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METHOD OF INCREASING THE WEAR RESISTANCE OF WORKING SURFACES

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Annotation: Parts used in production are subject to various mechanical loads. If the properties of the part are not commensurate with this load, the service life of the part will not meet the level of demand or economic performance. A number of research institutions and research laboratories around the world are carrying out a number of research activities aimed at reducing the cost of parts and increasing the service life of parts. In particular, Uzbek researchers are conducting research to increase the corrosion resistance of abrasive surfaces.

Keywords: liquefaction, furnace, processing, corrosion resistance, charge, alloy, white cast iron, temperature, structure.

Introduction:

Uzbek and foreign products for the production of load-bearing structures (composites), physical and mechanical properties, special steel resistant structures - na ryadu so sjijjeniem and obogascheniem shikhty girovannymi po chemical composition alloys, sovershenstvovanstvuetsya formo technology, a takje otrabotka modev crystallization of metals and crystallizers, and vnepechnoy obrabotki jidkogo metalla.

Vmeste s tem, rassmotrim vozdeystvie Cr, Ni i drugix legiruemyx elementov na splavy. Alloyed white cast iron has high operational properties, from which it is possible to get quality ignition. In the result of alloying, different alloying elements, and total number and chrome, ego alloy properties increase and depend on the number of chrome. Krome togo, the corrosion resistance of alloyed cast iron is very sensitive to the formation of microstructures, that is, for the purpose of obtaining alloyed white cast iron, only cast iron is required, and the formation of the structure, which ensures the durability of white cast iron.

Corrozionnaya stoykost chuguna obespechivaetsya karbidom soderjashchim Cr 9.5-15 % (Cr, Fe) 7 C3, (Cr, Fe) 3 C or Cr 30 % (Cr, Fe) 23 C6. Eto svyazano s tem, chto ethot carbide v 1.5-2.0 times tverje carbide cemented. Drugaya slojnost, svyazannaya s etim, – legirovanie belyx splavov 3% S s obrazovaniem karbidov v sisteme (Cr, Fe) 7 C3, (Cr, Fe) 3 C, (Cr, Fe) 23 C6. chrome obrazuetsya v predelakh ot 9.5 do 30%.

White pig iron, sodergite, silicon and silicide (FeSi, Fe3SiO2), helps neutralize carbon and graphite. Poetomu soderjanie silicon v girovannom belom chgune, opredlyaemoe dlya polucheniya kachestvennyx otlivok, nakhoditsya v predelakh ot 0.8 do 4.6 %.

And manganese increases the stability of the carbide (Fe3C) and prevents the decomposition of carbon in graphite. Eto udalyaet seru iz chunga iz soedineniya FeS, prevrashchaet ee v slag MnS i udalyaet chast vrednoy sery iz chuguna. Poetomu rekomenduetsya soderjanie manganese v girovannom belom chgune 0.5-1.5% dlya polucheniya kachestvennyx splavov.

Krome togo, vajnym yavlyaetsya povyshenie prochnosti legirovannyx belyx chugunov na osnove termicheskoy obrabotki, tak kak termicheskaya obrabotka pozvolyaet izmenyat ix mekhanicheskie svoystva v shirokix predelakh. Tselyu termicheskoy obrabotki splavov yavlyaetsya dovedenie ix mekhanicheskikh i fizicheskikh svoystv do neobhodimogo urovnya za schet izmeneniya ix vnutrenney strukturiya.

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Thermal processing of alloys shows four fundamental phase transitions according to diagram G'e-G'e3S:

1) When heating the alloy above the phase transition, A1 pearlite decomposes into austenite:

$$G'e_{a}(S) + G'e_{3}S \rightarrow G'e_{g}(S)$$

2) Pri okhlajdenii austenita do temperature nije linii phasovogo prekhoda A1 austenite raspadaetsya na pearlite:

$$G'e_{\gamma}(S) \rightarrow G'e_{\alpha}(S) + G'e_{3}S$$

3) austenite decays to martensite at nije temperatura metastabilnogo ravnovesiya:

$$G'e_{\gamma}(S) \rightarrow G'e_{\alpha}(S)$$

4) at low temperature martensite raspadaetsya na pearlite:

$$Ge_{\alpha}(S) \rightarrow G'e_{\alpha}(S) + G'e_{3}S$$

Study method

For determining the properties and chemical composition of the images, a scanning electron microscope (SEM) Empyrean Malvern Panalytical and a complex scanning electron microscope Carl Zeiss EVO-MA-10 were used.

The reason for setting the time setting is the output of the rotors and spare parts of the high-friction rotors and pump crushers CEMCO and BARMAK, the operating conditions of the centrifugal force in the crushing of ore and the production conditions of the NMZ Navoiyskoy GMK are studied and analyzed. A certain number of predlozhenii i zadach po uvelicheniyu sroka slujby detaley za schet obespecheniya prochnosti poverkhnostey, skolnykh k korrozii i rastreskivaniyu pri bolshih nagruzkax.

Conducted analysis of scientific and research work on corrosion-resistant alloyed alloys and basic domestic and industrial products, as well as scientific and laboratory production and service of lithium details of corrosion-resistant alloyed white cast iron.

For the purpose of ensuring the durability of the rotors of pumps and crushers under high tension, the result is white cast iron, chemical composition of cast iron for the production of alloyed white cast iron with stable structural corrosion resistance and an increase in mass of alloying elements based on 3-4%. Predvaritelnye results show, chto issledovaniya and etoy oblasti may give ojidaemye results.

S tselyu polucheniya stable konstruktionno-aloirovannogo belogo chuguna v laboratorii Tashkentskogo gosudarstvennogo teknicheskogo universiteta imenni I.A. Karimova razrabotany regime izvlecheniya jidkogo metalla v pechi i kristalizatsii v kristalizatore.

Dlya uluchsheniya vnutrenney struktur, physiko-mechanicheskikh svoystv splavov, poluchennyx metodom litya, primenyalis sovremennye effektivnye metody termicheskoy obrabotki.

Cast iron corrosion-resistant alloyed white cast iron and osnonom otlivayut iz girovannogo belogo guna dlya ivyleniyenyx sroka slujby tyajelonagrujennyx rotorov zapasnyx chastey nasov i centrobejnyx crusher CEMCO i BARMAK v tselyakh proizvodstva, chemical composition of shikhtovogo material byl obogashchen alloying elements.

Do i posle projection of thermo-processed images along the geometric vertical and horizontal plane, t. e. rastoyaniy medu soovtvetstvuyushchimi dochkami na ploskoy i horizontirovannoy

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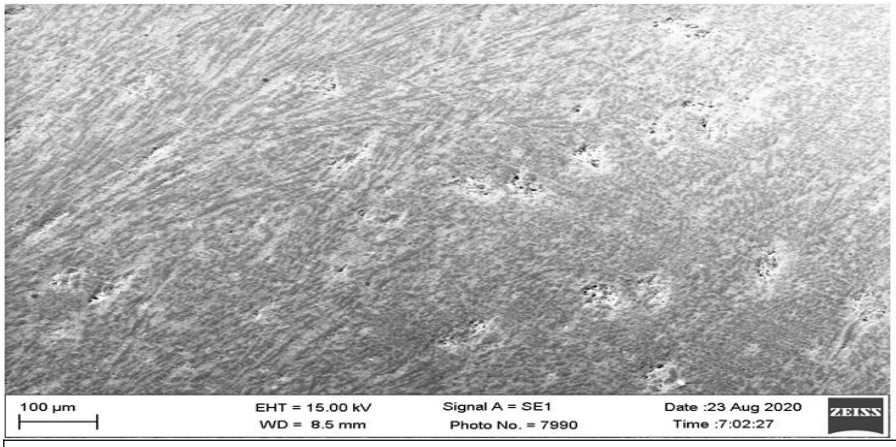
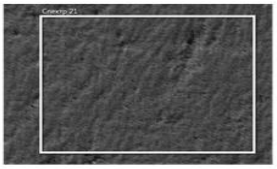
poverkhnosti object, determined with the help of an electronic microscope, scanning analysis of image elements. Poverkhnost obekta postoyanno issleduetsya elektronnymi luchami, chast izbrazheniya, formiruemaya mikroskopom. Krome togo, kajdaya tochka na poverkhnosti obekta oboznachaetsya sootvetstvuyushchey tochkoy na izobrazhenii, formiruemom v vide mikroskopa. Pri vzaimodeystvii elektronnyx luchey s poverkhnostyu obekta odnovremenno voznikaet neskolk ovetnyx signalov. And it depends on how much the detector signal is input, and the microscopic treatment is simple and has several sharp images.





Элемент	Вес.%	Сигма Вес. %
O	2.18	0.53
Al	0.36	0.21
Si	1.59	0.23
Cr	43.31	0.93
Fe	52.57	0.97
Сумма:	100.00	

Fig. 1. Do the thermal processing of the alloy with a 300X32N2M2TL microscope ×100 SEM Zeiss EVO MA

Element analysis.

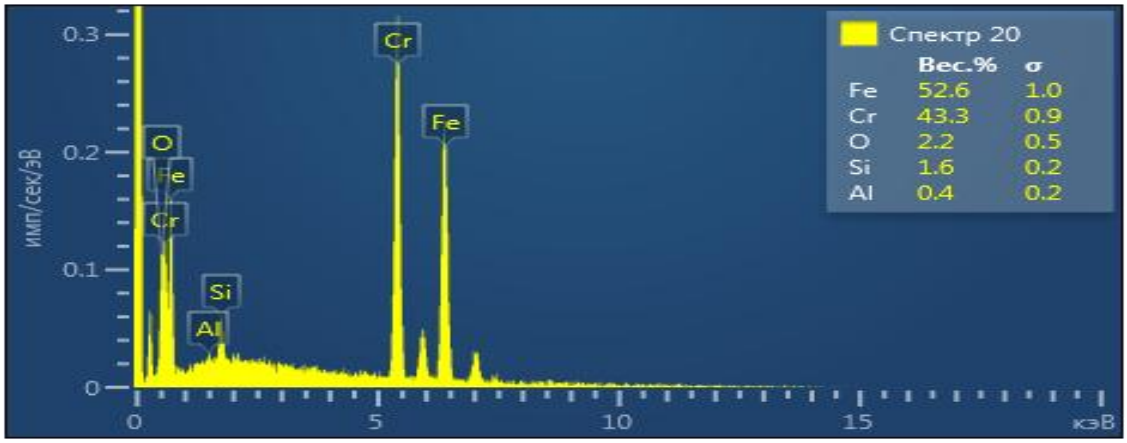


Fig.2 Scanning electron microscope analysis of elements for thermal processing of alloyed white cast iron brand 300X32H2M2TL .

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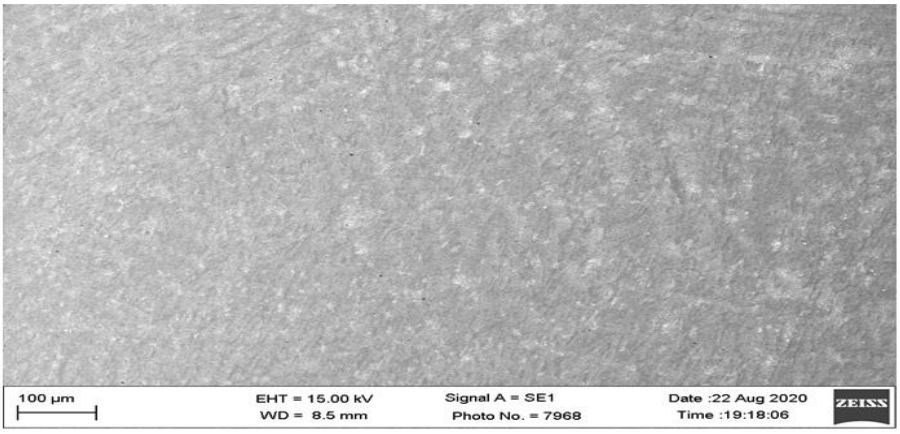

Элемент	Вес.%	Сигма Вес.%
O	2.34	0.46
Mg	0.24	0.20
Si	2.26	0.21
S	0.16	0.16
Cr	32.80	0.75
Fe	62.19	0.82
Сумма:	100.00	

Fig. 3 After thermal processing of the alloy, 300X32N2M2TL with a glass microscope ×100 SEM Zeiss EVO MA

Element analysis.

Conclusion

Po rezultatam issledovaniya byli sdelany sleduyushchie vyvody:
- the development of technology to increase the service life of the working surface, which is based on tselenapravlennoy crystallization;
- For proizvodstva stable constructional white cast iron enrichment of chemical composition of slag alloying elements in front of loading and furnace slujit povysheniyu economic efficiency;
- pre-heated shafts for the temperature of the product are high, vykhodyashchix iz topki, pozvolyaet uvelichit energosberezhenie.

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