

THE IMPORTANCE OF IMPLEMENTING QUALITY MANAGEMENT SYSTEMS IN THE PRODUCTION OF BASALT PRODUCTS

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Annotation: this article covers the improvement of the concepts of responsibility and commitment of enterprises producing basalt products in the satisfaction of demand and desire of their consumers and stakeholders, as well as in the achievement of their involvement in the provision of products and services. It is written that the organization and manufacturing enterprises make a strategic decision in applying a Quality Management System that can help improve the results of their activities and provide initiatives with a solid foundation, designed for Sustainable Development. International standards for the production of their products are covered by the application of requirements to determine the possibility of processes and what advantages statistical methods give the organization.

Keywords. ISO 9001, IATF 16949, SPC, technological capabilities (cpk, RpK), international standards, quality, Basalt, thermal insulation building materials, audit, xaqaro certificate, World Trade Organization (WTO) and other.

INTRODUCTION

Today, one of the main tasks on the way to becoming a member of the entire joxon Trade Organization WTO (World Trade Organization) is one of the indicators of the introduction of international standards into the enterprise. In this context, SPs expressed the need to use process statistical control ().

At present, it is important to improve quality and productivity in the global system of production and delivery of products and to reduce spending in the supply chain.

To do this, first of all, it is necessary to modernize production, improve the skills of engineering personnel and introduce international standards and consumer requirements of ISO 9001 and IATF 16949 "quality management system" into the management system of the organization and certify the system based on them. These tasks are one of the

pressing issues in the structure of the automotive industry day when bringing products to the international market.

It follows that the decree of the president of the Republic of Uzbekistan dated February 7, 2017 PF-4947 “on approval of the strategy of action for further development of the Republic of Uzbekistan” separately noted the liberalization and simplification of the economy, diversification of export composition and geography, and set out tasks for conducting negotiations on the entry of Uzbekistan into the WTO as a member state [1]. In particular:

- liberalization of the economy and regulation of the level development of industries;
- regulation of price and establishment of an acceptable tax system;
- maintenance of subsidies in individual sectors and production;
- regulation of the system of standardization and certification of goods;
- increase the attractiveness of foreign investments;
- regulation of the tariff of import and export duty payments.

In this regard, such tasks as regulating the system of standardization and certification of goods, ensuring the quality of products, constant improvement are also one of the most important and urgent tasks in the construction industry.

LITERATURE ANALYSIS AND METHODOLOGY

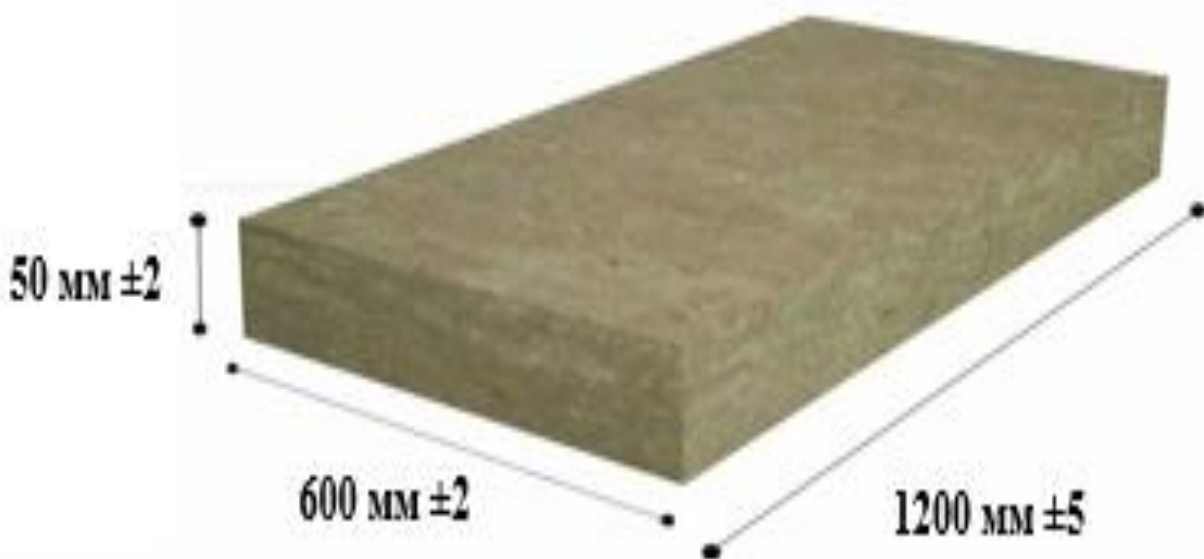
Currently, buildings and structures in developed countries of the world are built in a quality, comprehensively convenient, energy-efficient way through the use of innovative, new types of building materials. In particular, in recent years, materials such as gazobeton, basalt reinforcement, basalt stone and glass wax have been used in the construction of energy-efficient buildings-structures.[3]

In our country, too, on the basis of world experience in this regard, it is widely used in the construction of basalt stone, glass wax and penoplex types of heat-retaining materials. In order to ensure the need for these building materials in our Republic, the number of manufacturing enterprises is growing. This in turn leads to the possibility of export of heat-retaining materials produced, in which these organizations will have to obtain certificates in accordance with international standards. To do this, first of all, the specialists of these organizations will know, understand and implement the requirements set by international standards, develop and introduce standards of the corresponding organization, which will include work (for example: at least three months under ISO

9001, and IATF 16949-at least one year), and then certification bodies will be able to be involved. In this case, the activities of the organization's quality management systems should be carried out in accordance with the established standards, internal audits and high management analysis. Especially any product manufacturing organization can be the basis in ensuring compliance with the requirements of any other international standards with the introduction of the requirements “IATF 16949:2016 international automotive quality management systems”.[2]

RESULTS

Based on the above, to determine the possibility of basalt products production processes (Cpk, Rpk), process capability (Cpk, Rpk) was determined using control cards according to the requirements set by paragraphs 9.1.1.2 and 9.1.1.3 of the international standard of quality management systems of the automotive industry IATF 16949:2016.



Basalt fiber product sizes

Supplier: **EVEREST METALL GREND**

PROCESS CAPABILITY CERTIFICATION REPORT

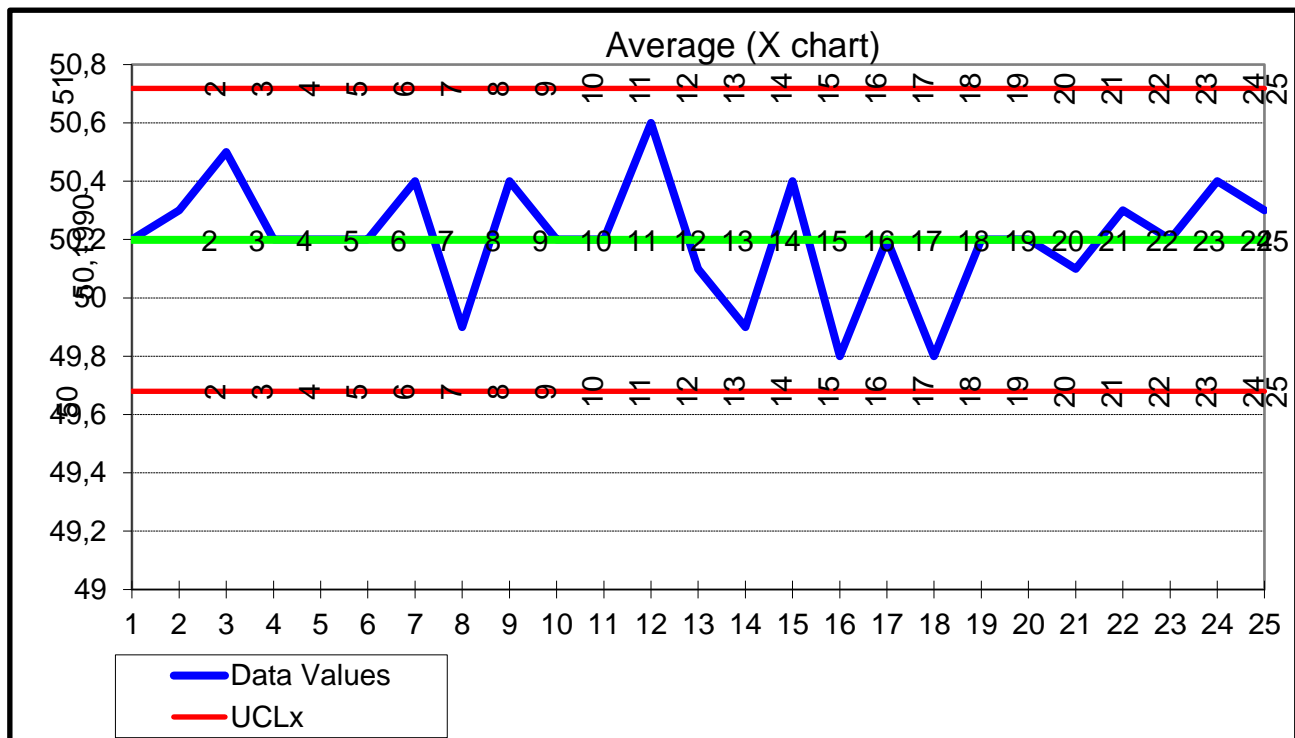
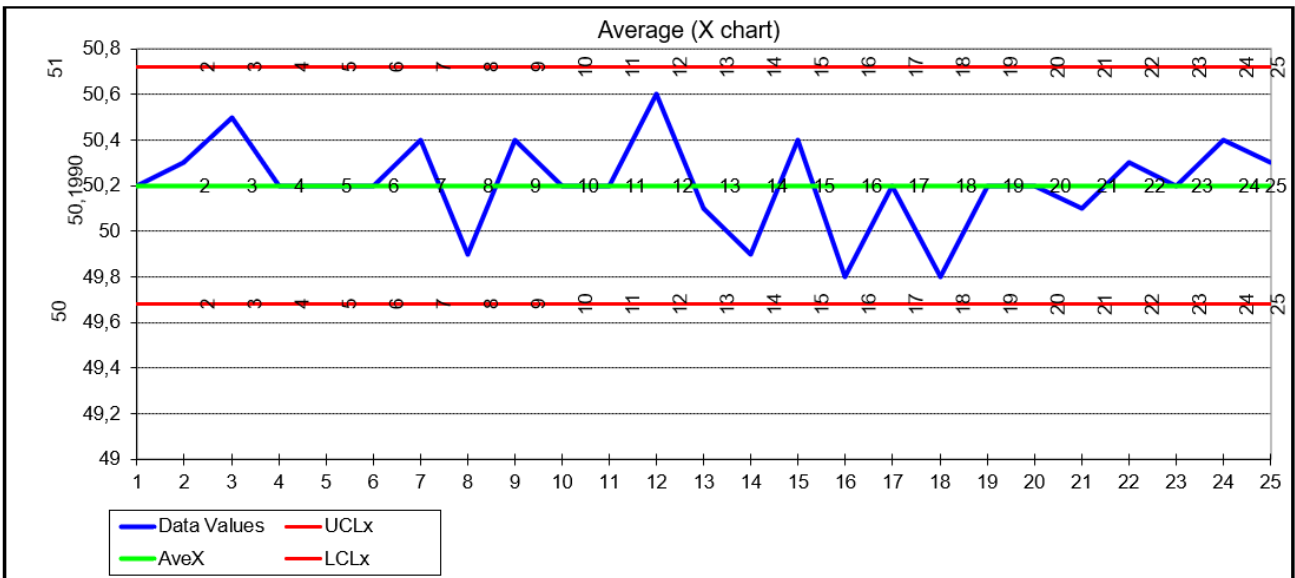
Part Certification: Two sided spec (bilateral) One sided (MIN) One sided (MAX)

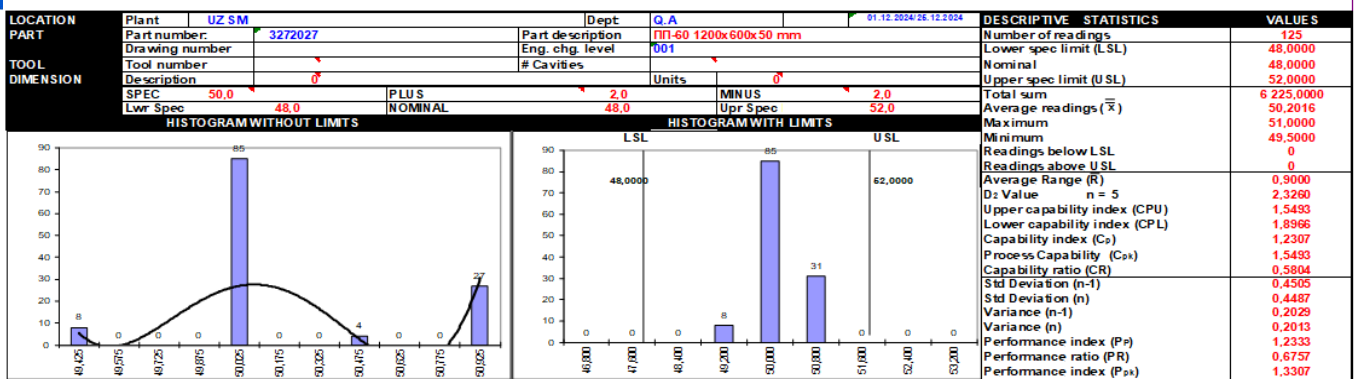
Number of readings per subgroup: **5**

LOCATION	Plant	EVEREST METALL GREND	Dept:	Q.A	Date:	01.12.2024/25.12.2024
PART	Part number:	3272027	Part description	ПП-60 1200x600x50 mm		
TOOL	Drawing number		Eng. chg. level	001		
	Tool number		# Cavities			
DIMENSION	Description		Units			
	SPEC	50,0	PLUS	2,0	MINUS	2,0

(see if any notes are on page 2)

PROCESS INFORMATION		
Significant trends of data points	X Chart	R Chart
Increasing RUN LENGTH	3	2
HOW MANY RUNS	1	5
Decreasing RUN LENGTH	3	2
HOW MANY RUNS	1	6
Out of control limits	0	0
Consecutive data points above a	7	7





	S U B G R O U P S																			
n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	50,0	51,0	51,0	50,0	51,0	51,0	50,0	50,0	51,0	51,0	50,0	51,0	50,0	50,0	51,0	49,5	51,0	49,5	50,0	51,0
2	50,0	50,0	50,0	51,0	50,0	50,0	51,0	50,0	50,0	50,0	51,0	50,0	50,0	50,0	51,0	50,0	50,0	50,0	50,0	50,0
3	51,0	50,5	51,0	50,0	50,0	50,0	50,0	49,5	51,0	50,0	50,0	51,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0
4	50,0	50,0	50,0	50,0	50,0	50,0	51,0	50,0	50,0	50,0	50,0	50,0	50,0	49,5	50,0	49,5	50,0	49,5	50,0	50,0
5	50,0	50,0	50,5	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0	51,0	50,5	50,0	50,0	50,0	50,0	50,0	51,0	50,0
6																				
7																				
8																				
9																				
10																				
Average	50,2	50,3	50,5	50,2	50,2	50,2	50,4	49,9	50,4	50,2	50,2	50,5	50,1	49,9	50,4	49,8	50,2	49,8	50,2	50,2
Range	1,0	1,0	1,0	1,0	1,0	1,0	1,0	0,5	1,0	1,0	1,0	1,0	0,5	0,5	1,0	0,5	1,0	0,5	1,0	1,0
	N O T E S																			
n	21	22	23	24	25															
1	51,0	51,0	51,0	50,0	50,0															
2	50,0	50,0	50,0	51,0	50,0															
3	49,5	49,5	50,0	51,0	51,0															
4	50,0	50,0	50,0	50,0	50,0															
5	50,0	51,0	50,0	50,0	50,5															
6																				
7																				
8																				
9																				
10																				
Average	50,1	50,3	50,2	50,4	50,3															
Range	1,5	1,5	1,0	1,0	1,0															

CONCLUSION

IATF 16949:2016 points 9.1.1.2 and 9.1.1.3 of the international standard of quality management systems of the automotive industry have been achieved by applying basalt products to production processes:

- for each process, the SPC has identified control cards according to the method of Statistical Process Management;
- key concepts in handling (variation), stability (stability), process capability (C_{pk}, R_{pk}), and over-tuning have been communicated to all of the organization to be employee intelligible and applicable.

Also, the following advantages of applying a control card, which is a means of statistical control of processes, were conveyed to employees:

- the working (operator) process can control its current state;
- helps process stable operation, ensures quality and low cost;

- the defect is taken;
- increases quality;
- reduces the cost of a single product;
- increases production productivity;
- a common unified language arises to analyze the possibility of processes;
- the causes of variability are divided into usual and special, which are directed to local or systemic action.

REFERENSEC

1. O‘zbekiston Respublikasi Prezidentining 07.02.2017 yildagi PF-4947-son “O‘zbekiston Respublikasini yanada rivojlantirish bo‘yicha harakatlar strategiyasi to‘g‘risida” gi farmoni.
2. O‘zDSt IATF 16949:2019 Sifat Menejmenti Tizimlari. Avtomobilsozlik sanoati va unga butlovchi qismlar ishlab chiqaruvchi tashkilotlar uchun sifat menejment tizimi talablari. Xalqaro avtomobilsozlik sifat menejmenti standarti (IATF 16949:2016, IDT).
3. https://uzsm.uz/uz/press_center/news
4. Mamajonov A. A., Xamdamov B. R., Jo‘raev Z. B. Avtomobilsozlikda mahsulot ishlab chiqarishni kelishish (Monografiya) Andijon - 2020, "Hayot" nashriyoti - 184 b.
5. <http://everestcompany.uz/>
6. ГОСТ 9573-2012 Плиты из минеральной ваты на синтетическом связующем теплоизоляционные.
7. Sativaldiyev, A., Maxmudov, A., & Jo‘raboyev, T. (2023). LOK-BO‘YOQ QOPLAMALARINI ISHLAB CHIQRISH TEXNOLOGIYALARI. Центральноазиатский журнал образования и инноваций, 2(2), 22-27.
8. Sativaldiyev, A., Maxmudov, A., & Jo‘raboyev, T. (2023). AVTOMOBILSOZLIKDA UCH O‘LCHAMLI O‘LCHOV VOSITASI YORDAMIDA O‘LCHAMLARNING ANIQLILIGINI TA‘MINLASH. Центральноазиатский журнал образования и инноваций, 2(2), 17-21.

9. Xamdamov, B., & Maxmudov, A. (2023). AVTOMOBILSOZLIKDA SIFATNI TA'MINLASH VA SIFAT BOSHQARUVI. Евразийский журнал технологий и инноваций, 1(2), 35-46.
10. Raimdjonovich, X. B., & Odiljon o'g'li, M. A. (2023). SIFATNI TA'MINLASH UCHUN AVTOMOBIL ESHIGI PANELIGA 3D SKANERLASHNI QO'LLASH TEKSHIRISH FAOLIYATI. Scientific Impulse, 1(7), 479-485.
11. Raimdjonovich, X. B., & Odiljon o'g'li, M. A. (2023). Avtomobilsozlikda Sifatni Ta'minlash Va Sifat Boshqaruvi. JOURNAL OF EDUCATION, ETHICS AND VALUE, 2(2), 8-10.
12. Xamdamov, B., & Maxmudov, A. (2023). SIFAT MENEJMENTI TIZIMLARINING USTUNLIGI. Solution of social problems in management and economy, 2(3), 28-39.
13. Xamdamov, B., & Maxmudov, A. (2023). AVTOMOBIL KUZOV QISMI SIFATINI ANIQLASH USULLARI VA O'LCHOV VOSITALARI. Евразийский журнал технологий и инноваций, 1(2), 47-53.
14. Abduraxmonovich, M. A., & Odiljon o'g'li, M. A. (2025). BAZALT MAHSULOTLARI ISHLAB CHIQRISHDA SIFAT MENEJMENT TIZIMLARINI JORIY ETISHNI MUHIMLIGI. AMERICAN JOURNAL OF MULTIDISCIPLINARY BULLETIN, 3(1), 245-254.
15. Mamajonov, A. A., & Maxmudov, A. O. (2025). BAZALT MAHSULOTLARI ISHLAB CHIQRISHDA SIFAT MENEJMENT TIZIMLARINI JORIY ETISHNI MUHIMLIGI. МОЯ ПРОФЕССИОНАЛЬНАЯ КАРЬЕРА. Международная научно-образовательная электронная библиотека (НЭБ)«МОЯ ПРОФЕССИОНАЛЬНАЯ КАРЬЕРА», (68 (том 2))
16. Maxmudov, A. O., & Mamajonov, A. A. (2025). SIFAT MENEJMENT TIZIMINING JORIY ETISHNING USTUNLIGI. Международная научно-образовательная электронная библиотека (НЭБ)«МОЯ ПРОФЕССИОНАЛЬНАЯ КАРЬЕРА», (69. Том 1).