

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

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

Ihr Zeichen:
Ihre Nachricht vom:
Mein Zeichen: 6.3-RB
Meine Nachricht vom:

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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" that is used by 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. 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 addition, we recommend you to use the actual version of the software itself, version 3.2. 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 "Beta3232.exe" to any place of your computer and run it.

Since version 3.0, the irradiated dose (rate) is corrected for the air density according to ISO 6980-2:2004. The version 2.x of the software corrects the dose rate separately for air pressure and temperature on the one hand and for air humidity on the other hand. The deviation of the two methods to correct the dose rate is less than 0,2%.

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 4.0 of BetaFakt.ini:

[Comments]

Filename: BetaFakt.ini

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 $H_p(0.07)$ 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: $H_p(0.07)$, $H'(0.07)$, and $D_g(0)$: For the slab and rod phantom:
2% up to 4% for 0° up to 60° ,
see e.g. [RPmHp007WinkelFaktorQuaderMitFilterAbstand20]
 - Kr: $H_p(0.07)$, $H'(0.07)$, and $D_g(0)$: For the slab and rod phantom:
2% for 0° up to 60° ,
see e.g. [RKrHp007WinkelFaktorQuaderMitFilterAbstand30]
 - Sr: $H_p(0.07)$, $H'(0.07)$, and $D_g(0)$: For the slab phantom:
2% for 0° up to 60° ,
see e.g. [RSrHp007WinkelFaktorQuaderMitFilterAbstand30]
 - Sr: $H_p(0.07)$: 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.