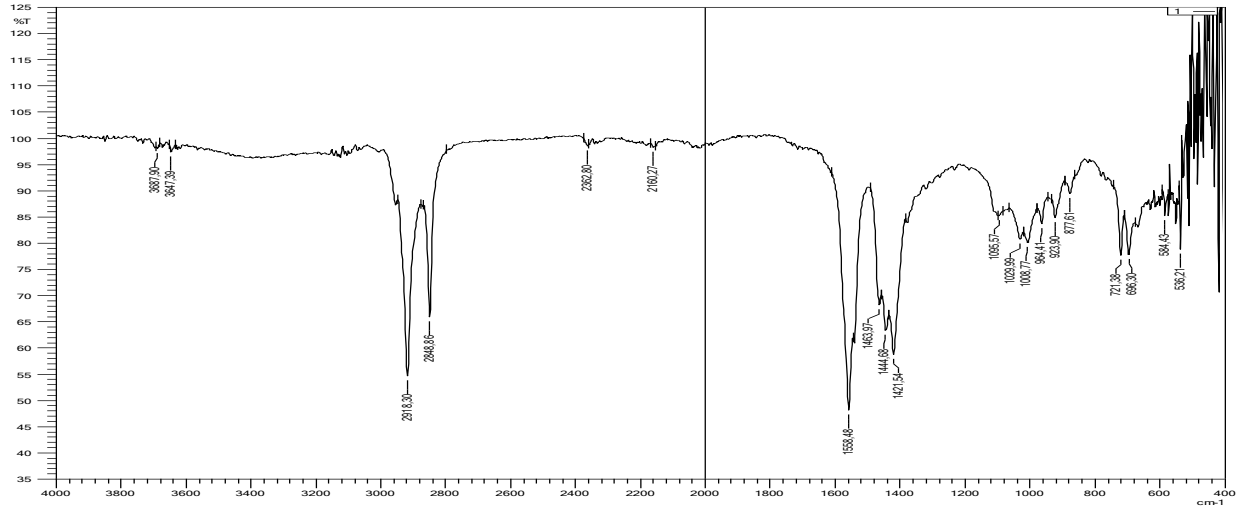

Figure 1. Chinese import product i ni ng IR - spectrum diagram .

Stearic acid salt and talc , kaolin salts molecule IR spectrum vibration at frequencies of C=O valence vibration frequency 1463 .92 cm $^{-1}$ from high in momentum peak at 1421.54 cm $^{-1}$ lower to the field decreased. So, stearate molecule CO bond metal l is connected to the atom.

Composite in Figure 4.2 get methods used without composition one different has been example prepared. Received IR spectrum of the product received Received from the diagram that's it to determine 1463.92 cm $^{-1}$ stearic acid molecule an insatiable garden crop so O=CO valet vibrations are 1006.84 cm $^{-1}$ and 912.33 cm $^{-1}$ in the field deformation in the areas of vibration observed , NO- valent vibrations 2918.30 cm $^{-1}$ and 2848.86 cm $^{-1}$ in the field deformation in vibration fields observed .

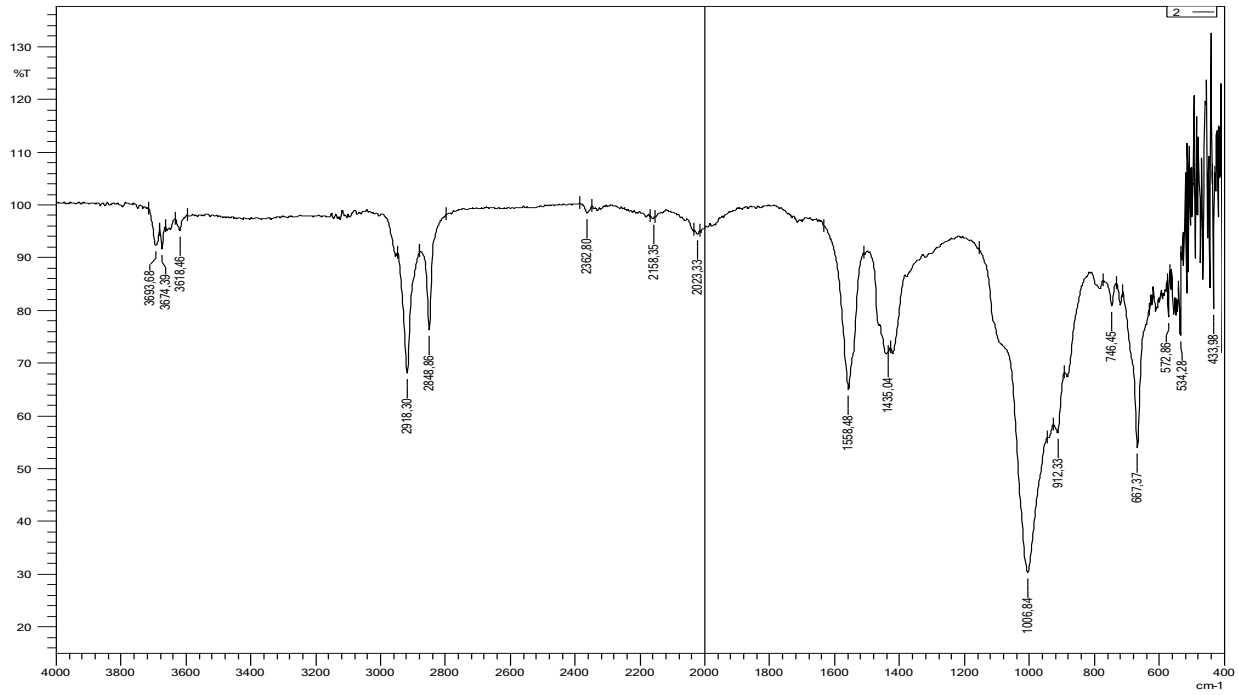

Figure 2. Initial IR - spektr of the sample diagram .

Stearic acid salt and the combination of talc and kaolin salts has an IR spectrum vibration at frequencies of C=O valence vibration frequency 1558 .48 cm $^{-1}$ from high in momentum peak at 1435.04 cm $^{-1}$ lower to the field decreased . So , stearate molecule of the CO bond metal is connected to the atom . The composition and structure of the obtained compounds is proven by IR-spectroscopy methods. The physical properties of the synthesized compound are studied.

Obtained on the basis of traditional technology and the sample obtained on the basis of new technology can be known from the composition of the composite formed when first organic salts and then inorganic salts are mixed during the heating process. IR-spectroscopy analyzes the elemental substance based on the absorption spectra of the group of atoms in each sample.

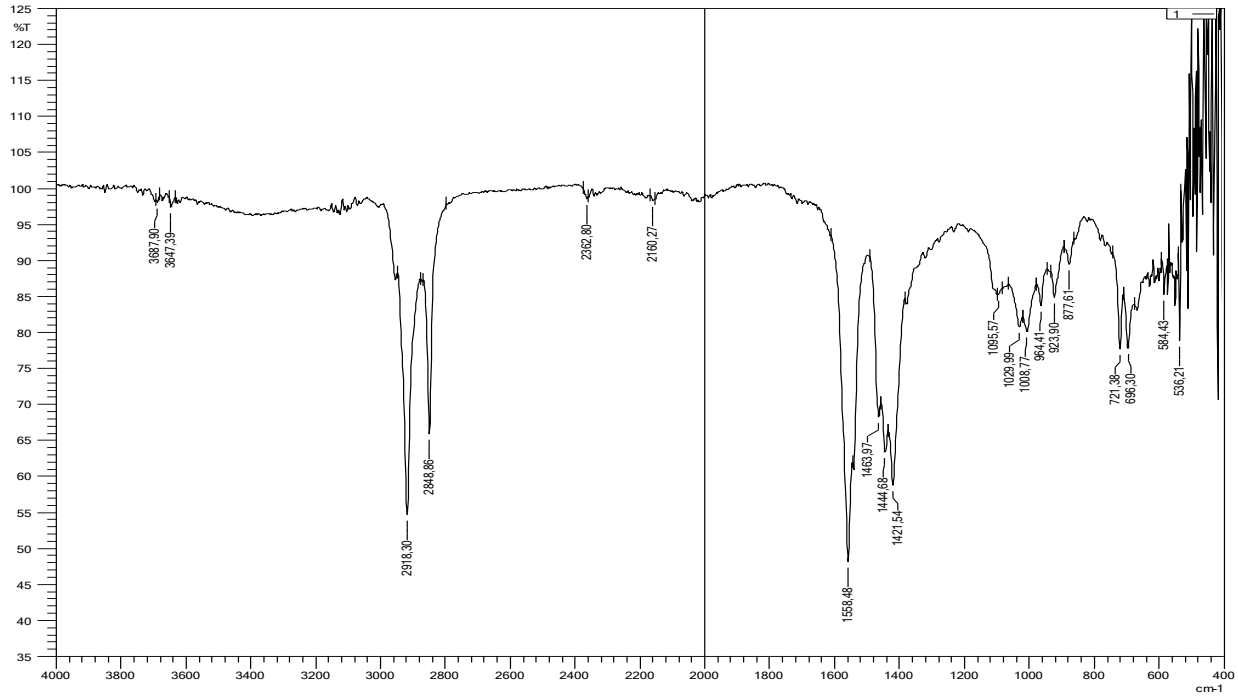

Figure 3. IR- spectrum of dry cast composite obtained on the basis of local raw materials diagram .

China the product composition basis by doing received being the composite in getting initial stearate salts not melted Substances mass shares respectively mixed . This IR spectrum of the composite was obtained (Figure 3). This diagram through composite in receipt initial 160 ^{0}C at temperature substances between intermolecular connection happened that it was to see can Stearate acid in the molecule O = C - O valet vibrations of 1409.96 cm $^{-1}$ and 871.82 cm $^{-1}$ in the field deformation in the fields of vibration observed , N - O - valence vibrations 3641.60 cm $^{-1}$ and 2928.86 cm $^{-1}$ in the field deformation in the fields of vibration observed.

Stearin acid salt and talc , kaolin salts molecule combination Valence vibration in IR spectroscopy in frequencies C = O valent vibration frequency 2920 .23 from cm $^{-1}$ high in momentum peak 2850.29 cm $^{-1}$ lower to the field decreased . So , stearate molecule of the CO bond metal l through oxygen with an atom is connected . IR vibration It is possible to determine the composition of the surkov composite through the spectrum. Also IR-vibration From the spectrum, the properties of the composite can also be known.

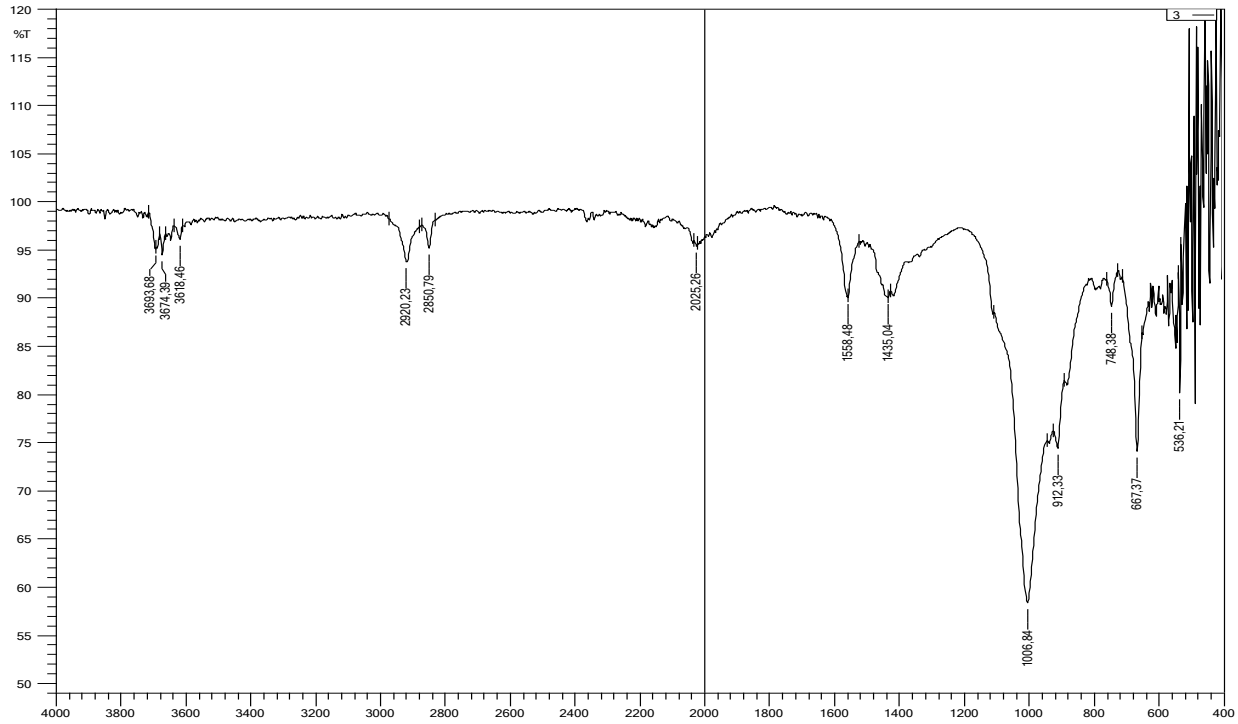

Figure 4. IR spectrum of the composite obtained on the basis of the new technology diagram .

New in Figure 4 method the composite get method through substances content i stabilized without received sample IR- spectrum , stearic acid salts molecule the rest to samples relatively less that it was for O=CO valent vibrations 1006.84 cm $^{-1}$ and 912.33 cm $^{-1}$ in the field deformation in the areas of vibration observed NO-valet vibrations of 3693.45 cm $^{-1}$ and 3674.86 cm $^{-1}$ in the field deformation vibration in the fields observed stearic acid salt and talc, kaolin salts molecule compound IR vibration at frequencies of C=O valence vibration frequency above 2920.92 cm $^{-1}$ in momentum peak at 2850.79 cm $^{-1}$ lower to the field decreased . So , stearate molecule is connected to the metal atom of the CO bond . In IR-spectrum, the composition of stearic acid salt and talc, kaolin salt molecule in the composition of surkov composite decreased C=O valence vibration frequency from 2920.23 cm $^{-1}$ to the lower region of 2850.29 cm $^{-1}$ · As a result, the stearate molecule CO bond and calcium is not stable. As a result, the charring process of the cast composite increases, increasing the amount of secondary residue.

Conclusions. The results of infrared spectroscopic analysis, differential scanning calorimetric analysis, and X-ray structural analysis of imported and new composites from China show that the mass fraction of organic compounds and organic salts in the imported product is more than 50%. By infrared spectroscopic analysis and differential scanning calorimetric analysis, component diagrams obtained without heating can be used to see whether or not there are intermolecular bonds between substances. The reason why the composite produced by the new technology produces less waste has been determined. In this case, the samples, i.e. the composite obtained without heating and the product

imported from China, contain a large amount of organic salts and the absence of intermolecular bonds.

Up to 20% formation of secondary (unwanted) products was observed.

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