ISSIQLIK BILAN ISHLOV BERISH TA’SIRIDA GARFILD PO‘LATINING MIKRO TUZILISHINI TAHLIL QILISH

ANALYSIS OF THE MICROSTRUCTURE OF GARFIELD STEEL UPON EXPOSURE TO HEAT TREATMENT

Rakhimov U. T.
“Materialshunoslik va mashinasozlik” kafedrasi assistentlari
Urazbayev T.T.
“Materialshunoslik va mashinasozlik” kafedrasi katta o‘qituvchisi
Avdeeva A. N.,
texnika fanlari nomzodi, dotsent
Materialshunoslik va mashinasozlik kafedrasi dotsenti
Valieva D. Sh.
“Materialshunoslik va mashinasozlik” kafedrasi assistenti
Xo'jaxmedova X. S.
“Materialshunoslik va mashinasozlik” kafedrasi katta o‘qituvchisi
Toshkent davlat transport universiteti O‘zbekiston, Toshkent

Annotatsiya. Ushbu maqolada Gadfild po‘latning eritish texnologiyasi ko‘rsatilgan, unda quyma sifatini ko‘taruvchi harorat rejimlari mavjud. Skanerlovchi elektron mikroskopida po‘latning tuzilishi bo‘yicha tadqiqotlar olib borilgan.

Kalit so‘zlar: Gadfild Po‘lati, eritish texnologiyasi, TESCAN VEGA 3 mikroskopi, tigel pechi.

Abstract. This article describes Gadfield's steel melting technology, which features temperature regimes that enhance casting quality. Researches on the structure of steel were carried out under the scanning electron microscope.

Key words: Gadfield Steel, melting technology, TESCAN VEGA 3 microscope, crucible furnace.

Kirish

Gadfild Po‘lati taxminan 13% marganets (Mn) va 1% uglerodni (C) o‘z ichiga olgan legirlangan Po‘latdir. Yeyilishga yuqori qarshilikka ega, yuqori bosim va zarba yuklariga bardosh bera oladi, yuqori plastisitiklikka ega. Po‘lat 110G13L

quyma olish uchun yeyilishga bardoshli, yuqori marganetsli, austinitli Po‘lat sifatida tasniflanadi. Unga bir vaqtning o‘zida yuqori bosim va zarba yuklari ta'sir qilganda yeyilishga yuqori qarshilikka va shu bilan birga kuchli birikishga ega.

Metodologiya

Laboratoriya sharoitida 110G13L Po‘latni eritish texnologiyasi induksion tigel pechida ishlab chiqilgan (*1-rasm*). Ushbu Po‘latning tuzilishini o‘rganish uchun namunalar “*havoda o‘zi qotuvchi qolip aralashmasi”*dan yasalgan qolipga gravitatsion quyish usuli bilan quyilgan (*2-rasm*). Metallni qolipga quyish 1410 °C haroratda amalga oshirilgan.

Po‘lat strukturasini o‘rganish uchun namunalar 3-rasmda ko‘rsatilgan shaklda kesilgan. Namunalarni issiqlik bilan ishlov berish qarshiliklar pechida 1-jadvalda keltirilgan rejimlarga muvofiq amalga oshirilgan.

1-rasm. *Induksion tigel pechi*

2-rasm.*To‘ldirish uchun tayyor (XTS) shakli*

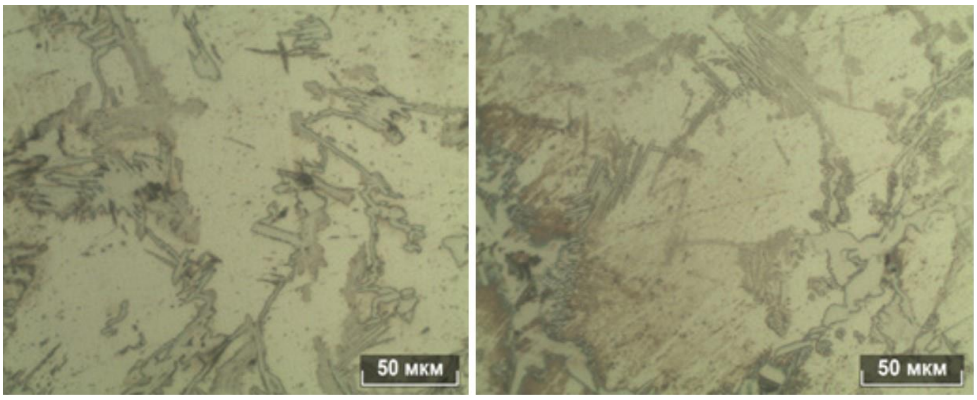
***3-rasm**.Namuna tayyorlash uchun quyma*

***4-rasm**.TESCAN VEGA 3 mikroskopi*

***1-jadval.** Turli xil namunalar guruhlari uchun tavsiya etilgan qattiqlashuv harorati*

№	C miqdori, %	Qattiqlashuv harorati, C^0	Tutib turish vaqti, ch
1	1,3909	800	30 minut
2	1,3909	1100	30 minut

Bo‘limlar standart protsedura bo‘yicha tayyorlangan. Po‘lat konstruktsiyani o‘rganish TESCAN VEGA 3 skanerlash elektron mikroskopida o‘tkazildi (*4-rasm*). Issiqlik bilan ishlov berish rejimiga qarab Gadfild po‘latining mikro tuzilmalari 5 va 6-rasmlarda ko‘rsatilgan.



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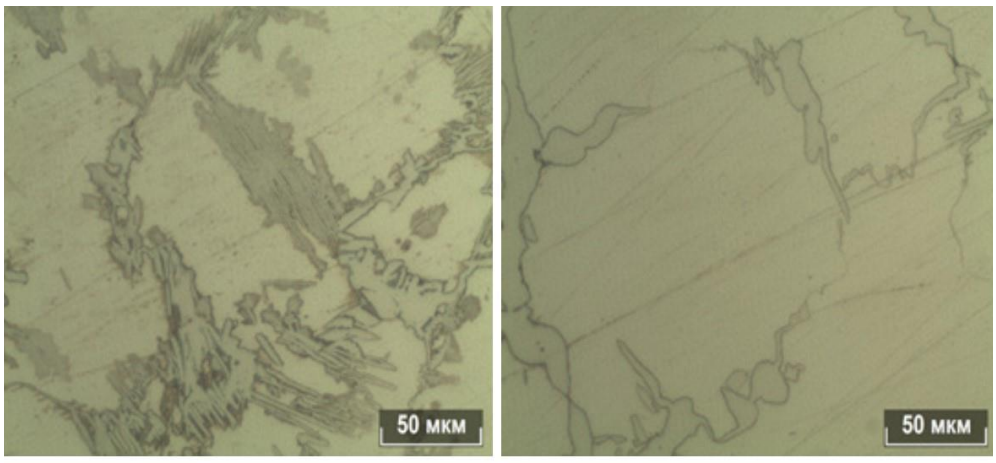
***5-rasm.** 110G13L po‘latning mikro tuzilishi (a) issiqlik bilan ishlovsiz, (b) issiqlik bilan ishlov berish (T = 800°S, ushlab turish vaqti 30 minut)*



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6-rasm *- 110G13L po‘latning mikro tuzilishi (a) issiqlik bilan ishlovsiz, (b) issiqlik bilan ishlov berish (T = 1100ºS, ushlab turish vaqti 30 minut)*

XULOSA

Taqdim etilgan 110G13L po‘latining mikro tuzilishi ko‘rsatkichlarida 800 ºC haroratda karbidlarning uzoq qo‘shilishi mavjud va saqlanib qolganligini ko‘rish mumkin. Tuzilishda deyarli o‘zgarishlar yo‘q va 1100 ºC haroratda karbidlarning ignaga o‘xshash qo‘shimchalari yumaloq bo‘lib, eriy boshlaydi. Shu sababli, karbidlarning to‘liq erishi uchun ushlab turish vaqtini oshirish kerak.

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