

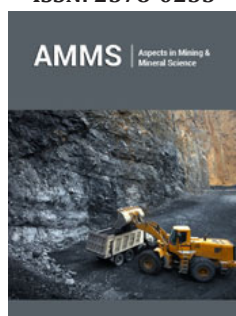
# Powder X-ray Diffraction and Particle Size Analysis of the Consciousness Energy Healing Treated Vanadium Pentoxide ( $V_2O_5$ )

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## Abstract

Vanadium pentoxide ( $V_2O_5$ ) is an inorganic compound, which is used for the chemical synthesis and other industrial applications. In this study, the impact of the Trivedi Effect<sup>®</sup>-Consciousness Energy Healing Treatment on the physicochemical properties of  $V_2O_5$  powder was evaluated using powder X-ray diffraction and particle size distribution analytical techniques.  $V_2O_5$  powder sample was divided into two parts. One part of the sample received the Trivedi Effect<sup>®</sup>-Consciousness Energy Healing Treatment remotely by a renowned Biofield Energy Healer, Gopal Nayak was termed as a Consciousness Energy Healing Treated  $V_2O_5$  sample, while the other part of the sample was called as a control sample. The PXRD peak intensities of the treated  $V_2O_5$  were significantly altered in the range from -14.29% to 54.05% compared to the control sample. Similarly, the crystallite sizes of the treated  $V_2O_5$  were significantly altered in the range from -13% to 111.48% compared to the control sample. However, the average crystallite size of the treated  $V_2O_5$  (585.74) was significantly increased by 18.08% compared with the control sample (496.04) (Figure 1). The particle size values in the treated  $V_2O_5$  were significantly decreased by 28.27% ( $d_{10}$ ), 13.6% ( $d_{50}$ ), 7.7% ( $d_{90}$ ), and 10.25% {D (4,3)} compared to the control sample. Thus, the specific surface area of treated  $V_2O_5$  powder (0.393m<sup>2</sup>/g) was significantly increased by 64.44% compared with the control sample (0.239m<sup>2</sup>/g). The results concluded that the Consciousness Energy Healing Treatment might have generated a new polymorphic form of  $V_2O_5$  which would improve the solubility, appearance due to larger crystallite/particle size and reduced surface area compared to the control sample. The treated  $V_2O_5$  would also be useful for the industrial applications, i.e., bolometers and microbolometer arrays for thermal imaging, ethanol sensor, redox batteries for energy storage, etc.

**Keywords:** Vanadium pentoxide; Consciousness energy healing treatment; The Trivedi effect<sup>®</sup>; PXRD; Particle size

## Introduction

Vanadium pentoxide ( $V_2O_5$ ) is an inorganic compound with high oxidation state.  $V_2O_5$  is used for the production of an alloy of iron and vanadium (ferrovanadium), sulfuric acid, phthalic anhydride, and maleic anhydride. It is also used as a detector material in bolometers and microbolometer arrays for thermal imaging, ethanol sensor, and redox batteries for energy storage [1-3].  $V_2O_5$  is very toxic to humans, which forms vanadate ion ( $VO_3^{4-}$ ) by hydrolysis of  $V_2O_5$  at higher pH, which appears to inhibit the enzymes that process phosphate ( $PO_4^{3-}$ ) [4].

The physical and chemical properties of a substance play a critical role in manufacturing and other industrial applications. It was experimentally proved that the Biofield Energy Healing Treatment (Consciousness Energy Healing Treatment; the Trivedi Effect<sup>®</sup>) has a substantial impact on the physicochemical properties of many substances [5-7]. The Trivedi Effect<sup>®</sup> is a natural and the only scientifically proven phenomenon in which a skilled person can harness this intelligent energy from the Universe and can transfer it anywhere on the planet via the possible mediation of neutrinos [7]. The "Biofield" is a unique energy field which exists surrounding the every living organism's body known as Biofield Energy, which is infinite, para-dimensional electromagnetic field. Biofield based Energy Healing Therapies have been reported to have significant outcomes against various disease conditions [8]. The National Institutes of Health/National Center for Complementary and Alternative Medicine (NIH/NCCAM) recommend and included the Energy therapy under Complementary and Alternative Medicine (CAM) category that has been accepted by the most of the U.S. population with several advantages [9, 10]. Many scientific experiments were conducted to prove the impact of

the Trivedi Effect®-Consciousness Energy Healing Treatment on the non-living and living object(s). The Consciousness Energy Healing Treatment was proved with significant outcome in field of organic chemistry [11,12], material science [13,14], nutraceuticals [15,16], pharmaceutical sciences [17,18], cell biology [19,20], microbiology [21,22], and agriculture science [23, 24]. Therefore, this study was designed to determine the impact of the Trivedi Effect®-Consciousness Energy Healing Treatment on the physicochemical properties of  $V_2O_5$  powder using powder X-ray diffraction (PXRD) and particle size analysis (PSA).

## Materials and Methods

### Chemicals and reagents

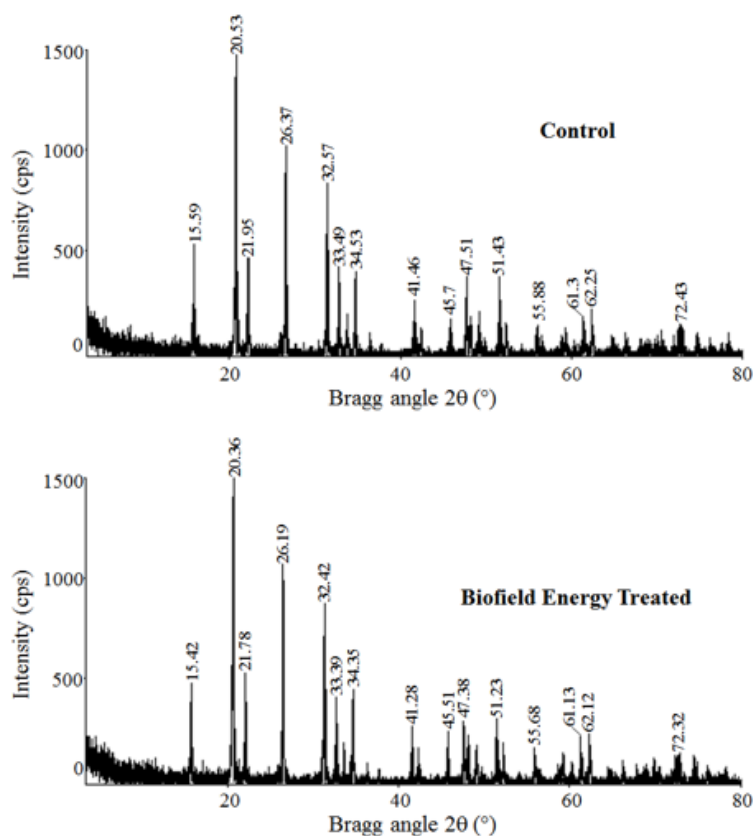
$V_2O_5$  powder was purchased from Sigma-Aldrich, India and other chemicals used during the experiments also purchased in India.

### Consciousness energy healing treatment strategies

The test sample  $V_2O_5$  powder was divided into two parts. One part of  $V_2O_5$  powder sample was received the Consciousness Energy Healing Treatment (the Trivedi Effect®) remotely under standard laboratory conditions for 3 minutes by the renowned Biofield Energy Healer, Gopal Nayak, India, known as the treated  $V_2O_5$ .

## Results and Discussion

### Powder X-ray diffraction (PXRD) analysis



**Figure 1:** PXRD diffractograms of the control and consciousness energy healing treated  $V_2O_5$ .

sample. The other part of  $V_2O_5$  powder sample was treated with a “sham” healer considered as a control sample. The “sham” healer did not have any idea about the Consciousness Energy Healing Treatment. After the treatment, both the  $V_2O_5$  samples were kept in sealed conditions and characterized using PXRD and PSA analytical techniques.

### Characterization

The PXRD analysis of  $V_2O_5$  powder samples was performed with the help of Rigaku MiniFlex-II Desktop X-ray diffractometer (Japan) [25,26]. The average size of crystallites was calculated from PXRD data using the Scherrer’s formula (1)

$$G = k\lambda/\beta\cos\theta \quad (1)$$

Where G is the crystallite size in nm, k is the equipment constant,  $\lambda$  is the radiation wavelength,  $\beta$  is the full-width at half maximum, and  $\theta$  is the Bragg angle [27]. Similarly, the PSA of  $V_2O_5$  was performed with the help of Malvern Mastersizer 2000 (UK) using the wet method [28,29]. The % change in peak intensity, crystallite size, particle size, and specific surface area of the Consciousness Energy Healing Treated  $V_2O_5$  sample was calculated compared with the control sample using the following equation 2:

$$\% \text{ change} = [(Treated - Control) / Control] \times 100 \quad (2)$$

The diffractograms of the control and Consciousness Energy Treated  $V_2O_5$  powder showed sharp and intense peaks (Figure 1) indicated that both the samples were crystalline in nature. The PXRD diffractograms of the control and Consciousness Energy Healing Treated  $V_2O_5$  samples showed the highest peak intensity at  $2\theta$  equal to  $20.53^\circ$  and  $20.36^\circ$ , respectively (Table 1 & 2). Overall the peak intensities of the Consciousness Energy Healing Treated  $V_2O_5$  were significantly altered in the range from -14.29% to 54.05% compared to the control sample (Table 1, entry 1-15). Similarly, the crystallite sizes of the treated  $V_2O_5$  were significantly altered in the range from -13% to 111.48% compared to the control sample. However, the average crystallite size of the treated  $V_2O_5$  (585.74) was significantly increased by 18.08% compared with the

control sample (496.04). The alteration in the crystallite sizes and peak intensities significantly of the Consciousness Energy Healing Treated  $V_2O_5$  might have altered the crystal morphology compared with the control sample. If the crystal morphology change, the peak intensity of each diffraction face on the crystalline compound also changes [30], and alterations in the XRD pattern provide the proof of polymorphic transitions [31,32]. From the experimental results, it can be assumed that a new polymorphic form of  $V_2O_5$  has been produced due to Trivedi Effect<sup>®</sup> via the mediation of neutrino oscillation [7]. The new polymorphic forms of a crystal have a substantial impact on the physicochemical properties which are different from the original one [33,34]. Thus, the Consciousness Energy Healing Treated  $V_2O_5$  would be better for industrial use.

**Table 1:** PXRD data for the control and consciousness energy healing treated  $V_2O_5$ .

Entry No.	Bragg angle ( $2\theta$ )		Peak Intensity (%)			Crystallite size (G, nm)		
	Control	Treated	Control	Treated	% Change	Control	Treated	% Change
1	15.59	15.42	53.8	51.9	-3.53	486	504	0.61
2	20.53	20.36	199	209	5.03	427	507	-9.38
3	21.95	21.78	56.7	57	0.53	423	499	-13
4	26.37	26.19	124	119	-4.03	523	595	3.48
5	32.57	32.42	50.6	45.4	-10.28	592	476	0.87
6	33.49	33.39	12.3	11.9	-3.25	581	753	14.22
7	34.53	34.35	47.6	46.9	-1.47	650	568	19.28
8	41.46	41.28	27	34.6	28.15	524	567	3.93
9	45.7	45.51	22.7	22.6	-0.44	592	581	32.79
10	47.51	47.38	42	36	-14.29	769	656	62.63
11	51.43	51.23	40.2	43	6.97	674	670	19.9
12	55.88	55.68	11.1	17.1	54.05	731	658	20.45
13	61.3	61.13	20.3	22.3	9.85	615	554	7.53
14	62.25	62.12	18.9	23.9	26.46	747	654	2.36
15	72.43	72.32	10	14.2	42	775	467	111.48
16	Average crystallite size					496.04	585.74	18.08

**Table 2:** Particle size distribution of the control and consciousness energy healing treated  $V_2O_5$ .

Parameter	$d_{10}$ ( $\mu\text{m}$ )	$d_{50}$ ( $\mu\text{m}$ )	$d_{90}$ ( $\mu\text{m}$ )	D (4,3) ( $\mu\text{m}$ )	SSA ( $\text{m}^2/\text{g}$ )
Control	15.57	49.76	207.39	83.5	0.239
Biofield Energy Treated	11.17	42.99	191.42	74.94	0.393
Percent change (%)	-28.27	-13.6	-7.7	-10.25	64.44

$d_{10}$ ,  $d_{50}$ , and  $d_{90}$ : particle diameter corresponding to 10%, 50%, and 90% of the cumulative distribution, D (4,3): the average mass-volume diameter, and SSA: the specific surface area.

### Particle Size Analysis (PSA)

The particle size distribution analysis of both the control and Consciousness Energy Healing Treated  $V_2O_5$  powder was performed and the data are presented in Table 2. The particle size values in the Consciousness Energy Healing Treated  $V_2O_5$  were significantly decreased at  $d_{10}$ ,  $d_{50}$ ,  $d_{90}$ , and D (4,3) by 28.27%, 13.6%, 7.7%, and 10.25%, respectively compared to the control sample. Thus, the specific surface area of Consciousness Energy Healing Treated

$V_2O_5$  powder ( $0.393\text{m}^2/\text{g}$ ) was significantly increased by 64.44% compared with the control sample ( $0.239\text{m}^2/\text{g}$ ). The results suggested that the Consciousness Energy Healing Treatment might be acting like a quantum of energy for cracking the larger particle into the smaller one and hence increased the surface area of  $V_2O_5$  powder compared to the control sample. Incising the surface area might increase the solubility and dissolution rate [35] of the Consciousness Energy Healing Treated  $V_2O_5$  and would be better for the industrial applications.

## Conclusion

The Trivedi Effect®-Consciousness Energy Healing Treatment showed significant effects on the peak intensities, crystallite size, particle size, surface area, and thermal properties of the  $V_2O_5$  powder. The PXRD peak intensities of the Consciousness Energy Healing Treated  $V_2O_5$  were significantly altered in the range from -14.29% to 54.05% compared to the control sample. Similarly, the crystallite sizes of the Consciousness Energy Healing Treated  $V_2O_5$  were significantly altered in the range from -13% to 111.48% compared to the control sample. However, the average crystallite size of the Consciousness Energy Healing Treated  $V_2O_5$  was significantly increased by 18.08% compared with the control sample. The particle size values in the Consciousness Energy Healing Treated  $V_2O_5$  were significantly decreased by 28.27% ( $d_{10}$ ), 13.6% ( $d_{50}$ ), 7.7% ( $d_{90}$ ), and 10.25% {D (4,3)} compared to the control sample. Thus, the specific surface area of Consciousness Energy Healing Treated  $V_2O_5$  powder was significantly increased by 64.44% compared with the control sample. The results concluded that the Consciousness Energy Healing Treatment might have generated a new polymorphic form of  $V_2O_5$  which would improve the solubility, appearance due to larger crystallite/particle size and reduced surface area compared to the control sample. The treated  $V_2O_5$  would also be useful for the industrial applications, i.e., bolometers and microbolometer arrays for thermal imaging, ethanol sensor, redox batteries for energy storage, etc.

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