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From: Delf Heger [mailto:dh@tpp.ch]
Sent: Tuesday, October 03, 2000 11:14 AM
To: 'sbs-stds@listserv.olemiss.edu'
Subject: Standard 3 d / Petition

Well, TPP is one of the TC labware manufacturers products are manufactured in Switzerland and we would like to meet SBS standards. After a first contact we've had the impression that we might meet Standard 3 d. We herewith propose a modified the standard 3d or create a new standard.

	TPP	SBS / Nunc
Flange Height	3mm /	3 d 2.41 mm +/- 0.38 mm
Petition		+/- 0.59 mm
Interruptions		
Length	32mm	30 mm
Petition		not exceed 32 mm
Flange Width	ok	

Looking forward to hear from you. Regards Delf

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From: Feiglin, Marc
Sent: Friday, October 20, 2000 3:48 PM
To: 'sbs-stds@listserv.olemiss.edu'
Subject: September Meeting Minutes

Minutes of the September 7, 2000 Meeting of the SBS Microplate Standards Discussion Group

Attendees:
Peter Collins, Abgene, peterc@abgene.com
Neal Holtzman, Abgene, neal@abgene.com
David Aziz, Axon Instruments, davida@axon.com
Mike Septak, BD Biosciences, michael_septak@bd.com
Bryan Wildman, Beckman Coulter, Inc., bryan.wildman@sagian.com
Carol Ann Homon, Boehringer Ingelheim, chomon@rdg.boehringer-ingelheim.com
Rene Groenewoud, Corning, groenewor@corning.com
Jeri McMahon, Corning, mcmahonj@corning.com
Mike Orzechowski, Corning, orzechowm@corning.com
R. Brino, Greiner America, rgpb46@aol.com
Gunther Knebel, Greiner Labortechnik, gknebel@greiner-lab.de
Amer El-Hage , LJL Biosystems, aelhage@ljlbio.com
Kevin Oldenburg, MatriCal, kevin.oldenburg@att.net
Marc Feiglin, Merck & Co., marc_feiglin@merck.com
Dean Hafeman, Molecular Devices, dean_hafeman@moldev.com
Tormod Opsahl, Molecular Devices,
Keith Whittlinger, Nalge Nunc Int'l, kwhittling@nalgenunc.com
Simon Zhang, Nalge Nunc Int'l, szhang@nalgenunc.com
Helge Skare, Skatron Instruments, helge_skare@organizer.net
Jon Lipsky, Whatman, jlipsky@whatman.com

Agenda:
- Committee Organization
  - ANSI
- Proposed Standard Updates
  - Modifications
    - Proposed Standard 5: Rigidity
    - Proposed Standard 4c: 1536 well position
  - New Proposals
    - Plate Height
    - Optical Quality

Committee Organization:
There was a discussion on the types of committee structures accepted by ANSI. The two applicable choices were the Accredited Standards Committee or the Accredited Canvass Method. The Accredited Standards Committee is a more formal organization with defined consensus body, secretariat, and officers. The Accredited Canvass Method is less formal. It requires a sponsor, who assembles the initial canvass list, and a Canvass list of interested companies. The formation of the Canvass list can be set in any method that complies with the ANSI requirements. In summary, these requirements are as follows:
- The standards development process shall be open to all directly and materially affected persons.

The ListServ and meetings have always been and will always remain open to any interested parties.
- No undue financial barriers to participation shall exist.

There is no fee to participate in this working group
- Participation in the standards development process shall not be conditional upon membership in any organization.

One does not have to be a member of the SBS to participate.
- No unreasonable technical qualifications shall be required for membership.
- The accredited standards developer (SBS) shall assure that timely notice to create, revise, reaffirm, or withdraw a standard is made in all media appropriate to the industry.

All minutes are made available on the SBS web site. Regular updates are published in the journal.

· The method by which a consensus body is established shall be clearly indicated in the operating procedures.

The method for establishing a consensus body was decided upon at the August and September meetings. When a vote was needed, it would only be performed at a meeting. Any company that had participated in 2 of the previous 4 meetings, including the meeting at which the vote was taking place, would have the right to cast a vote. Each company would only have a single vote. This plan was unanimously agreed upon at the September meeting.

· A clear description of the purpose of the proposed activity shall be available from its initiation.

· Readily available source for further information shall exist.

The SBS web site contains copies of all the minutes, the latest proposed specifications, and contact information.

· The consensus body shall have a balance of interests, not dominated by any single interest or interest category.

There is a balanced participation on the ListServ between microplate manufacturers, instrument manufacturers, and other end users. However, the end users are not well represented at the actual meetings.

· Should such balance not exist, it is the responsibility of the accredited standards developer to attempt to achieve such a balanced membership. Approval of accreditation does not imply approval of the membership of a consensus body.

· The interest categories shall be identified and defined.

The three interest categories are microplate manufacturers, instrument manufacturers, and other end users. Some members represent more than one interest category (i.e. microplate and instrument manufacturers.)

· Adequate representation by all materially affected and interested persons shall exist.

The ListServ has over 150 participants. The meetings typically attract 25-50 people.

· Representative user views shall be actively sought by the accredited standards developer.

· The accredited standards developer shall ensure that user participants have requisite technical knowledge.

After discussing the committee choices at both the August and September meetings, the Canvass Method was chosen. The following procedures were also unanimously agreed upon:

· The definition of interested companies would be companies that attended 2 out of the 4 last meetings

o The meeting at which a vote was taken would be included.

· Each company would receive a single vote.

o A company is as defined on a business card (i.e. Sagian is a division of Beckman not a separate company)

o ANSI does not permit a single individual to represent more than one canvass for voting purposes

o Representation must be balances between “categories of interest.”

· All voting would be performed at meetings. There would be no absentee ballots permitted.

Based on these procedures, the following companies would have voting rights if a representative attends the next meeting:

· Abgene
· Aurora Biosciences
· Axon Instruments
· BD Biosciences
· Beckman Coulter, Inc.
· Boehringer-Ingelheim
· Corning
· Dynex Technologies
· Electric Imaging
· Greiner Labortechnik
· LJL Biosystems
· MatriCal
· Matrix Technologies
· Merck & Co.
· MJ Research
· MMI
· Molecular Devices
· Nalge Nunc Int'l
· Orbital Biosciences
· Pall Gelman Lab
· RWJ PRI
· Skatron Instruments
· Whatman Polyfiltronics
· Zymark Corp.

Modifications to Proposed Standards
The following modifications to the existing proposed standards were made and approved by the committee.

- Standard 1a- Footprint
  - Removed section on External Clearance to the Plate Bottom in text and drawings
  - Removed section on Chamfer in text and drawings
  - Added statement "The footprint must be continuous and uninterrupted around the base of the plate" to match drawing
  - Removed section on rigidity
- Standard 2a- Plate Height
  - Added section on External Clearance to the Plate Bottom in text and drawings
- Standards 3- Flange
  - Added section on Chamfer in text and drawings
  - Modified standard 3d to use edge measurements rather than centerline
- Standard 4c- 1536 well position
  - Increased decimal places to make plate symmetrical
- Standard 5- Rigidity
  - Created a new separate standard

The committee voted unanimously to forward proposed standards 1a, 2a, 3a, 3b, 3c, 3d, 3e, 4a, and 4b to the SBS Council for publication. Standards 4c and 5 are still undergoing review by the committee.

New Proposed Standards:
The suggestion was put forward to begin investigating the development of additional standards in series 2- Plate Heights.

- For 1536 well plates, the conversation began as to whether it was possible to agree on a standard height, or whether a flatness standard was necessary.
- For storage plates, there is a choice of using existing heights with large tolerances of defining new heights. The latter option was preferred.

The next meeting will be held to coincide with LabAutomation 2001 in Palm Springs, CA.

Current Proposed Standards:
The September 2000 revision of the proposed standards follow:

Standard 1a: Microplate Footprint
Footprint
The outside dimension of the base footprint, measured within 12.7 mm (0.5000 inches) of the outside corners, shall be as follows:
· Length 127.76 mm ± 0.25 mm (5.0299 inches ± 0.0098 inches)
· Width 85.48 mm ± 0.25 mm (3.3654 inches ± 0.0098 inches)
The outside dimension of the base footprint, measured at any point along the side, shall be as follows:
· Length 127.76 mm ± 0.5 mm (5.0299 inches ± 0.0197 inches)
· Width 85.48 mm ± 0.5 mm (3.3654 inches ± 0.0197 inches)
The footprint must be continuous and uninterrupted around the base of the plate.

Corner Radius
The four outside corners of the plate's bottom flange shall have a corner radius to the outside of 3.18 mm ± 1.6 mm (0.1252 inch ± 0.0630 inches)

Standard 2a: Microplate Height- Standard Height
Plate Height
The plate height, measured from Datum A (the resting plane) to the maximum protrusion of the perimeter wells, shall be 14.35 mm ± 0.25 mm (0.5650 inches ± 0.0098 inches)
The overall plate height, measured from Datum A (the resting plane) to the maximum protrusion of the plate, shall be 14.35 mm ± 0.76 mm (0.5650 inches ± 0.0299 inches)

Top Surface
The maximum allowable projection above the top stacking surface is 0.76 mm (0.0299 inches). The top stacking surface is defined as that surface on which another plate would rest when stacked one on another.
When resting on a flat surface, the top surface of the plate must be parallel to the resting surface within 0.76 mm (0.0299 inches)

External Clearance to the Plate Bottom
The minimum clearance from Datum A (the resting plane) to the plane of the bottom external surface of the wells shall be 1 mm (0.0394 inches). This clearance is limited to the area of the wells.

Standard 3a: Bottom-Outside Flange Height- Short Flange
Flange Height
The height of the bottom outside flange shall be 2.41 mm ± 0.38 mm (0.0948 inches ± 0.0150 inches). This is measured from Datum A (the bottom-resting plane) to the top of the flange.
All four sides must have the same flange height.

Flange Width
The width of the bottom outside flange measured at the top of the flange shall be a minimum of 1.27 mm (0.0500 inches).

Chamfers (Corner Notches)
The quantity and location of chamfer(s) is optional. If used, the chamfer must not include the flange.

Standard 3b: Bottom-Outside Flange Height- Medium Flange
Flange Height
The height of the bottom outside flange shall be 6.1 mm ± 0.38 mm (0.2402 inches ± 0.0150 inches). This is measured from Datum A (the bottom-resting plane) to the top of the flange.
All four sides must have the same flange height.

Flange Width
The width of the bottom outside flange measured at the top of the flange shall be a minimum of 1.27 mm (0.0500 inches).

Chamfers (Corner Notches)
The quantity and location of chamfer(s) is optional. If used, the chamfer must not include the flange.

Standard 3c: Bottom-Outside Flange Height- Tall Flange
Flange Height
The height of the bottom outside flange shall be 7.62 mm ± 0.38 mm (0.3000 inches ± 0.0150 inches). This is measured from Datum A (the bottom-resting plane) to the top of the flange.
All four sides must have the same flange height.

Flange Width
The width of the bottom outside flange measured at the top of the flange shall be a minimum of 1.27 mm (0.0500 inches).

Chamfers (Corner Notches)
The quantity and location of chamfer(s) is optional. If used, the chamfer must not include the flange.

Standard 3d: Bottom-Outside Flange Height- Short Flange with Interruptions
Flange Height
The height of the bottom outside flange shall be 2.41 mm ± 0.38 mm (0.0948 inches ± 0.0150es). This is measured from Datum A (the bottom-resting plane) to the top of the flange.
All four sides must have the same flange height except for an allowable interruption centered along the long side.

Interruptions
Each of the long sides of the plate shall be allowed to have a single interruption or projection on center.
Each edge of the interruption shall be a minimum of 48.5 mm (1.9094 inches) from the nearest edge of the part.
The height of the flange at the interruption shall not exceed 6.85 mm (0.2697 inches)

Flange Width
The width of the bottom outside flange measured at the top of the flange shall be a minimum of 1.27 mm (0.0500 inches).

Chamfers (Corner Notches)
The quantity and location of chamfer(s) is optional. If used, the chamfer must not include the flange.

Standard 3e: Bottom-Outside Flange Height- Dual Flange Heights
Flange Height
The height of the bottom outside flange shall be 2.41 mm ± 0.38 mm (0.0948 inches ± 0.0150 inches) along the short sides of the plate. This is measured from Datum A (the bottom-resting plane) to the top of the flange.
The height of the bottom outside flange shall be 7.62 mm ± 0.38 mm (0.3000 inches ± 0.0150 inches) along the long sides of the plate. This is measured from Datum A (the bottom-resting plane) to the top of the flange.

Flange Width
The width of the bottom outside flange measured at the top of the flange shall be a minimum of 1.27 mm (0.0500 inches).

Chamfers (Corner Notches)
The quantity and location of chamfer(s) is optional. If used, the chamfer must not include the flange.

Standard 4a: Well Positions- 96 Well Microplate
Well Layout
The wells in a 96 well microplate should be arranged as eight rows by twelve columns.

Well Column Position
The distance between the left outside edge of the plate and the center of the first column of wells shall be 14.38 mm (0.5661 inches)
The left edge of the part will be defined as the two 12.7 mm areas (as measured from the corners) as specified in SBS-1
Each following column shall be an additional 9. mm (0.3543 inches) in distance from the left outside edge of the plate.

Well Row Position
The distance between the top outside edge of the plate and the center of the first row of wells shall be 11.24 mm (0.4425 inches)
The top edge of the part will be defined as the two 12.7 mm areas (as measured from the corners) as specified in SBS-1
Each following row shall be an additional 9. mm (0.3543 inches) in distance from the top outside edge of the plate.

Positional Tolerance
The positional tolerance of the well centers will be specified using so called “True Position”. The center of each well will be within a 0.71 mm (0.0280 inches) diameter of the specified location. This tolerance will apply at “RFS” (regardless of feature size).

Well Markings
The top left well of the plate shall be marked in a distinguishing manner.
The top left well of the plate can be marked with the letter A or numeral 1 located on the left-hand side of the well.
The top left well of the plate can be marked with a numeral 1 located on the upper side of the well.
Additional markings may be provided.

Standard 4b: Well Positions- 384 Well Microplate
Well Layout
The wells in a 384 well microplate should be arranged as sixteen rows by twenty-four columns.

Well Column Position
The distance between the left outside edge of the plate and the center of the first column of wells shall be 12.13 mm (0.4776 inches)
The left edge of the part will be defined as the two 12.7 mm areas (as measured from the corners) as specified in SBS-1
Each following column shall be an additional 4.5 mm (0.1772 inches) in distance from the left outside edge of the plate.

Well Row Position
The distance between the top outside edge of the plate and the center of the first row of wells shall be 8.99 mm (0.3539 inches)
The top edge of the part will be defined as the two 12.7 mm areas (as measured from the corners) as specified in SBS-1
Each following row shall be an additional 4.5 mm (0.1772 inches) in distance from the top outside edge of

Positional Tolerance
The positional tolerance of the well centers will be specified using so called “True Position”. The center of each well will be within a 0.71 mm (0.0280 inches) diameter of the specified location. This tolerance will apply at “RFS” (regardless of feature size).

Well Markings
The top left well of the plate shall be marked in a distinguishing manner.
The top left well of the plate can be marked with the letter A or numeral 1 located on the left-hand side of the well.
The top left well of the plate can be marked with a numeral 1 located on the upper side of the well.
Additional markings may be provided.

Standard 4c: Well Positions- 1536 Well Microplate
Well Layout
The wells in a 1536 well microplate should be arranged as thirty-two rows by forty-eight columns.

Well Column Position
The distance between the left outside edge of the plate and the center of the first column of wells shall be 11.005 mm (0.4333 inches)
The left edge of the part will be defined as the two 12.7 mm areas (as measured from the corners) as specified in SBS-1
Each following column shall be an additional 2.25 mm (0.0886 inches) in distance from the left outside edge of the plate.

Well Row Position
The distance between the top outside edge of the plate and the center of the first row of wells shall be 7.865 mm (0.3096 inches)
The top edge of the part will be defined as the two 12.7 mm areas (as measured from the corners) as specified in SBS-1
Each following row shall be an additional 2.25 mm (0.0886 inches) in distance from the top outside edge of

Positional Tolerance

The positional tolerance of the well centers will be specified using so called “True Position”. The center of each well will be within a 0.25 mm (0.0098 inches) diameter of the specified location. This tolerance will apply at “RFS” (regardless of feature size).

Well Markings
The top left well of the plate shall be marked in a distinguishing manner.
The top left well of the plate can be marked with the letter A or numeral 1 located on the left-hand side of the well.
The top left well of the plate can be marked with a numeral 1 located on the upper side of the well.
Additional markings may be provided.

Standard 5: Side Wall Rigidity

Description of Test Instrument

Testing Protocol
Test Objective:
This test provides a method for determining microplate rigidity through the measurement of sidewall deflection under two applied load conditions. The test result is the deflection difference between the two load conditions. As such, the deflection result correlates to the microplate’s rigidity.
Materials Required:
· Calipers
· Dial Indicator
· Force Gauge
· Microplate Rigidity Test Fixture
· Thermometer
Test Procedure:
1. Use the thermometer to verify that the air temperature of the test room is 20°C +/-2°C.
2. Move the load shaft of the test fixture with your hand to insure that it moves freely.
3. Load a microplate into the test fixture such that the back, left corner seats securely into the corresponding corner of the microplate holder.
4. Slide the microplate holder and microplate left or right to align the pin with the sidewall test point of interest.
5. Lock the microplate holder into position using the thumbscrew.
6. Use calipers to measure the distance from the fixture’s left-most surface to the microplate holder’s left-most surface. Note that the left-most surface faces east when viewing the test fixture from above with the dial indicator in the North position.
7. Record the position of the microplate holder.
8. Use the positioning stage to move the force gauge so that 0.1 kg is applied to the microplate.
9. Record the dial indicator measurement of deflection at this load.
10. Use the positioning stage to move the force gauge so that 1.0 kg is applied to the microplate.
11. Record the dial indicator measurement of deflection at this load.
12. Remove the force gauge or load from the load shaft.
13. Calculate the microplate’s sidewall rigidity by taking the absolute value of the difference in deflection measurements.

Measured Rigidity
The differential displacement between an applied load of 0.1 kg and an applied load of 1.0 kg be no greater than 0.375 mm at any point along the sidewalls.

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From: John Iaconis [mailto:jiaconis@Ce llomics.com]
Sent: Monday, October 23, 2000 8:17 AM
To: sbs-stds@listserv.olemiss.edu
Cc: Larry Zana
Subject: RE: September Meeting Minutes

Mark,
Thank you for forwarding the plate standards meeting minutes and discussion, they are very informative. Are there any requirements to attend an SBS Microplate Standards Discussion Group meeting? What is the meeting schedule?

John M. Iaconis
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E-mail: jiaconis@cellomics.com

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From: Feiglin, Marc
Sent: Monday, October 23, 2000 8:37 AM
To: 'sbs-stds@listserv.olemiss.edu'
Subject: RE: September Meeting Minutes

The plate standards meetings are open to all who wis h to attend. They tend to occur quarterly in conjunction with a related conference. The next meeting will be in January in Palm Springs, CA during LabAutomation 2001. The exact date and time are yet to be set.
Marc

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From: Vladimir Pismenny [mailto:pismennyv@dynextechnologies.com]
Sent: Monday, October 23, 2000 9:10 AM
To: sbs-stds@listserv.olemiss.edu
Subject: RE: September Meeting Minutes

Mark,
Thank you very much for the "Minutes..." and for the job you are doing in our behalf. I also would like to propose our next Microplate Standards meeting to be at Laboratory Automation 2001 Conference in Palm Spring, CA between January 28-30, 2001.

Thanks again,
Vladimir Pismenny, Project Engineer,
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