Effect of Taheri Consciousness Bond Field on the Structure and Properties of 1000-Series Aluminum with Preheating

Bahareh Kazazi[1*], Mohammad Ali Taheri[2]

1. Civil Engineering, CEO of Hoobe Construction Company, Tehran, Iran.

2. Sciencefact R&D Department, Cosmointel Inc. Research Center, Ontario, Canada.
1. Civil Engineering, CEO of Hoobe Construction Company, Tehran, Iran.

2. Sciencefact R&D Department, Cosmointel Inc. Research Center, Ontario, Canada.

* Corresponding author:

Bahareh Kazazi
Civil Engineering, CEO of Hoobe Construction Company, Tehran, Iran.

Email: baharkazazi@gmail.com

ABSTRACT

The properties and structure of aluminum in various known fields have been already studied. The aim of this study was to investigate the behavior and properties of unalloyed aluminum with 300 °C preheating under the Consciousness Bond Field. Taheri Consciousness Fields (TCFs) were founded and introduced by Mohammad Ali Taheri as new Fields more than four decades ago. These Fields are neither material nor energetic. Therefore, they do not have the quantity, but they have direct effects on both matter and energy. In other words, although TCFs cannot be directly measured, we can investigate their effects indirectly through various reproducible experiments. The present study is an attempt to examine this theory. For this purpose, aluminum metal was used as a sample. Six aluminum samples were cast under the same conditions and divided into two groups. One group was put under the influence of TCF, and the other group was the control. Then, in order to record the effect of the Consciousness Bond Field, the structure and properties of the metal samples were investigated. X-ray diffraction (XRD) analysis was performed for structural analysis of the samples. In terms of properties, corrosion resistance was investigated in a standard SBF solution. Some changes in the structure, such as reduction of twin defects and increase of extrinsic and intrinsic defects were observed under the influence of TCF.

Keywords: Consciousness Bond Field, Taheri Consciousness Fields, Twin defects, Intrinsic defects, Extrinsic defects, Corrosion resistance

INTRODUCTION

Aluminum, with the highest abundance in the earth's crust after silicon, is one of the strategic metals, and the most used after steel. It has many applications in almost all industries. Any change in the position of atoms is directly related to the properties and application of this material [1]. "Consciousness Bond Field" is one of many Taheri Consciousness Fields (TCFs) that influence materials. It is expected that pure materials, which are not composed of different chemical compounds and alloys, have stable behavior under the influence of the Consciousness Bond Field. However, in re-cooling, a change in the crystalline lattice of atoms is probable according to the theory of TCFs by which T-Consciousness can be converted into matter and energy. The present study examines the mentioned cases. In previous studies, 1000-series aluminum was investigated only by casting without preheating. In this study, the aim was to investigate the effect of preheating and increasing the mold length and, in a way, prolonging the cooling process and TCFs [2].

The nature of consciousness and its place in science has received much attention in the current century. Many philosophical and scientific theories have been proposed in this area. In the 1980s, Mohammad Ali Taheri introduced novel fields with a non-material/non-energetic nature named Taheri Consciousness Fields (TCFs). In this perspective, T-Consciousness is one of the three existing elements of the universe apart from matter and energy. According to this theory, there are various TCFs with different functions, which are the subcategories of a networked universal internet called the Cosmic Consciousness Network (CCN). The major difference between the theory of TCFs and other theoretical concepts about consciousness is related to the practical application of the TCFs. TCFs can be applied to all living and non-living creatures, including plants, animals, microorganisms, materials, etc.

Mohammad Ali Taheri, the founder of Erfan Keyhani Halqeh, a school of thought, introduced a new science in 2020 as a branch of this school. He coined the term Sciencefact for this new science because it utilizes scientific investigations to prove the existence of T-Consciousness as an irrefutable phenomenon and a fact. Although science focuses solely on the study of matter and energy and Sciencefact, by contrast, explores the effects of the [non-material/non-energetic] TCFs, Sciencefact has provided a common ground between the two by conducting reproducible laboratory experiments in various scientific fields, and it has used the scientific approach in proving TCFs.

The influence of the TCFs begins with the Connection between CCN as the Whole Taheri Consciousness of the universe and the subjects of study as a part. This Connection called "Ettesal" is established by a certified and trained individual who has been entrusted with the TCFs. The human mind has an intermediary role (Announcer) which plays a part by fleeting attention to the subject of study and then the main achievement obtained as a result of the effects of the TCFs. These Fields cannot be directly measured by science, but it is possible to investigate their effects on various subjects through reproducible laboratory experiments.

The research methodology in the study of T-Consciousness has been founded on the process of Assumption, Argument, and Proof, in which the basic Assumption is: The Cosmos was formed by a third element called T-Consciousness that is different from matter and energy.

The Argument: The existence of TCFs can be demonstrated by its effects on matter and energy (e.g., humans, animals, plants, microorganisms, cells, materials, etc.)

The Proof: is the scientific verification of the effects of TCFs on matter and energy (according to the Argument) through various reproducible scientific experiments.

Accordingly, to investigate and verify the existence, effects, and mechanisms of TCFs, the following five research phases (Phases 0 through 4), and the aims of each phase are outlined below.

Phase-0 studies aim to prove the existence of TCFs by observing their effects. The nature of T-Consciousness and what it is will not be addressed in this phase. Phase-1 explores the varied effects of different TCFs. Phase-2 examines the reason behind the varied effects of these fields. Phase-3 investigates the mechanism of TCFs effects on matter and energy. Finally, Phase-4 draws significant conclusions, particularly with regard to the mind and memory of matter and their relation to the T-Consciousness, etc. [2-6]

Methodology

The molten aluminum made from AA1XXX series aluminum ingot was cast in six uniform molds (Cylinders with a diameter of 6 cm and a height of 1.5 cm). The molds were placed in a tray before casting and preheated to 300 °C. The six samples were divided into two equal groups, each consisting of three samples. The samples were arbitrarily named by those doing the experiment. One group of the samples was put under TCF, and the other group of samples was considered the control. According to Table (1), the group under TCF was identified as X1 and the control group was identified as Control. Each group consisted of three samples, and they were coded with numbers 1 to 6 for ease of work. Then, the names of the group under the TCF were declared to the person establishing the connection, i.e., the second author of the article, for the announcement of the connection.

Table 1 . Grouping of 6 cast aluminum samples

Group Name		Control			X1(CF)	
Sample Number	1	2	3	4	5	6

Application of the Consciousness Bond Field

One of the introduced TCFs is called the Consciousness Bond Field and was applied to the samples according to the protocols regulated by the COSMOintel research center (www.COSMOintel.com). A request for Connection to the CCN to utilize TCFs can be placed through the COSMOintel website in the "Assign Announcement" section. This access is available for everyone at no cost. In order to study and experience this Connection, the researchers can register on the website at any time in order to report the experiment to the COSMOintel research center. Certain details of the experiment must be provided to the center; for example, the characteristics or number and name of samples and controls must be specified. This entire experiment was carried out as a double-blind method where lab technicians were completely unaware of the TCFs.

All samples were cast from one molten pot. Then, chemical analysis was performed on the samples to investigate any possibility of unwanted impurities and their effect on the properties. For this purpose, a sample from each series was randomly selected and subjected to spectrochemical analysis [7], the results of which are given in Table (2). The result shows that the composition of the samples is in the same category and there is no difference in the composition in a way that can significantly affect the properties.

Table 2 . Chemical composition of cast samples (one random sample from each group)

One random sample of the group X1(TCF)

Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Be	Ca	Li
0.06	0.11	0.01	0.009	0.002	0.002	0.01	0.02	Trace	Trace	Trace	Trace
Pb	Sn	Sr	V	Na	Bi	Co	Zr	B	Ga	Cd	Al
0.01	< 0.005	Trace	0.008	0.005	0.01	0.02	Trace	0.0015	0.005	0.005	99.75

One random sample of the control group

Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Be	Ca	Li
0.06	0.11	0.01	0.009	Trace	0.005	0.01	0.02	Trace	Trace	Trace	Trace
Pb	Sn	Sr	V	Na	Bi	Co	Zr	B	Ga	Cd	Al
0.01	< 0.005	Trace	0.009	0.004	0.02	0.01	Trace	0.0022	0.004	0.004	99.75

Some of the main properties of aluminum metal are high electrical conductivity, softness, and ductility as well as relatively good corrosion resistance at medium pH. Therefore, these properties were compared with the control samples and those under TCF.

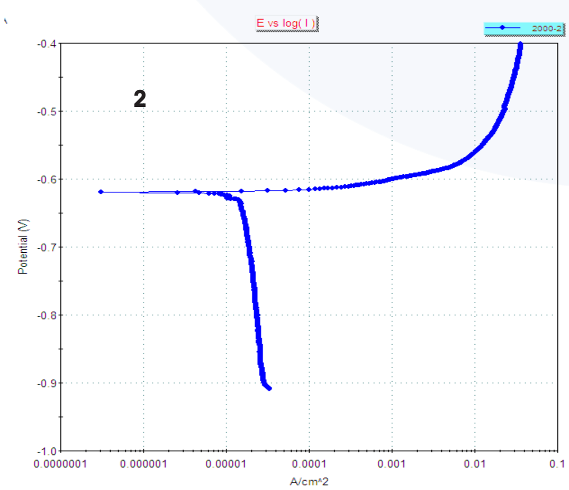
Corrosion behavior was also investigated by potentiodynamic polarization test according to ASTM G1-03 (Re.17) & ASTM G3-14 standards [8]. For this purpose, SBF solution, which is a common medium in corrosion tests, was used. The Ag / AgCl (KCL-sat) reference electrode and the scanning rate of 0.5 mVs-1 were used at 37± 2º C temperature in one cm2 area and Counter Electrode: Graphite.

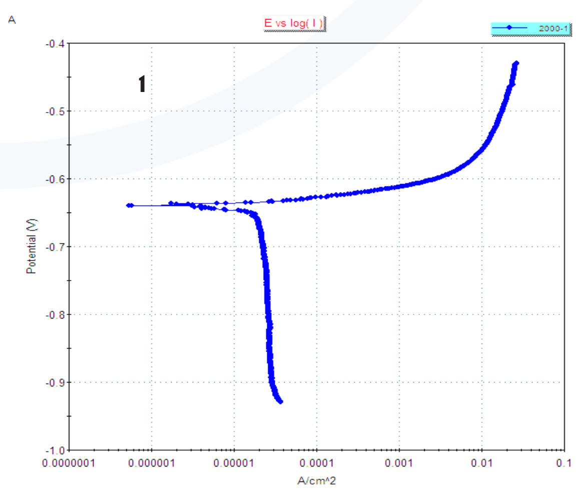
X-ray diffraction (XRD) by the reference standard BS EN 13925-1: 2008 was used to investigate the crystalline structure and lattice defects of atoms. The tests were performed with a copper anode at a voltage of 30 mA and a current of 40 kV. Step size was 0.02 and counting time per step was 0.5 sec. Structure analysis was performed by the Rietveld refinement method using Maud software [9].

Results and discussion

Corrosion resistance

The diagrams for the six samples are shown in (Figure 1). The formation of a small surface area has been seen in the samples which, after some fluctuations in current, disappeared and the intensity of the current increased rapidly (approximately horizontal line in the graph equivalent to critical pitting potential or Epit). After some corrosion, a layer of aluminum oxide was formed, and the graph tended to be vertical. This is a common process in aluminum corrosion testing [10].





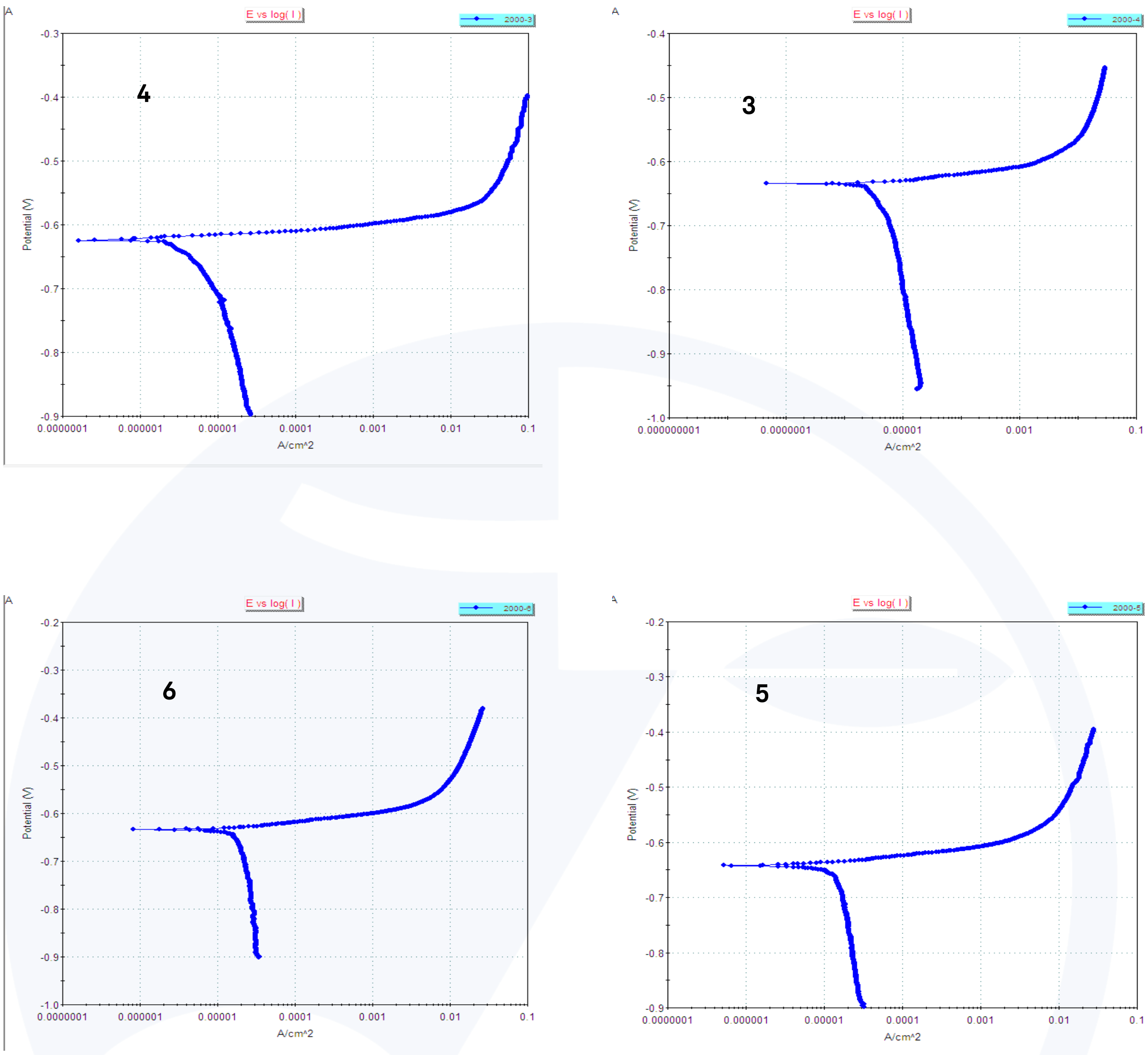


Figure 1. Graph of potential changes in terms of corrosion intensity for the three control samples 1, 2, and 3, and the samples 4, 5, and 6 under TCF.

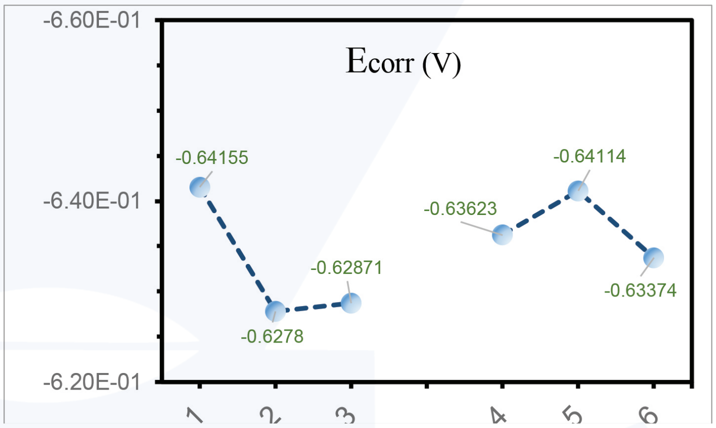
In order to compare the corrosion rate in the two groups of samples, the corrosion current rate parameter can be used. High corrosion resistance in this test is demonstrated as low corrosion current density and low corrosion rate. The values extracted from the graphs are given in Table (3). Also, the mean values and standard deviation of corrosion potential (Ecorr) and the corrosion current density (icorr) for each sample are shown in Table (4). The corrosion rates average of the group under the TCF is lower than that of the control group, indicating better corrosion resistance. But the results of the corrosion test, which is an electrochemical process, are statistical, and in which there is an inherent dispersion in the results. Therefore, it is important to check if the differences are statistically significant.

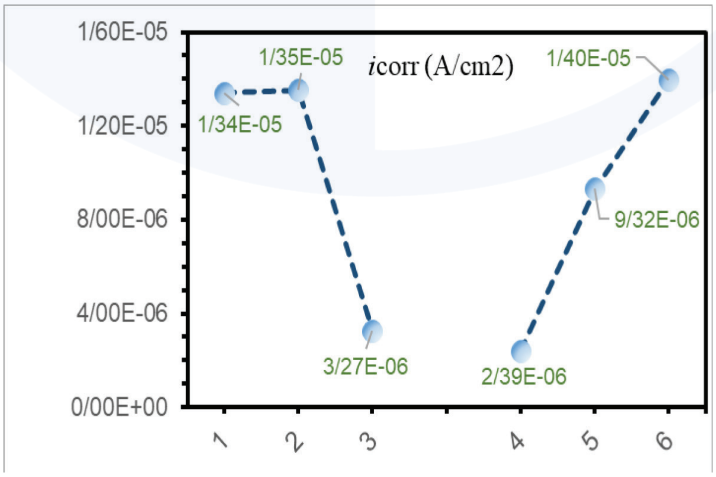
Table 3 . Results of potentiodynamic corrosion test of the 6 aluminum samples in SBF

Name	Sample Code	Corrosion Current Density i_{corr} (μA/cm²)	Corrosion Potential E_{corr} (mV)	Corrosion Rate mpy (mm/year)
Control Group	1	18.96	-651.482	8.10 (2.06E-1)
	2	14.86	-636.037	6.34 (1.61E-1)
	3	4.793	-624.367	2.05 (5.20E-2)
Group X1(TCF)	4	2.845	-643.658	1.26 (3.09E-2)
	5	13.24	-646.390	5.65 (1.44E-1)
	6	17.33	-650.501	7.04(1.88E-1)

Table 4 . Mean of current densities and corrosion potentials

Name	Current Densities Mean i_{corr}(μA/ cm²)	Change From Control %	Corrosion Potentials Mean E_{corr} (mV)	Change From Control %
X1(TCF)	11.138	**- 13.46%**	-646.852	**-1.5%**
Control	12.871		-637.507	





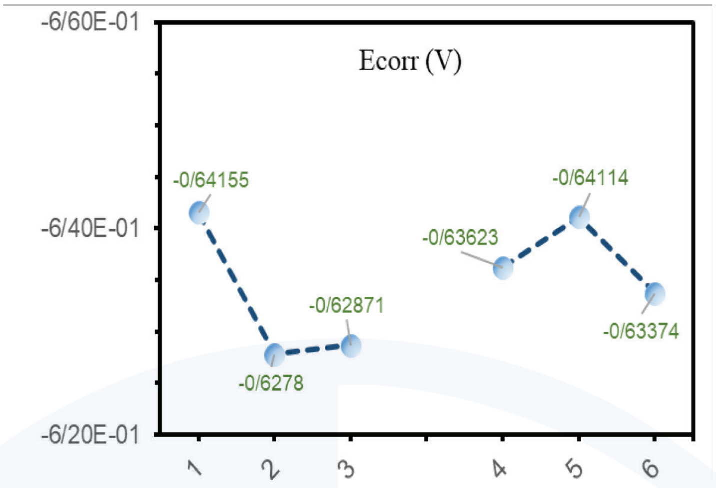


Figure 2. Graph of current density and corrosion potential based on the comparison between two groups, numbers 1, 2, and 3 are control samples, and 4, 5, and 6 are samples under the TCF.

As found in the pictures, the scattering of changes can be seen in the samples under the TCF as well as the control samples, and it is certainly not possible to comment on the effectiveness of this process in creating change.

Aluminum metal is prone to various corrosions, including Pitting Corrosion [11-12], Exfoliation Corrosion [13], Stress Corrosion [14], Filiform Corrosion [15], Water Line Corrosion [10], Crevice Corrosion [16], Cavitation [10], Erosion [17], Microbiological Corrosion [18], Transgranular and Intergranular (Intercrystalline) Corrosion [19].

Each series of aluminum alloys is more prone to a certain type of corrosion. The 1000 series aluminum used in this study is susceptible to intercrystalline corrosion. This corrosion is not visible to the naked eye and spreads at the border of grains and crystals. It is effective in changing the mechanical properties and the possibility of rupture. In water at a temperature of 60–70 ºC, the sensitivity to intercrystalline corrosion increases with the increasing purity of the metal.

To study this change, it is necessary to design more complete experiments to intensify the environment and more accurate equipment [19,10]. However, in the routine standard examination in this experiment, we see small changes in the corrosion process. The 1000-series aluminum is inherently resistant to this type of (tested) corrosion.

Microstructure analysis by XRD method

In order to investigate the possibility of affecting Consciousness Bond Field on the structure of matter in atomic dimensions, the XRD method was used to examine the structure of aluminum. Crystalline lattice information such as lattice parameter, size of crystalline areas, Lattice strain, and the possibility of some crystalline defects that can be examined by XRD analysis have specific effects on the behavior of materials [20-27].

Parameters related to the crystalline structure of aluminum samples and mean values groups and standard deviation for each group were calculated (Table 5).

Table 5 . Parameters related to the crystal structure of aluminum samples

	Control								
	1	S.U.	**2**	S.U.	**3**	S.U.	**Mean**	Standard Deviation	%
Lattice Parameter	**4.0526676**	4.99E-05	**4.0526237**	5.18E-05	**4.050832**	5.18E-05	**4.0520411**	0.00	
crystallite size	**4626.9634**	384.4204	**4768.3184**	1.2199256	**3140.2742**	11.013911	**4178.518**	7.36E+02	
Microstrain	**2.24E-04**	1.48E-05	**3.44E-04**	1.06E-05	**3.47E-04**	1.11E-05	**3.05E-04**	5.71E-05	
intrinsic	1.79E-11		2.36E-06		3.41E-06		**1.92E-06**	1.42E-06	
extrinsic	3.91E-05		3.86E-05		3.84E-05		**3.87E-05**	3.062E-07	
Twin defect	5.21E-10		2.37E-07		1.52E-05		**5.16E-06**	7.128E-06	
	X1(TCF)								
	4	S.U.	**5**	S.U.	**6**	S.U.	**Mean**	**Standard Deviation**	%
Lattice Parameter	**4.021798**	4.63E-05	**4.0499344**	4.63E-05	**4.051243**	4.97E-05	**4.0409918**	0.01	
crystallite size	**3543.1538**	9.770131	**5329.5815**	37.58558	**3506.65**	207.1544	**4126.461**	8.51E+02	
Microstrain	**3.49E-04**	1.01E-05	**2.44E-04**	1.20E-05	**3.05E-04**	1.23E-05	**2.99E-04**	4.32E-05	
Intrinsic	9.00E-06		2.57E-05		5.79E-10		1.16E-05	1.07E-05	504%
Extrinsic	5.04E-05		4.88E-05		6.62E-05		5.51E-05	7.844E-06	40.24%
Twin defect	4.83E-07		6.92E-06		1.97E-09		2.47E-06	3.155E-06	-50.21%

Discussion and review of the changes of XRD

Lattice parameter

The lattice parameter refers to the physical dimensions of the unit cell in a crystalline lattice. If the ratio is smaller, it means that the lattice is more compact, and if it is larger, it means that the lattice is more expanded [20-27]. No significant changes were observed in this parameter for the samples.

Lattice strain (Microstrain)

Crystalline lattice size differences lead to the formation of lattice strain [20-27], and in the average of the samples under the CF a slight difference has arisen.

Crystalline size

This factor is partly representative of the crystalline cells that must be created without strain or defect [20-27]. This parameter is somewhat representative of crystalline cells that are considered almost without strain or defect [20-27]. It is related to the lattice strain and has changed slightly under the CF just like strain.

Intrinsic defects

In the CF group, this defect is seen more with a difference by an average of (~504%).

Extrinsic Defects

This disorder has increased under the CF by an average of (~ 40%).

Twin Defects

Twin defects represent a special type of boundary that is created by the mirror symmetry of the crystalline lattice. The twin boundary increases the strength of the material. This parameter has decreased on average (~ % 50).

Conclusion

- Extrinsic defects in the TCF group increased on average (~ 40%) compared to the control group.
- Intrinsic defects in the group under the TCF increased by an average of (~ 504%) compared to the control group.
- Twin defects in the group under the TCF decreased by (~ 50%).

In general, a crystalline defect is a disorder of the atoms and ions' order in a part of the crystalline lattice of matter. Manufacturing processes, such as mechanical work and metal deformation, can increase lattice defects and strain. Entering alloy elements can also affect atomic distances and lattice parameters [28-29].

Being one-element, similarities in composition and impurities in the samples and no difference in how they are processed, make the factor of Consciousness Bond Field to be recognized as the possible cause for these changes. Also, in pure aluminum (1000-series), electrical conductivity, ductility, and corrosion resistance are among the inherent properties [10].

According to the study of aluminum without preheating [30] Since pure aluminum (99.75% purity, according to spectrochemical analysis after casting) is used in this research and according to the principles of T-Consciousness and TCFs, the pure elements of the Mendeleev table are included in the category of fixed TCFs, the pure aluminium is not influenced by the variable TCFs, which is Consciousness Bond Field in this study. In other words, participation in reaction by pure aluminium due to the influence of this Field is not expected, and some of the principal factors of this metal remain in a stable state [30].

The structure of crystal lattice is related to the collection of atoms and the above experiment shows that the variable TCFs of Consciousness Bond Field influence the collective properties and not the individual properties. It should be noted that the effect of the variable TCFs, such as Consciousness Bond Field on materials with chemical compounds is to change the reactions [5]. But in the case of pure materials from the point of view of the matter, changes in the principal factors are not expected. However, the same material is a collection of millions of atoms, and in terms of atomic structure, changes in the collection of atoms are possible. Therefore:

Unalloyed aluminum under the Consciousness Bond Field was more disordered in terms of crystalline lattice structure and no significant changes were observed in the properties [30].

Determining the physical and microstructural mechanisms that have occurred to alter properties under the TCF requires more specialized studies using more equipment. But preliminary results show that TCF as a factor independent of matter and energy and even information could have measurable effects on matter.

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