

MEASURING THE EFFICIENCY OF THE FINAL PRODUCT USING THE CONTROL CHARTS AT THE BAGHDAD COMPANY FOR SOFT DRINKS

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ABSTRACT

Quality Control Charts (control) are important methods to monitor and improve production lines and to detect the efficiency of the quality of products. The research seeks to apply control Charts in the Baghdad Company for soft drinks and aims to identify the reservoir of imbalance in the presence and treatment. Ship A and Miranda are among the products of Baghdad Soft Drinks Company. The quality control Charts (for averages and ranges) were applied to the selected products after processing the duplicates of the data. The results showed that the ship product is within the control limits. The results of the control Charts indicate that the product is not statistically controlled. Control of the product where the results after treatment that the product within the limits of the control (the process is statistically controlled) The most important finding of the researcher is the existence of three readings of the selected products as the company has three limits of control depend on them in addition to the producer ships (7 UP) within the limits of control. either with respect to the product of the Miranda is beyond the limits of control. In addition to the search reached several recommendations. The work of processing the defect in the product line of the Miranda and the control and improvement of product production lines periodically.

Key words: Quality, control Charts

1.1 INTRODUCTION:

Most companies and production institutions seek to control the production processes in the production lines of the products and services they provide, which leads to increased quality and reduce defects and maintenance of problems incurred for the purpose of reducing costs.

The problem of the paper is to benefit from the application of control maps to some of the products of the Baghdad Company for soft drinks, which helps to draw the attention of the top management to the importance of control charts and its role in measuring the quality of the product and identify the imbalance and reduce costs, hence the problem can be crystallized the following points:

- 1- There is a product in the company within the limits of the control.
- 2- There is a product that is not statistically controlled, there are observations outside the calculated limits.

The object of the paper is to apply control charts in Baghdad Company for soft drinks by detecting a quality level on some of the company's products, It also object and determine the

reservoir of the defect causing the exodus of some products from the limits of the control if it exodus and then calculate the results of data after treatment.

The fourth part discusses the methodology of the research in the first subject. In the second part, we discuss the theoretical aspect according to the reliable sources, while the third section analyzes the data and explains the results. The fourth discusses the conclusions.

1-2 LITERATURE REVIEW:

Papers related to the subject matter is as follows:

Control charts for the removal of mud bricks in the Qabisiyah Lab and the results of the research have been modified until they change with each other, his situation occurs when the standard deviation of the operation at the arithmetic mean of the various values is very small compared to the difference between the upper and lower limits. On the other hand, any result outside these limits gives an indication that the efficiency of the process changes and must begin to check for and correct the causes, Control charts have been used and two types of control maps have been used, the average map and the standard deviation map the upper and lower limits for all the dimensions of the blocks have been drawn and discussed , The average length plate showed that there was one point outside the minimum of the scheme while the standard deviation plate showed that there was one point higher than the upper boundary and after conducting the situational verification it was found that these results were due to psoriasis reasons. The results indicate that the points are all within the boundaries and distributed randomly around the center line and the direction of the points. This gives the indication that the production process is within control and the same result has been obtained for the fish control charts .(A. Hasan and Borhan, 2014)

The use of fuzzy control schemes in the design of the control panel using the approximation and probability functions belonging to the linguistic data, And the use of the control panel to confirm the quality when it is in the form of linguistic data and the use of sub-groups of misty language formula used to describe the quality of production and the researcher reached the most important recommendations of the methods of conversion used to obtain the values represented and Ambiguity within the context of trigonometric functions does not affect the achievement of other control charts(Saleh, 2016)

The six-sigma theory has been applied in an industrial company, and six sigma DMAIC-enhanced semiconductors are referred to with a modeling capability approach through which requirements can be considered operationally and strategically as the main objective of this approach ,Is to use a set of modeling techniques in a systematic way within a comprehensive and well-established approach of managing business processes to enable key stakeholders to consider needs to improve existing problem processes and exploit new business opportunities and manage the shift from traditional processes towards CPS(Mathran, 2017)

The level of quality of some of the Baghdad soft drinks products was revealed by working on the processing of duplicate data. There is a repetition of the data by means of the mean and the

analysis of the data by the control charts where the 7 up producer data was statistically controlled. The processing of the marndia then computes the statistical adjustment process again which contributed to. (Ashour & kuriea, 2018)

2. THEORETICAL SIDE

2.1 Quality:

The industrial revolution has a great impact on the development of quality concepts and philosophy and methods in which Gelaha advanced strategically in the contemporary business institutions site.

The first release of a series of ISO 9000 specification was in 1987, where she worked on the collection practices that have been applied in the field of quality at the global level, and the development of demand for them to become a certificate of conformity with the chain specifications Addouroh of Doruyat business and work Alentavsi under the World Trade and Accessories Organization conventions. (Al-Azzawi, 2002, p. 15)

"The American Quality Control Association (ASQC) in 2004 and the European Quality Control Organization (EOQC) defined quality as the sum total of the advantages and characteristics that affect the ability of a product or service to meet a particular need."(Al-Azzawi, 2002, p. 18)

2-2Quality Control :

The process of supervising, organizing, directing and adjusting the production and service processes for the purpose of ascertaining the conformity of the product to specific specifications or specific conditions and making corrections thereon is a process of quality control

ISO defines quality control as "the set of processes of programming, coordination and implementation aimed at enhancing or improving quality and providing the product at the lowest possible cost to reach consumer satisfaction", The second definition of quality control consists of the regular procedures in which the establishment acts as a measure of the actual quality of the performance of the product and its conformity with the specifications specified and corrective measures that may be taken in the event of any deviation in the specifications,

In the opinion of the researcher that the quality control is: tools to evaluate and develop the product for the purpose of reaching a quality level that meets the wishes of the customer and increase the profits of the company or improve the reputation of the enterprise (the company) in the case of service while reducing costs to reduce damaged or defective products.

2.3 Types of quality control:

Quality is characterized by several characteristics including: (Nuaimi, Sweis, and Sweis, 2009, pages 40-41)

1 - Quality control of the front: They match the materials involved in the production process of the required conditions.

2 - Current control on quality: is to put the production line under control, especially when moving from one stage to the second phase of the production line, which is important because the cost of imbalance in the production line is very large.

3 - Quality control: After the production process of the products checked to meet the specifications required and in the case of defects are repaired or excluded.

2.4 Control charts:

The control master charts are the main determinant in the process of quality of the production process, so it has taken a lot of attention by researchers and specialists in this area as well as focused on a lot of companies and productive institutions, and in this area we work to clarify the basic concepts and details.

2.5 Concept control charts :

Monitoring charts are one of the most important pillars of the statistical control of production or service operations, through which the continuous statistical analysis of any change in the production or service process is carried out in order to control the characteristics of products or services (product or service) , If it is an effective technical procedure to assist the manager in charge of the process to take the appropriate decision to achieve the best performance of the production process. (Al-Qazaz, Al-Hadithi, and Corel, 2009, p. 105)

That control charts consist of a graphical representation that illustrates the changes that occur in the components and characteristics of the product over time, through which it can distinguish between the natural changes which consist of the general reasons inherent in the process and the changes that result from specific causes, It is based on two axes: the x-axis, where the time or the sampling number and the y-axis represent the statistical indicator of the quality, which monitors the production process, such as the range, average value or standard deviation in the sample. In addition, Horizontal Each line represents a particular point where the center line or center line (CL-Line) can be achieved in the property and the upper limit of control, The minimum control is the maximum that can be accepted in the property changes studied when the process is in the case of statistical control where the sampling process (production units) should not exceed the effects of natural changes. (Aichouni, 2007, p. 199)

2.6 Types of control charts :

Tyler worked on introducing quantitative and mathematical methods to solve industrial productivity problems and sought to increase production by focusing, organizing, and analyzing the parameters of work, whether individual or collective. Tyler's ideas, published in 1911, developed into specialized science in productive management, And then followed by Schuhr in 1924, where the statistical methods used in that period in the control of the quality of production through the design of control panels known then Schuhr quality control panels and then used in large factories in the short cut yesterday on the control charts, which is defined as defined by the

Organization of International Quality of the two extremes The highest and lowest central unit where the direction of the values of statistical measurements of groups or samples is determined towards which of the two extremes to be close and determine the causes that lead to change in the production process. (Al-Qazaz, Al-Hadithi, and Corel, 2009, page 99)

Catastrophic schemes can be classified into two main types:

- 1- Control panels for variables
- 2 - Control panels for averages

The control charts of the variables are used when it is possible to obtain measurements of the variable that refers to the quality characteristic of a product of the company's products for one of the basic units such as (temperature, humidity, hardness, etc.), or derived units such as energy, Broadly for control schemes of medium type and range condition the value should be 10 and lower, either median and standard deviation, sed when the change in operations is small compared to the discrepancy. (Ashour & kuriea, 2018)

The control charts are also used for features when there is a possibility to measure the variables that reflect the quality property, where the measurement of this panel is the principle of acceptance or rejection, as in some production companies.

2.6.1 Control charts for the range:

Control charts for the meters are one of the most important control maps on which many productive industrial companies and service institutions depend. They allow measuring the degree of dispersion in the product under study, If $X_1, X_2, X_3, \dots, X_n$ is a sample of size n then the sample range is the difference between the highest value and the smallest value of the observations as shown in the following equation: (Montgomery, 2009, p. 228)

$$R = X_{Max} - X_{Min} \dots\dots\dots (1)$$

On the assumption that $R_1, R_2, R_3, \dots, R_m$ are dimensions of size m , the rate of ranges can be calculated by the following equation:

$$\bar{R} = \frac{R_1 + R_2 + \dots + R_m}{m} \dots\dots\dots (2)$$

The change in the production process of the sample drawn for the test can be monitored using the control schemes for ranges, which can be written in the following equations:

$$UCL = D_4 * \bar{R} \dots\dots\dots (3)$$

$$CL = \bar{R} \dots\dots (4)$$

$$\dots\dots (5) UCL = D_3 * \bar{R} \dots\dots\dots)$$

Where D_3, D_4 are constant values

he control chart for the ranges can be represented as in Figure (2-2) where it is noted how the data is defined by the points and the exit of some values outside the upper limit. Therefore, the production line must be reviewed and the problem solved. There are two kinds of treatments:

- sample processing repaired: the maintenance of any imbalance in the production line and maintenance of the sample drawn
- sample processing to replace: maintenance is any imbalance in the production line and the replacement of the sample drawn (destruction of the sample).

In the case of values within the limits indicates the stability of the production process, that is, the process is statistically controlled. (Montgomery, 2009, p. 229)



Figure 2-2 shows control charts for ranges (Montgomery, 2009, p. 224)

2.6.2 Control charts for the average :

The control charts of the averages depend on monitoring the changes in the mean value and on finding the mean of the data and then calculating the upper, minimum and mean values as shown in the following equations. (Montgomery, 2009, p. 229)

$$\bar{X} = \frac{\sum_{i=1}^m X_i}{m} \dots\dots (6)$$

$$UCL = \bar{\bar{X}} + A_2 * \bar{R} \dots\dots (7)$$

$$CL = \bar{\bar{X}} \dots\dots (8)$$

$$LCL = \bar{\bar{X}} - A_2 * \bar{R} \dots\dots (9)$$

That X represents the arithmetic mean of the observations

The $\bar{\bar{X}}$ represents the arithmetic mean of the views rate

And R represents the average range of observations under study

The A_2 fixed value .

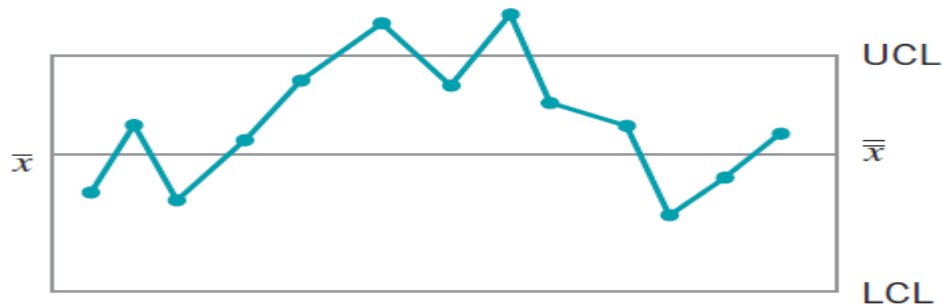


Figure 2.3 shows control charts for ranges (Montgomery, 2009, p. 224)

2.7 Treatment:

Centralized metrics are one of the most important methods of processing repeated readings. They represent the data under study with a single value centered in them. They work at the expense of the values that are centered around them. Most of these data are represented by one number that represents or represents all the product data of the teacher. Central Type:

- 1- The mean
- 2- The engineering center
3. The Harmonic Center
- 4- Quadratic center
5. median
6. The mode

The mean and intermediary have been adopted as the most common and used in the various industrial or service fields.

2.7.1 Method of treatment using the mean:

The arithmetic mean is one of the most commonly used central tendency metrics in the various industrial, service, health and other sectors. The mean is characterized by taking all the values into account and it does not need to rank the values. (Narrator, 1989, pp. 65-66)

$$\bar{X} = \frac{\sum_{i=1}^n x_i}{n} \dots \dots (10)$$

Where \bar{X} represents the mean (mean or average)

x_i represents the values of the variable

And n represents the number of variable values

3 - THE PRACTICAL SIDE

3.1 Data collection :

The data was collected from the target company through the quality control department in the company in cooperation with the concerned department on the packaging and classification of the data by withdrawing from the production lines on a daily basis, where one is withdrawn at each inspection, The samples were studied in 500 samples for each of the company's products (the producer of the ship, the producer of the marinda, the Pepsi product). Products on the basis of the high demand by consumers and the fact that they are in direct contact with the satisfaction of the Zayoun and his desire to buy them and the opinion of experts and stakeholders in the company, The sample consists of 25 productive days and each day 10 observations. Each display consists of three readings. There are three measurement measures approved by the company. These are the limits of control set by the standardization, control, quality and control limits set by the parent company and the limits of control by the company Baghdad, has been studying the production period of ship products from 25/9/2016 to 1/12/2017 The product of the Miranda will start from 9/7/2016 to 29/12/2016, Note that the company performs the examination procedure every hour for approximately one hour during the productive day, where the system of the lips with the rate of two lips a day (morning and evening) and begins the examination at 7:30 am and the first examination is after 40 minutes and the rest of the examination times be Every half hour at a rate of one per check.

3.2 Data Processing:

1- producer 7up:

That the data are repeated readings, including three readings for each view of the views drawn in the sample of the search where the first reading is based on the limits of control specified by the company Baghdad and the second reading is based on the limits defined by the parent company The third reading in the approved limits of the device Standardization and quality control,, We work on processing these three readings by using the arithmetic mean by applying equation (10), which works at the average value of the view by the Excel program, where the producers of the ship and the Miranda are produced almost daily and throughout the year, The control limits for the ship product shall be of three limits, which are set limits set by the parent company (4.35, 4.50, 4.65). The control limits shall be from the minimum, middle and highest (4.40, 4.50, 4.75) respectively. 4.30, 4.50, 4.70), while the product of the Miranda was the control limit of the parent company (2.20, 2.45, 2.65). The control limits of the device are from the minimum, middle and top (2.25, 2.50, 2.70) respectively, , 2.60). The data has been processed using the intermediary and as in the table below:

x10	x9	x8	x7	x6	x5	x4	x3	x2	x1	التاريخ	ت
4.4	4.4	4.4	4.4	4.5	4.5	4.5	4.4	4.4	4.4	25/09/2016	1
4.4	4.4	4.5	4.5	4.4	4.4	4.5	4.5	4.4	4.4	26/09/2016	2
4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.5	4.4	4.4	22/10/2016	3
4.4	4.5	4.4	4.5	4.4	4.4	4.4	4.5	4.4	4.4	23/10/2016	4
4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	24/10/2016	5
4.5	4.5	4.4	4.4	4.4	4.5	4.4	4.5	4.5	4.4	06/11/2016	6
4.5	4.4	4.5	4.4	4.4	4.5	4.4	4.5	4.5	4.4	07/11/2016	7
4.4	4.4	4.4	4.4	4.4	4.4	4.5	4.4	4.4	4.4	08/11/2016	8
4.4	4.4	4.4	4.4	4.4	4.4	4.5	4.4	4.4	4.4	22/11/2016	9
4.4	4.5	4.5	4.5	4.4	4.5	4.4	4.5	4.5	4.4	23/11/2016	10
4.4	4.4	4.5	4.5	4.4	4.4	4.4	4.5	4.5	4.4	24/11/2016	11
4.4	4.4	4.4	4.5	4.4	4.4	4.4	4.4	4.4	4.5	29/11/2016	12
4.4	4.4	4.4	4.4	4.4	4.4	4.5	4.4	4.4	4.4	30/11/2016	13
4.5	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	08/01/2017	14
4.5	4.4	4.4	4.4	4.4	4.5	4.4	4.4	4.4	4.4	15/01/2017	15
4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.5	4.5	4.4	23/01/2017	16
4.4	4.4	4.5	4.4	4.4	4.4	4.4	4.5	4.5	4.4	24/01/2017	17
4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.5	4.5	4.4	29/01/2017	18
4.5	4.4	4.4	4.4	4.5	4.4	4.4	4.5	4.4	4.4	14/02/2017	19
4.4	4.5	4.4	4.5	4.4	4.5	4.4	4.4	4.5	4.4	15/02/2017	20
4.4	4.4	4.5	4.5	4.4	4.4	4.4	4.4	4.4	4.4	16/02/2017	21
4.4	4.4	4.5	4.4	4.5	4.4	4.5	4.4	4.4	4.4	26/02/2017	22
4.4	4.4	4.5	4.4	4.4	4.5	4.4	4.5	4.4	4.5	27/02/2017	23
4.5	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	28/02/2017	24
4.4	4.4	4.4	4.4	4.5	4.4	4.5	4.5	4.4	4.4	01/12/2017	25

2- Miranda product:

x10	x9	x8	x7	x6	x5	x4	x3	x2	x1	التاريخ	ت
2.4	2.5	2.4	2.4	2.4	2.5	2.4	2.3	2.4	2.4	09/07/2016	1
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.4	10/07/2016	2
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	13/07/2016	3
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.3	25/07/2016	4
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	26/07/2016	5
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	09/08/2016	6
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	17/08/2016	7
2.3	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	24/08/2016	8
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	07/09/2016	9
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	16/10/2016	10
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	17/10/2016	11
2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	18/10/2016	12
2.4	2.9	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	26/10/2016	13

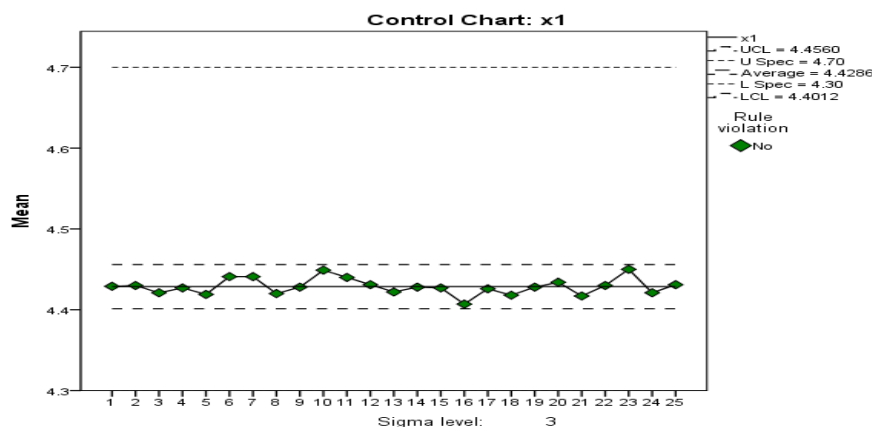
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	30/10/2016	14
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	08/11/2016	15
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	09/11/2016	16
2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.4	10/11/2016	17
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	28/11/2016	18
2.4	2.4	2.5	2.4	2.4	2.3	2.4	2.4	2.4	2.4	29/11/2016	19
2.4	2.9	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	04/12/2016	20
2.4	2.4	2.5	2.4	2.4	2.3	2.4	2.4	2.4	2.4	05/12/2016	21
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	06/12/2016	22
2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	27/12/2016	23
2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.3	2.4	28/12/2016	24
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	29/12/2016	25

3.3 Calculation of control charts and production indicators:

hesps program was used to calculate the control charts for the mean and range and calculate the production indicators for the company's product. Equations (9,8,7) respectively were applied to extract the limits and center of the average control plan, The results of the analysis of the products under study were as follows:

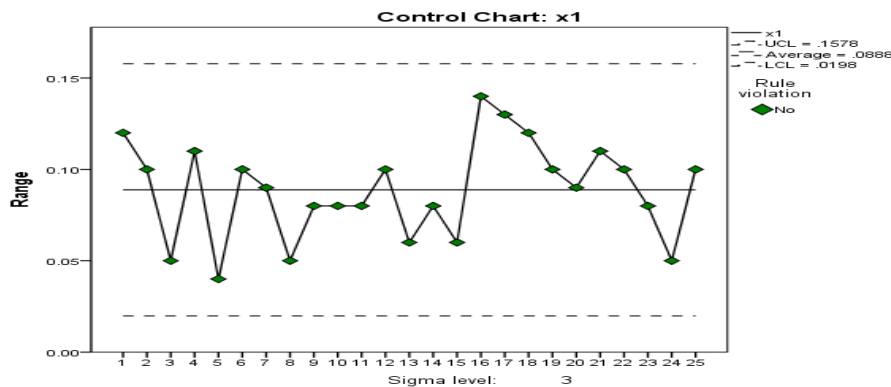
- 7up producer

1. Control charts for the average:



Calculator (4:45) limit set by the company UCL value of (4.7) and the minimum calculated LCL value of (4.30) (according to the minimum prescribed by the company a value of (4.40) and either the median value (4.43) and noted that the production process within the limits and there are no values out of control, which confirms the process productivity regularly any language within the statistical control.

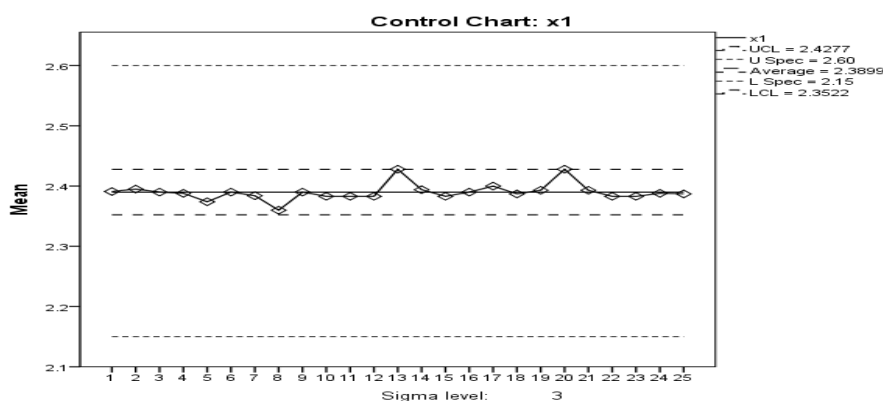
2 - control charts for the range:



Where the results of the analysis showed that the upper limit UCL (0.16) and the minimum LCL (0.00) and the mean value CL (0.015) and it is noted through the results that the production process under control.

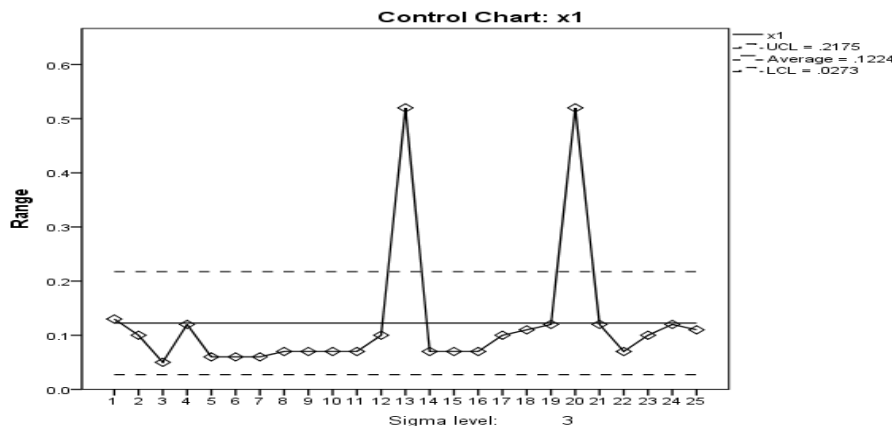
• Miranda product:

1. Control charts for the average:



The upper limit is calculated by UCL (2.6), the minimum calculated LCL (2.15) and the minimum determined by the company (2.25) or the median value (2.30). The production process is within limits and there are no values beyond control, which confirms the progress of the production process on a regular basis, ie scientific within the statistical control.

2 - control charts for the range:



Where the results of the analysis showed that the upper limit UCL (0.22) and the minimum LCL (0.12) and the mean value CL (0.027) and it is noted through the results that the production process is not under control, where exceeded the samples (13, 20) drawn to the limits of control.

Where there is a problem in the production line of the Pepsi, which requires processing of the imbalance, where the treatment of the imbalance in the production line, either processing the calculated sample and then return to the production line or damage the sample and correct the path of the production line, and in the company are working to destroy the sample and correct the process of adjusting the concentration of CO2 gas (25, 13). The sample was replaced with the damaged sample, then the correction on the production line and the withdrawal of new samples after half an hour of the replacement process from the production day. The corrected data are recorded in the following table :

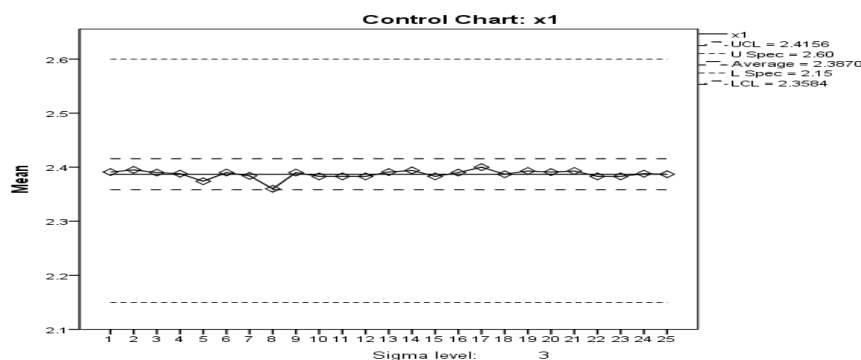
Table 3-3 Miranda data after treatment

x10	x9	x8	x7	x6	x5	x4	x3	x2	x1	التاريخ	ت
2.4	2.5	2.4	2.4	2.4	2.5	2.4	2.3	2.4	2.4	09/07/2016	1
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.4	10/07/2016	2
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	13/07/2016	3
2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.3	2.4	25/07/2016	4
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	26/07/2016	5
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	09/08/2016	6
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	17/08/2016	7
2.3	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	24/08/2016	8
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	07/09/2016	9
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	16/10/2016	10
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	17/10/2016	11
2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	18/10/2016	12
2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	26/10/2016	13
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	30/10/2016	14
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	08/11/2016	15
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	09/11/2016	16

2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.4	10/11/2016	17
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	28/11/2016	18
2.4	2.4	2.5	2.4	2.4	2.3	2.4	2.4	2.4	2.4	29/11/2016	19
2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	04/12/2016	20
2.4	2.4	2.5	2.4	2.4	2.3	2.4	2.4	2.4	2.4	05/12/2016	21
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	06/12/2016	22
2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	27/12/2016	23
2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.3	2.4	28/12/2016	24
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	29/12/2016	25

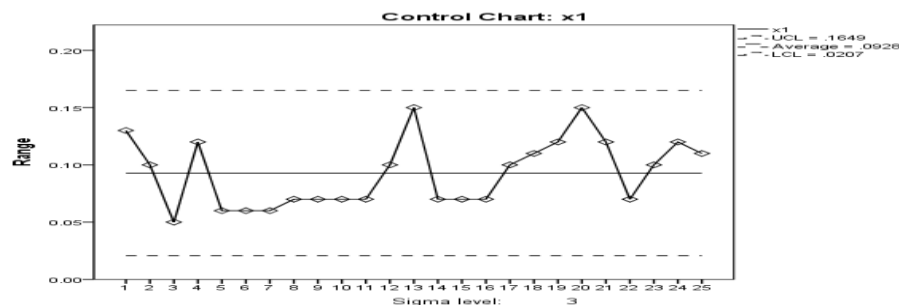
1. Control charts for the average:

Where the results of the analysis of the control plans for the product Miranda after treatment as follows:



Where analysis shows the upper limit calculated UCL value of (3.65) The top set limit by the company UCL value of (3.8) and the minimum calculated LCL value of (3.56) (the minimum prescribed by the company's value of (3.40) and either the median value (3.60) notes that process productivity within the limits and there are no values beyond the control of confirming the progress of the production process on a regular basis of any scientific within statistical control.

2 - control charts for the range:



Where the results of the analysis showed that the upper limit UCL (0.26) and the minimum LCL (0.03) and the mean value CL (0.15) It is noted through the results that the production process under control and not exceed the samples drawn to the limits of control.

3.3.3 Analysis of results:

After processing has been repeated readings of the company's data and the amount of 250 samples drawn and watch ships from August and producers Almirnda in addition to the debugger Almirnda using the median and then calculate the results by using the spss program, The results of the ship product analysis showed that the product production process was statistically controlled and controlled within the limits of control. The results showed that the production process of the product is not controlled statistically. After the treatment of the defect causing the lack of statistical control, the results of the analysis showed that the Miranda product data is within the limits of the statistical control.

CONCLUSIONS

Through the results that emerged from the analysis of the company's data, several conclusions were reached:

1. The presence of three limits settings adopted by the company in the application of control products company schemes which limits the company's parent, and adjust the limits of adjusting device standardization and quality control and setting limits to the Company of Baghdad.
- 2 - Matching the product of ships to the limits of control, ie, the production process of the product is statistically controlled.
3. The process of producing a product Almirnda uncontrolled presence of any statistical data outside the control limits, which requires knowledge of the reservoir and address the imbalance and watched the production process after processing.
4. The Almirnda product data is adjusted statistically after undergoing treatment through the repainting of the electronic device pump components, where the results of the application of control maps that process productivity disciplined statistically adjusted.

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