

Jülich, 20th May 2008

ANALYSIS REPORT

Customer : White Peaks Dental Systems GmbH & Co. KG, Essen, Germany
Analysis task: Activity measurement of the nuclides ^{232}Th and ^{238}U in dental ceramic.
Analyst : Dr. G. Küppers (Tel. 02461-614663)

Sample preparation and measurement:

An amount of about 30g of the ceramic sample was measured with a well-shielded γ -ray spectrometer for 20 hours. Calibration of the detector was carried out with a ^{152}Eu -doped sand standard of the same geometry. By the use of the sand standard the γ -self-absorption within the sample matrix was taken into account.

Results:

Some decay products of the decay chains of ^{232}Th and ^{238}U are γ -emitting nuclides and can be measured by γ -ray spectrometry. Activities of ^{232}Th and ^{238}U were calculated with the assumption of radioactive equilibrium.


Detection limits were calculated according to DIN 25482.


Sample	^{238}U [Bq/g]	^{232}Th [Bq/g]
ZrO ₂	< 0.03	< 0.03

Remarks:

The activity of ^{238}U is far below the allowable threshold of 1 Bq/g according to ISO-Norm 6872. For comparison, the mean activities of ^{238}U and ^{232}Th in the earth's crust are in the range of 0.03 Bq/g.

Sincerely yours


(Dr. E. Joußen)


(Dr. G. Küppers)