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To all users of the
Beta Secondary Standard 2 (BSS2)

Ihr Zeichen:
Ihre Nachricht vom:
Mein Zeichen: 6.3-RB
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Information for the users of the Beta Secondary Standard 2 (BSS2)

Dear Ladies and Gentlemen,
dear users of the Beta Secondary Standard 2 (BSS2),

We would like to inform you about a new version of the file "BetaFakt.ini" to be used with the software of your BSS2. We strongly recommend you to use the new file. It implements the new ISO standard 6980-3:2006 and corrects a remaining error concerning the humidity correction for Pm-147. The changes due to ISO 6980-3 affect the dose values of Sr-90 with the rod phantom and the uncertainties of all nuclides. In addition, the uncertainty contribution due to the uncertainty of the distance during the irradiation are implemented. On page two of this letter, a text taken out of the file BetaFakt.ini explains in detail the changes.

To implement the file into your system, you just have to overwrite the old version with this new one in the Windows-folder, e.g. C:\Windows\BetaFakt.ini or C:\WinXP\BetaFakt.ini.

In case you are using Windows XP, we recommend you to use the actual version of the software itself (version 3.4) as well. In order to do so, you have to install a driver by running "Ksetup.exe" in the subdirectory "\Runtime-Installation". After successfully installing this driver, you can copy the program itself "Beta3234.exe" to any place of your computer and run it.

The former version 4.0 of BetaFakt.ini should have been distributed about one year ago, however due to a wrong email address in our data base this did not happen. For that reason, you can now directly upgrade from version 3.0 to version 5.0 of the file BetaFakt.ini.

Kind regards,

Dr. R. Behrens

Information taken out of the file "BetaFakt.ini" that explains in detail the changes from version 3.0 to this version 5.0 (and former version 4.0) of BetaFakt.ini:

[Version]
Ver=5.0
Dat=2008.04.28

[Comments]
Filename: BetaFakt.ini

Comments to Version 5.0 (April 2008):

The uncertainty due to the irradiation distance was introduced into the uncertainty calculation.
The dose(rate) values remain unchanged.

This information is used from software version 3.4 and higher.

Versions before 3.4 do not use it and consequently assume no uncertainty in the distance.
The uncertainty of the irradiation distance results in two contributions. It is the larger, the larger the irradiation angle is, therefore, different values are given for different angles.
The two contributions to the final uncertainty are

1. due to the quadratic distance law, equivalent for all sources and quantities, see e.g. [RAbstand_Abstand20]
2. due to the absorption of the beta particles in air, this is about 1.6% for Pm at 60°, about 0.1% for Kr at 60° and 0.0% for Sr, thus no values for Sr are given, see e.g. [RPmLuftabsorptionAbstand20]

Comments to Version 4.1 (Jul 2007):

No change in the data, only the following comment added:

Uncertainties given are standard uncertainties (k=1) and are multiplied by 2 in the BSS2-software

Comments to Version 4.0 (Feb 2007):

1. Values from the new ISO-6980-3:2006 are used in the following parts:

a) Angular factors for H'(0.07) and Hp(0.07) are taken from ISO (two digits instead of three digits before), see e.g. [PmHp007WinkelFaktorQuaderMitFilterAbstand20]

b) No difference between rod- and slab phantom in the ISO standard:
=> For Sr, the dose(rates) for the rod phantom are about 3% larger than before!

=> For Kr and Pm, this gives no change.

see e.g. [SrHp007WinkelFaktorQuaderMitFilterAbstand30]
and [SrHp007WinkelFaktorStabMitFilterAbstand30]

c) Standard uncertainty for angular factors from ISO are used => Old values between 0.6% and 1.2% changed to new values between 2.0% and 4.0%:

New values:

- Pm: Hp(0.07), H'(0.07), and Dg(0): For the slab and rod phantom:
2% up to 4% for 0° up to 60°,

see e.g. [RPmHp007WinkelFaktorQuaderMitFilterAbstand20]

- Kr: Hp(0.07), H'(0.07), and Dg(0): For the slab and rod phantom:
2% for 0° up to 60°,

see e.g. [RKrHp007WinkelFaktorQuaderMitFilterAbstand30]

- Sr: Hp(0.07), H'(0.07), and Dg(0): For the slab phantom:
2% for 0° up to 60°,

see e.g. [RSrHp007WinkelFaktorQuaderMitFilterAbstand30]

- Sr: Hp(0.07): For the rod phantom:
3% for 0° up to 60°,

see e.g. [RSrHp007WinkelFaktorStabMitFilterAbstand30]

2. A factor for humidity correction, [FeuchteNurExpFaktor], was changed for Pm from 0,000437 to -0,000437. This correction was wrong in ISO-6980:1996 and so in BetaFakt.ini version 2.0 and 3.0 but correct in version 2.1.

=> Consequences:

Dose(rate) values can be wrong by up to +/-1% for relative humidities between 25% and 65% during the irradiation. This error occurs depending on the used version of the software and of BetaFakt.ini:

Software-Version	BetaFakt.ini-Version	Humidity correction
2.x	2.0;3.0	wrong
2.x	2.1;4.0	correct
3.x	2.0;2.1;3.0;4.0	correct

Software version 3.x (distributed since March 2005; running with Windows Xp) does not use this factor, as the correction due to air humidity is done together with temperature and pressure within the correction for air density.