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10 %

CHANGES IN THE STRUCTURE OF THE CERAMICS SURFACE UNDER THE INFLUENCE OF HYDROFLUOROUS ACID

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Abstract. *The surface of the ceramic material was treated with a 10 % solution of hydrofluoric acid. It was shown that hydrofluoric acid actively reacts with the main components of the ceramic material to form various soluble and slightly soluble compounds. The use of ultrasonic vibrations allows increasing the solubility of poorly soluble compounds. A significant change in the morphology of the ceramic workpiece surface was found when it was treated with hydrofluoric acid. At the same time, the depth and nature of these changes significantly depend on the treatment time.*

Keywords: ceramics, hydrofluoric acid, processing, surface, morphology

SiO₂ [1].
[2].
[3].
[4].
[5].

[6].

[7].

[8].

Effect 20g 1 (Ivoclar,), 65 % SiO₂ [9].

(HF) Cond Ac Porcelana 10 % (FGM,).

10 %- HF, (60, 90 120).

IPS e.max Ceram Opal

10 %- HF

5-6

EDX (Tescan,) Tescan VEGA 3 LMH 1200

(SiO₂), 10 %- F.

« » SiO₂ 65,28 . %.

(Na₂O, K₂O Al₂O₃), (SrO, ZnO CuO).

. 1-4 (SiO₂).

« »

(

10 %- HF, (. 2-4).

HF,

HF.

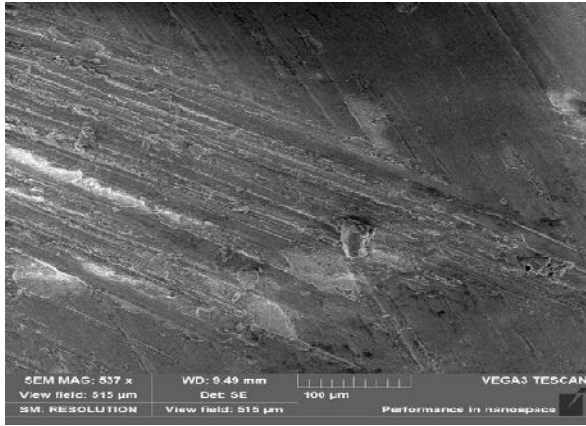
SiO₂, HF

$$\text{SiO}_2 + 4 \text{HF} = \text{SiF}_4 + 2\text{H}_2\text{O}. \quad (1)$$

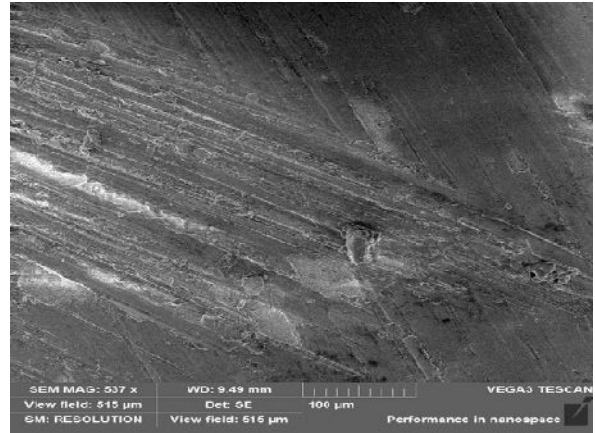
SiF₄

HF

-



. 1.

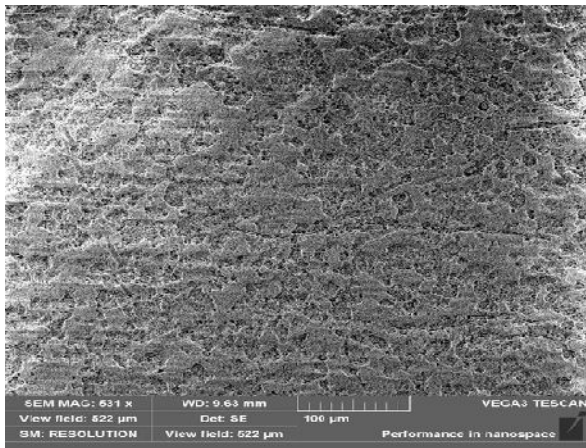


. 2.

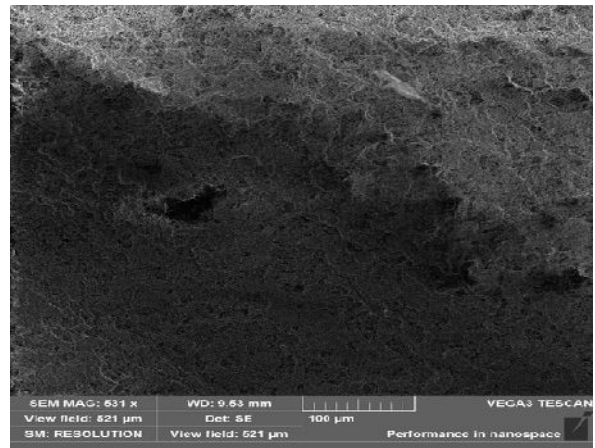
10 %

HF

60



. 3.



. 4.

10 %

HF

90

10 %

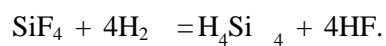
HF

120

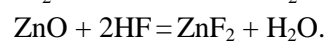
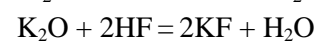
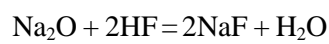
(1) (2),



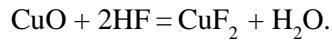
(1) SiF₄



SiO₂ HF,



- aO, SrO, Al₂O₃,
 HF. (II) HF

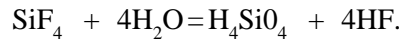
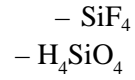


(II),

(NaF KF)

SiF₄).

SiF₄,



(H₄SiO₄)

- H₆Si₂O₇



[10].

120

(. . . 3, 4).

60, 90
60 , -

90 120

(. . . 3).

. 3 5,

90

(. . . 3).

120

(. . . 4).

90 .

