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DIZEL DVIGATELLARIDAN CHIQADIGAN ZARARLI GAZLARNI KAMAYTIRISH

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Annotatsiya

XXI asrda avtomobillarning zararli chiqindilari bilan atmosfera ifloslanishi global ekologik muammolardan biriga aylandi. Agarda zavod va fabrikalar bir aniq joyda, ma'lum hududlarnigina ifloslantirsa, avtomobillar inson oyog'i yetgan joyning barchasiga ta'sir ko'rsatadi. Uning yechim yo'li faqat bitta - avtomobil ekologik xavfsiz bo'lishi kerak. Bu yerda juda muhim o'rin ishlatilgan gazlarining zararligini bir necha marotaba qisqartirishga qodir bo'lgan neytrallash tizimlari kiradi.Shu sababli ushbu maqolada Dizel dvigatelidan chiqadigan zararli gazlarning inson salomatligiga ta'siri,ushbu dvigateldan chiqayotgan gazlarning tarkibi va miqdori bo'yicha olingan natijalar ko'rsatib o'tilgan. Chiqindi gazlar miqdorini kamaytitish uslubi borasida taklif berilgan.

Annotation

In the 21st century, air pollution with harmful emissions from cars has become one of the global environmental problems. If factories pollute only a certain area, cars will affect the whole human foot. There is only one solution - the car must be environmentally safe. A very important place here includes neutralization systems that are able to reduce the emissions of exhaust gases several times. Therefore, this article presents the results obtained on the effects of harmful gases from a diesel engine on human health, the composition and amount of gases emitted from this engine. It is proposed to reduce the amount of exhaust gases. A method of reducing vehicle emissions has been proposed.

Kalit so'zlar: Katalizator, ekspulatatsya, chiqindi gazlar, dizel yoqilg`isi, gaz analizator, standart, modernizatsiya.

Keywords. Catalyst, exploitation, exhaust gases, diesel fuel, gas analyzer, standard, modernization.

Avtomobillardan chiqayotgan gazlarni o'rganish xozirgi kundagi dolzarb mavzulardan biridir. Mamlakatimizda ishlab chiqarilayotgan avtomobillardan chiqayotgan zaxarli gazlarni tozalovchi katalizator bilan ta'minlangan bo'lib, ekspulatatsya davrida ulardagi nosozliklarni aniqlab va bartaraf qilish kerak bo'ladi. Ammo katalizatorlarni xizmat muddati tugagandan so'ng uni almashtirish xolatlari kam va bu xolatlar tabiatga jiddiy zarar yetkazadi.

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Avtomobillardan chiqayotgan gazlarni eksplutatsiya davridagi miqdorini aniqlash va uni kamaytirish yo‘llarini ishlab chiqish muammoning eng optimal yechimlaridan biri xisoblanadi.

Ichki yonish dvigatellari har kuni millionlab odamlarning sog'lig'iga salbiy ta'sir ko'rsatadi. Odamlar tez-tez yo'talish, astma xurujlari, o'tkir va surunkali bronxit, shuningdek, yurak va qon aylanish tizimining kasalliklaridan azoblanadi. Professional haydovchilar, avtoulov xodimlari, yo'l ishchilari va boshqalar eng yuqori xavf ostida[1,2,3,4,5,6,7,15,16].

Chiqindi gazlarining kimyoviy tarkibi juda xavfli bo'lib, inson va hayvonlar sog'lig'iga zarar etkazmaydi, balki daraxtlarni va hatto uylarni yo'q qiladi. Azot dioksid, uglevodorodlar va kislorodning birlashgan mavjudligi fotokimyoviy tutunni hosil qiluvchi juda agressiv va zararli organik birikmalar - peroksiatsetilnitratlarning paydo bo'lishiga olib keladi. Odamlarda uning ta'siri ostida ko'zlar, shilliq pardalar iltihaplanır, nafas olish alomatlari qayd etiladi, pulmoner va asabiy kasalliklar, bronxial astma esa o'tkirlashadi. Fotokimyoviy smog metallarning korroziyasiga olib keladi, bo'yoq, rezina va sintetik mahsulotlarni yo'q qiladi, kiyimlarni buzadi. O'z shaharlaridagi havoga zararli moddalarga duch kelgan odamlar uzoq vaqtdan beri yurak xurujidan tez-tez vafot etishadi. Bu ulanish, ayniqsa, og'ir tirbandlikka uchragan joylarda aniqlandi.Dvigatel chiqindi gazlarining zaharli tarkibi uglerod, azot va uglevodorodlarning oksidi. Atmosferaga chiqadigan gazlar, to'yinmagan va to'yingan uglevodorodlar, karsinogenlar, aldegidlar, qurum va boshqa yaxshi bo'lmagan moddalar bilan kechasi uyqu va nafas olishni oldini oladi [8,9,10,11,12,13,14,17,18,19,20,21,22].

Avtomobillardan chiqayotgan zaxarli moddalar tarkibi va miqdorini aniqlash dolzarb masaladagi muammoning dastlabki yechimi. Respublikamiz xududida benzin, gaz va dizel yoqilqisi bilan harakatlanadigan mashinalardan chiqadigan chiqindi gazlar tarkibi va miqdorini aniqlash va ularning amaldagi me'yoriy xujjatlar talabiga mutonosibligini aniqlash hamda chiqindi gazlar miqdoriga qarab dvigatelning texnik holatini baholashda gaz analizatorlaridan foydalaniladi[23,24,25,26,27,28,29,30].

Quyida gazoanalizatoridan foydalanib “ISUZU NQR” avtomobilidan chiqdigan gazlarning turlari bo’yicha olingan natijalar taqdim etilgan.

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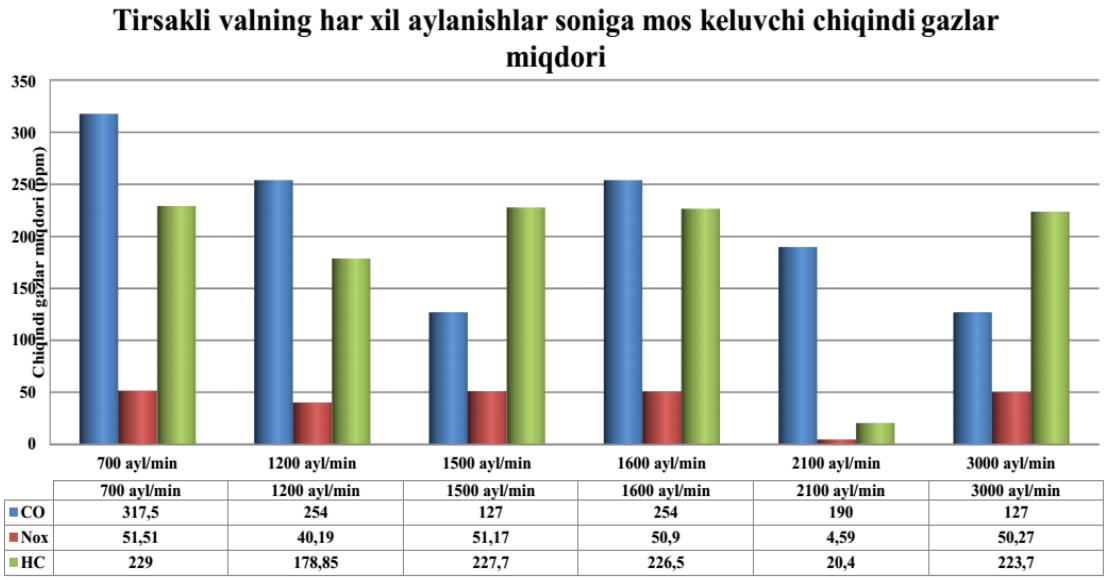

	700 ayl/min	1200 ayl/min	1500 ayl/min	1600 ayl/min	2100 ayl/min	3000 ayl/min
CO	317,5	254	127	254	190	127
Nox	51,51	40,19	51,17	50,9	4,59	50,27
HC	229	178,85	227,7	226,5	20,4	223,7

1-rasm. Tirsakli valning har xil aylanishlar soniga mos keluvchi chiqindi gazlar miqdori

Yuqorida keltirilgan ko'rsatgichlar ppm(Parts-per-million-milliondan bir qim) ko'rinishida olingan. Ushbu ko'rsatgichlarndan kelib chiqgan holda avtomobilimizning standartga mosligini tekshirib chiqamiz.

Bunung uchun avvalo ppm birligini, g/km birligiga o'tkazib olamiz, bunga sabab standartimiz g/km birligida berilgan.

Demak, ppm→g/km $1\ ppm_i = 8.4 \cdot \rho_i \left(\frac{kg}{m^3}\right), (mg/km$[2];

Ushbu formuladan foydalanib quyidagini keltirib chiqaramiz:

CO (g/km)=9.66*10^{-3}*CO(ppm)= 9.66*10^{-3}*211.58=2.04 g/km;

NO_x (g/km)=28.56*10^{-3}*NO_x(ppm)= 28.56*10^{-3}*41.43=1.18 g/km;

HC (g/km)=5.71*10^{-3}*HC (ppm)= 5.71*10^{-3}*184.36=1.05 g/km

Ushbu formulalardan kelib chiqgan holga, ISUZU yuk avtomobilidan chiqayotgan gazlarning o'rtacha miqdorini hisoblab, jadvalga solamiz va Evro-2 standartiga mosligini tekshirib chiqamiz(1-jadval).

1-jadval.

ISUZU NQR yuk avtomobilidan chiqayotgan gazlar nomi	ISUZU NQR yuk avtomobilidan chiqayotgan gazlar o'rtacha miqdori (g/km)	Evro-2 strandarti talablariga binoan belgilangan miqdor (g/km)	Farq % ko'rinishida
CO	2.04	1	204
NO_x	1.18	0.7 (HC+NO_X)	307
HC	1.05		

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Olingan natijalar shuni ko'rsatadiki uchbu avtomobil Evro-2 standartiga mosligi yo'qotgan. Buni to'g'rilash uchun tezda choralar ishlab chiqishni talab qiladi.

Yuqoridagi olingan ma'lumotlarni hisobga olgan holda ushbu avtomobil neytralizatorini platina orqali modernizatsiya qilish kerak. Ushbu modernizatsiya qilish orqali biz chiqindi gazlardagi zararli chiqindilar tarkibini, xususan uglevodorodlarni (CxNu) 70 foizga, uglerod oksidlarini (CO) 75 foizga, azot oksidlarini (NOx) 50 foizga kamaytirishga erishishimiz mumkin. Buning natjasida ijtimoiy samaradorlikka erishimiz mumkin.Ya'ni insonlarda vujudga keladigan kasalliklarning oldi olinadi [31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46].

Adabiyotlar:

1. Imomkulov K. B., Mukimova D. K. The motivation parameters of wedge-shaped disk of the machine for preparing plow by flap to sowing //Scientific-technical journal. – 2018. – T. 1. – №. 3. – C. 145-147.

2. Igamberdiev, A. K., Muqimova, D. K., Usmanov, E. Z., & Usmanova, S. D. (2022). Influence of the thickness of the roller discs of the combined machine on the indicators of their work during the processing of plowed lands afterwards. In IOP Conference Series: Earth and Environmental Science (Vol. 954, No. 1, p. 012001). IOP Publishing.

3. Igamberdiev A. K., Muqimova D. K. DETERMINATION OF THE RATIONAL VALUES OF THE PARAMETERS OF THE DISC ROLLERS OF THE COMBINED UNIT //Irrigation and Melioration. – 2020. – T. 2020. – №. 3. – C. 67-72.

4. Muqimova D., Nurdinov M. COMPLIANCE WITH RESPONSIBILITY AND WORK REGIMES OF DRIVERS IN LEGAL REGULATORY DOCUMENTS DUE TO ACCIDENTS IN THE TRANSPORTATION OF INTERNATIONAL GOODS BY TRUCKS //Theoretical aspects in the formation of pedagogical sciences. – 2022. – T. 1. – №. 2. – C. 15-25.

5. Мукимова Д. К. ОБОСНОВАНИЕ ШИРИНЫ МЕЖДУСЛЕДИЯ ДИСКОВ КАТКОВ КОМБИНИРОВАННОЙ МАШИНЫ //European research: innovation in science, education and technology. – 2020. – C. 13-16.

6. Muqimova D. et al. LOCATION AND DEVELOPMENT OF THE MAIN NETWORKS OF WORLD TRANSPORT //Theoretical aspects in the formation of pedagogical sciences. – 2022. – T. 1. – №. 4. – C. 279-284.

7. Mukimova D. DISTINCTIVE FEATURES OF SOIL TREATMENT BEFORE PLANTING //Science and innovation in the education system. – 2022. – T. 1. – №. 5. – C. 40-44.

ISSN 2181-3187

8. MUQIMOVA D. K. et al. Analysis of the Current State of Population Growth and Level of Vehicle Ownership //Texas Journal of Engineering and Technology. – 2022. – Т. 13. – С. 22-28.

9. Шипулин Ю. Г. и др. Оптоэлектронный преобразователь для автоматических измерений перемещений и размеров //Мир измерений. – 2013. – №. 1. – С. 41-43.

10. АЛМАТАЕВ О. Т. и др. ОПТОЭЛЕКТРОННЫЕ ПРЕОБРАЗОВАТЕЛИ РЕФЛЕКТИВНОГО ТИПА ДЛЯ АВТОМАТИЗАЦИИ ЖИДКОСТНЫХ И ГАЗОВЫХ ПОВЕРОЧНЫХ РАСХОДОМЕРНЫХ УСТАНОВОК //Механика. Научные исследования и учебно-методические разработки. – 2014. – №. 8. – С. 27-34.

11. Хамдамов Б. М. и др. ИНТЕЛЛЕКТУАЛЬНЫЙ ОПТОЭЛЕКТРОННЫЙ ПРИБОР ДЛЯ КОНТРОЛЯ РАСХОДА ВОДЫ В ОТКРЫТЫХ КАНАЛАХ //Наука. Образование. Техника. – 2015. – №. 2. – С. 72-82.

12. Жумаев О. А. и др. Задачи разработки и проектирования оптоэлектронных преобразо вател ей для газомерных установок //Вестник Курганского государственного университета. – 2015. – №. 3 (37). – С. 113-116.

13. Азимов Р. К. и др. Морфологический метод структурного проектирования оптоэлектронных преобразователей на основе полых и волоконных световодов (ОЭГТВС) //Современные материалы, техника и технологии в машиностроении». III Международная научно-практическая конференция. – 2016. – С. 15-19.

14. Kholmatov U. THE POSSIBILITY OF APPLYING THE THEORY OF ADAPTIVE IDENTIFICATION TO AUTOMATE MULTI-CONNECTED OBJECTS //The American Journal of Engineering and Technology. – 2022. – Т. 4. – №. 03. – С. 31-38.

15. Xolmatov U., Xolmatov S. YO ‘L TRANSPORT HODISALARINI VUJUDGA KELISHIDA PIYODA VA PIYODA BOLALARNING O ‘RNI //Science and innovation in the education system. – 2022. – Т. 1. – №. 6. – С. 8-15.

16. Холматов У.С. ИССЛЕДОВАНИЯ МАТЕМАТИЧЕСКОЙ МОДЕЛИ ВОЛОКОННО-ОПТИЧЕСКОГО ДАТЧИКА ПРИ ПРОДОЛЬНОМ И ПОПЕРЕЧНОМ ПЕРЕМЕЩЕНИЯХ //НАУЧНО-ТЕХНИЧЕСКИЙ ЖУРНАЛ МАШИНОСТРОЕНИЕ. – 2022. – №. 1. – С. 78-85.

17. Kholmatov U. OPTIMIZATION OF MATHEMATICAL MODEL OF OPTOELECTRONIC DISCRETE DISPLACEMENT CONVERTER //SCIENTIFIC AND TECHNICAL JOURNAL MACHINE BUILDING. – 2022. – №. 2. – С. 74-82.

18. Kholmatov U. DETERMINATION OF THE MAIN CHARACTERISTICS OF OPTOELECTRONIC DISCRETE DISPLACEMENT

TRANSDUCERS WITH HOLLOW AND FIBER FIBER //SCIENTIFIC AND TECHNICAL JOURNAL MACHINE BUILDING. – 2022. – №. 4. – С. 160-168.

19. Kholmatov U. Intelligent discrete systems for monitoring and control of the parameters of technological processes on the basis of fiber and hollow fiber //Monograph. – 2022. – С. 1-132.

20. Turayev S. et al. The importance of modern composite materials in the development of the automotive industry //Asian Journal of Multidimensional Research (AJMR). – 2021. – Т. 10. – №. 3. – С. 398-401.

21. Nozimbek A. et al. IMPROVEMENT OF PHYSICAL AND MECHANICAL PROPERTIES OF PLASTIC PARTS USED IN MACHINE BUILDING //Universum: технические науки. – 2021. – №. 3-4 (84). – С. 52-55.

22. Omadjon M., Xasanboy T. WEIGHT DISTRIBUTION OF THE MACHINE-TRACTOR UNIT WHEN LIFTING UNIVERSAL POWER EQUIPMENT //Universum: технические науки. – 2022. – №. 4-11 (97). – С. 60-63.

23. Nozimbek A., Kongratbay S., Khasanboy T. MANUFACTURE OF AUTOMOTIVE PLASTIC PARTS UNDER PRESSURE AND THE FACTORS AFFECTING IT //Universum: технические науки. – 2021. – №. 3-4 (84). – С. 56-59.

24. Bakirov L., Toychiyev X., Toychiyev X. ANDIJON SHAXAR JAMOAT TRANSPORTIDA ELEKTRON TOLOV TIZIMINI JORIY QILISH TAKLIFLARI //Theoretical aspects in the formation of pedagogical sciences. – 2022. – Т. 1. – №. 5. – С. 315-319.

25. Bakirov L., Toychiyev X., Toychiyev X. TERMOPLAST POLIMER XUSUSIYATLARIGA MAHALLIY TO ‘LDIRUVCHILARNING TURLARINI TA’SIRINI TADQIQ ETISH //Theoretical aspects in the formation of pedagogical sciences. – 2022. – Т. 1. – №. 5. – С. 310-314.

26. Bakirov L., To‘ychiyev H. SELECTION AND FOUNDATION OF POLYMER BINDER-FILLER SUBSTANCES FOR HETEROCOMPOSITE POLYMER MATERIALS USED IN MACHINE-BUILDING //Science and innovation in the education system. – 2022. – Т. 1. – №. 5. – С. 34-39.

27. To'ychiyev X., Soliyev B. Prospects for the use of polymeric materials in machine parts //Asian Journal of Multidimensional Research. – 2022. – Т. 11. – №. 5. – С. 151-156.

28. Абдирахмонов Р. А. и др. WAYS TO IMPROVE THE LOGISTICS OF THE SHIPPING MARKET //Интернаука. – 2021. – №. 5-2. – С. 104-106.

29. Алматаев Т. О. и др. ИССЛЕДОВАНИЯ КОЭФФИЦИЕНТА ТРЕНИЯ И ИНТЕНСИВНОСТИ ИЗНАШИВАНИЯ ЭПОКСИДНЫХ И ПОЛИПРОПИЛЕНОВЫХ КОМПОЗИЦИОННЫХ ПОЛИМЕРНЫХ МАТЕРИАЛОВ //ИННОВАЦИОННЫЕ ПОДХОДЫ В СОВРЕМЕННОЙ НАУКЕ. – 2020. – С. 80-84.

30. Икромов Нурулло Авазбекович, Гиясидинов Абдуманоб Шарохидинович, & Рузиматов Бахром Рахмонжон Угли (2021). МЕРЫ ПО СНИЖЕНИЮ ЭКОЛОГИЧЕСКОГО ВОЗДЕЙСТВИЯ АВТОПАРКА. Universum: технические науки, (4-1 (85)), 44-47.

31. Икромов, Н. А. (2021). Исследования физико-механических свойств радиоционно модифицированных эпоксидных композиций и покрытий на их основе. Universum: технические науки: электрон. научн. журн, 12, 93.

32. Икромов Нурилло Авазбекович (2015). Исследование влияния магнитного поля на физикомеханические свойства композиционных полимерных покрытий. Вестник Курганского государственного университета, (3 (37)), 96-99.

33. Икромов, Н. А. (2021). ИССЛЕДОВАНИЯ ФИЗИКО-МЕХАНИЧЕСКИХ СВОЙСТВ РАДИАЦИОННО МОДИФИЦИРОВАННЫХ ЭПОКСИДНЫХ КОМПОЗИЦИЙ И ПОКРЫТИЙ НА ИХ ОСНОВЕ. Главный редактор: Ахметов Сайранбек Махсутович, д-р техн. наук; Заместитель главного редактора: Ахмеднабиев Расул Магомедович, канд. техн. наук; Члены редакционной коллегии, 59.

34. Ikromov, N. A., & Turaev, S. A. To determine the ingesting of various polymer materials of automobile cartridges. Academia-an international multidisciplinary research journal, 10.

35. Икромов, Н. А., & Жалолова, З. Х. (2022). Исследования адгезионная прочность полимерных покрытий обработанных в магнитном поле. SO 'NGI ILMIY TADQIQOTLAR NAZARIYASI, 1(4), 58-62.

36. Negmatov, S. S., Mamadoliev, K. M., Sobirov, B. B., Latipov, I. K., Ergashev, E., Rakhmanov, B. S., & Tajibaev, B. M. (2008, August). IMPROVEMENT OF PHYSICO-MECHANICAL PROPERTIES OF THERMOREACTIVE AND THERMOPLASTIC POLYMERIC COVERINGS BY PHYSICAL METHODS OF MODIFICATION. In AIP Conference Proceedings (Vol. 1042, No. 1, pp. 67-69). American Institute of Physics.

37. Икромов, Н. А., & Расулов, Д. Н. (2020). Объекты и методики исследования композиционных полимерных материалов. Современные научные исследования и инновации, (10), 1-1.

38. Ikromov Nurullo, & Rasulov Dilshod (2021). TECHNIQUE AND INSTALLATIONS FOR ELECTROMAGNETIC TREATMENT IN THE FORMATION OF COMPOSITE POLYMER COATINGS. Universum: технические науки, (7-3 (88)), 52-55.

39. Avazbekovich, I. N. (2022). Application Of Composite Materials and Metal Powders in the Technology of Restoration of Worn Parts. Texas Journal of Engineering and Technology, 9, 70-72.

ISSN 2181-3187

40. Ikromov, N. A., Isroilov, S. S., G'iyosiddinov, A. S., Rakhmatov, S. M., & Ibrokhimova, M. M. (2020). Situation of nes balance in the city passenger transportation market when moving passengers with transfers. Asian Journal of Multidimensional Research (AJMR), 9(3), 188-198.

41. Тожибоев Бегижон Мамитжонович, & Икрамов Нурилло Авазбекович (2020). ИССЛЕДОВАНИЕ СВОЙСТВ РАДИАЦИОННО - ОБРАБОТАННЫХ НАПОЛНЕННЫХ КОМПОЗИЦИОННЫХ ПОЛИМЕРНЫХ ПОКРЫТИЙ γ - ЛУЧАМИ. Universum: технические науки, (12-1 (81)), 51-53.

42. Ikromov, N., Alijonov, A., Soliyev, B., Mamajonov, Y., Mahammadjonov, N., & Meliqoziyev, A. (2021). Analysis of mechanical properties of polymer bushing used in automobile industry. Asian Journal of Multidimensional Research (AJMR), 10(3), 560-563.

43. Avazbekovich, I. N. (2022). Investigation Of The Influence Of Technological Factors Of Magnetic Treatment Of Polymer Coatings On Their Adhesion And Physical And Mechanical Properties. Journal of Pharmaceutical Negative Results, 1064-1070.

44. Mukimova, D. (2022). DISTINCTIVE FEATURES OF SOIL TREATMENT BEFORE PLANTING. Science and innovation in the education system, 1(5), 40-44.

45. Косимов К. Теоретические предпосылки кратного увеличения ресурса восстановленных деталей машин //Труды ГОСНИТИ. – 2011. – Т. 108. – С. 260-265.

46. Фархшатов М. Н., Косимов К. Пути повышения ресурса рабочих органов почвообрабатывающих машин на примере республики Узбекистан //Современное состояние, традиции и инновационные технологии в развитии АПК. – 2018. – С. 193-196.