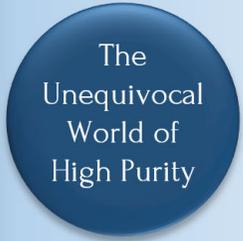




# The BPE Newsletter

A Forum for the Bioprocessing Industry



## Next Meeting - Winter 2020

### Venue & Location:

January 13, 2020 08:00 AM to January 16, 2020 12:00 PM, Monday - Thursday

### Caribe Hilton

<http://www.caribehilton.com>  
1 San Geronimo Street  
San Juan, North Puerto Rico 00901

### Caribe Hilton restaurant's:

Nectar	Breakfast only	<a href="#">Menu</a>
Mojito's	Caribbean Fusion	
Rustica	Italian – Lunch and Dinner	<a href="#">Menu</a>
Lola's	Puerto Rican Cuisine	<a href="#">Menu</a>
Mortons's	Opened first week of December	
Lemon Grass	Has not opened and hotel has no information.	
Bagua- Pool Bar		<a href="#">Menu</a>
Ice Cream & Cookies		
Starbuck's		
Caribar - Lobby Bar		<a href="#">Menu</a>

### San Juan and area Restaurants (\$\$\$-\$\$\$\$): (These restaurants recommended by locals)

Compostela	724-6088	Spanish	Chotis	993-5607	Mediterranean
La Casona	727-2717	Spanish	Vianda	475-1578	Puerto Rican
Bottles	775-1210	American	Mario Pagan	522-6444	Caribbean
Santaella	725-1611	Caribbean	STK	273-0700	Steak
1919	724-1919	American	La Lanterna	340-8188	Upscale Italian
Sage	728-3535	International	L'Olivo	764 1111	Mediterranean



### Hotel Survey

At every meeting, a block of hotel rooms are booked by ASME BPE at the designated Hotel, often providing a significantly discounted rate. Booking early via the provided link, or booking code found in the invite for the meeting, usually means that you get a room. However, some don't get a room. Some don't even want a room with the designated hotel. To get a better understanding of the accommodation needs, please fill out the anonymous questionnaire: [Click HERE](#)

**ASME BPE Committee Meetings  
January 13-16, 2020 - San Juan, PR**

	Monday 13-Jan-2020						Tuesday 14-Jan-2020				
	Flamingo CD	Conference 3-7	Conference 8-10	Tropical	Las Olas	Conference 2	Las Olas	Conference 8-10	Conference 3-7	Conference 2	
8:00 AM	BPE Certification Requirements	Chromofiltration (SD)	Valves (SG)	Centrifuges (SD)	Proposals to Project 2022	C&S Connect Training	Material Joining (8:00am-11:45am)	Dimensions & Tolerances (8:00am-11:45am)	Sealing Components (8:00am-11:45am)	C&S Connect Training	
9:00 AM		Vessel Agitator Flanges (SD)		Strainers (SD)	9:00 Mech Hose Barb 9:30 Hygienic Union (PM)						
10:00 AM	Committee on BPE Certification (CLOSED)	Bioreactors (SD)	Mechanical Seals (SG)	SD Section Update (SD)	10:00 SU Integrity 10:30 SUBags (PM)						
11:00 AM	Cell Disrupters (SD)		And/Or (SD)	11:00 TPE Welding 11:30 Piping (PM)							
12:00 PM				Project 2022 Working BYO Lunch Part 1	ASME Lunch & Learn						
1:00 PM	General Requirements	Autoclaves (SD)	PI Task Groups	Heat Exchanger (SD)	1:00 Change Mgmt 1:30 ADI Content (PM)						
2:00 PM		SIP (SD)		Pressure Ratings & Clamp Dimensions (DT)	Plastic Tanks (PM)						
3:00 PM	Gasket Certification (SG)	Drainability (SD)		Flushing (SD)	Fractional Size Tubing (SF)						Project 2022 Working Session Part 2
4:00 PM	BPE SC Leadership (4:00pm-6:30pm)	CIP (SD)									
5:00 PM											
6:00 PM						Reception (5:30pm-7:30pm) Las Olas Terrace					
7:00 PM											

	Wednesday 15-Jan-2020				Thursday 16-Jan-2020
	Las Olas	Conference 3-7	Conference 8-10	Conference 2	Las Olas
8:00 AM	Polymeric & Other Nonmetallic Materials (8:00am-11:45am)	Metallic Materials (8:00am-11:45am)	Process Instrumentation (8:00am-11:45am)		BPE Standards Committee (7:30 am)
9:00 AM					
10:00 AM					
11:00 AM					
12:00 PM				C&S Connect Training	
1:00 PM	Systems Design (1:15pm-4:00pm)				
2:00 PM					
3:00 PM		BPE Certification Requirements			
4:00 PM		Committee on BPE Certification (CLOSED)			
5:00 PM			BPE Executive Committee (CLOSED)		
6:00 PM					
7:00 PM					

## FROM THE CHAIR

The first meeting I ever attended of the ASME-BPE was in San Diego California. It's been a long time ago, but I believe it was the summer meeting of 1999. My reason for attending was quite simply to ask the ASME BPE Standards Committee to address Specialty Alloys. Corrosion caused by solution chemistries were an issue and to combat this, end users had started using 6% molybdenum and nickel alloys in their systems. The 1997 published Standard did not address any alloy other than 300 series austenitic steels, and therefore no welding, surface finish or acceptance criteria was listed for these new alloys being used.

That first morning I found myself at the Materials Joining Sub-Committee meeting being held in a small motel room, and as I recall there were 7 persons in attendance, including me at that particular MJ meeting. Three years later, the Executive Committee voted to start a new Part MMOC (Metallic Materials of Construction) and I was asked to be the inaugural Chair.

The Standard and I have both grown since those days. So why am I digressing back to my early days at BPE? Even though I'm a little fuzzy on the details, perhaps even the year of that first meeting, I won't ever forget how intimidated I felt in those early years sitting around committee tables with people who were recognized industry giants. People who's name I had read in the Standard, and who's names I had heard throughout the industry for years. This was a prestigious and scary group.

Fast forward to today, our group has grown exponentially, and so has the potential for a guest or new member to feel overwhelmed by our personalities, reputations, and even the mere size of our committees. With our new name badges, it is easy to spot members verses visitors. Therefore, I am asking all committee members to make it a point to welcome our guests and be as helpful and encouraging as possible.

In addition, if you are a visitor, I encourage you to be open and inquisitive about our process and our group. Speaking from experience, being a member of the ASME BPE has been one of the most rewarding experiences of my life. I have learned and grown professionally from my involvement, but more importantly, I have made lifelong friendships that border more on the line of family than colleagues. I encourage you to embrace this experience you can be part of. You, our visitors and young members are the future of BPE. You will have the opportunity to be a part of something bigger than you. Our past Chair Mr. Tony Cirillo use to remind us of the far-reaching impact of our service. I paraphrase by saying *"lifesaving pharmaceuticals, and many cosmeceutical products you put in or on your body has been processed with equipment built to our Standard. Your contribution impacts everyone's daily life"*.

In the following pages you will find a list and description of some of our working Task Group and Subcommittee meetings. If you are receiving this newsletter, please forward it to as many of your peers as possible and encourage their attendance and subsequent involvement at one of our meetings. Safe travels everyone. See you in Puerto Rico!

Ken Kimbrel  
Chair ASME-BPE



To provide a response, ask a question, or to request additional information with regard to content within the Newsletter or about the BPE in general, please send an email with "BPE Newsletter" in the subject line to: [kkimbrel@vncorp.com](mailto:kkimbrel@vncorp.com)

**FUTURE MEETINGS:**

**Venue & Location:**

**Spring/Summer 2020**

May 18, 2020 08:00 AM to May 21, 2020 12:00 PM, Monday - Thursday

Royal Sonesta Hotel  
<http://www.sonesta.com>  
300 Bourbon Street  
New Orleans, LA, United States

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**Fall 2020**

September 21-24

Hotel Bonaventure Montreal  
Montreal, Quebec

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Winter 2021

January 11-14

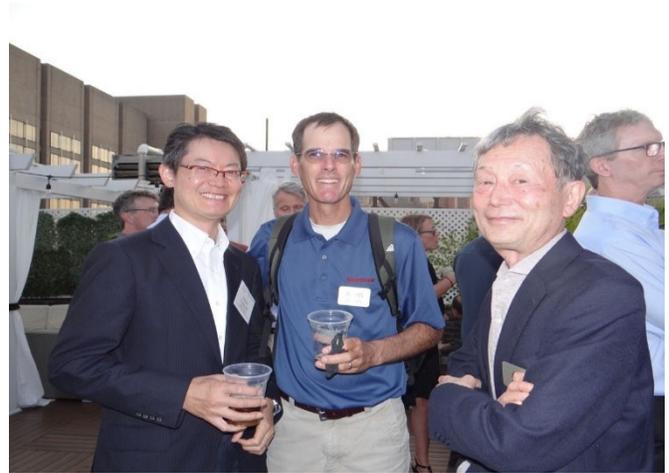
San Juan, Puerto Rico

Hotel: TBD

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BPE has lost one of our own. Indumathi (Indu) Conley passed away on December 22, 2019. Throughout her illness, she continued to fight and attended out meetings and industry gatherings on regular basis. She was passionate about what she did and made the world a better place for it. Always colorful and fun to be around, she'll be missed greatly!



Additional photos, courtesy of Rodolfo Cosentino, can be viewed/downloaded here:

[Sub-Committees](#)

[Main](#)

[Reception](#)

## SUBCOMMITTEE REPORTS & TASK GROUPS

### **PM** Polymeric / nonmetallic

Polymeric Hygienic Unions

#### **Scope**

Design and performance requirements regarding polymeric hygienic unions comprised of two polymeric sanitary connectors, a gasket and sanitary clamp.

Mechanical Hose Barb Connections

Design and performance requirements regarding the joining of a single-use assembly comprised of a hose barb, flexible tubing and a retention device.

Single-Use TPE Tube Welds

Specifications and acceptance criteria for thermoplastic elastomer tubing used for single use applications.

Single Use System Integrity

Requirements and guidance on the integrity of single-use components and assemblies including the maintenance of system integrity and recommended system integrity test methods.

Single Use Aseptic Connectors

Design and performance requirements regarding single-use aseptic connectors and assemblies comprised of aseptic connectors.

Single Use Bioprocess Containers

Design and performance requirements regarding single-use bags.

Change Management

Change management requirements including change level classifications and notification time requirements for both single-use and multi-use polymeric components and assemblies.

Particulates

Requirements regarding particulates in single-use components and assemblies including categorization of visible and sub-visible as well as mitigation techniques for both suppliers and owner/users.

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### **PI** Process Instrumentation

“The Process Instrumentation (PI) Subcommittee has been extremely active over the last year, both creating new content and refining existing material for the Standard. In addition to the official meetings that are held (3) times a year, we meet every 3<sup>rd</sup> Thursday via WebEx, to check in with each other and to be sure that we are moving forward with our respective tasks.

#### **Scope**

Our development roadmap is rolling ahead, and we are currently working on Pressure, Turbine, Magnetic and Coriolis Flow, Temperature, pH, Dissolved Oxygen (DO), Conductivity, Guided and Free Space Radar Level, Optical Sensors and Total Organic Carbon (TOC). We also have a newly re-formed fledgling team who is working on Single Use Sensor content for 2022.

If you have an Instrumentation, Metrology, Quality Assurance or other SME in your organization who wants to get involved and be a part of a fun, dynamic, and extremely active group, contact any member of the PI Subcommittee!”

**SUBCOMMITTEE REPORTS & TASK GROUPS (cont.)**

**DT** Dimensions & Tolerances

**Scope**

Pressure Ratings & Clamp Design/Dimensions

This two-part TG is evaluating DT-2 along with the associated Table DT-2-1 with regards to hydrostatic testing pressures. Consideration is being given to the typical operating and design pressures associated to components/equipment/systems. Clamps are an integral part of any piping system therefore defining pressure variables has a direct correlation to clamp design/dimensions.

Polymeric Hygienic Clamp Unions

TG is constantly developing and proposing new non-metallic content as it relates to process component criteria, specifically targeting dimensions and tolerances. Refer to Table DT-7-2 of the 2019 Edition for an example of the work performed by this TG.

Marking Requirements

The driving force behind this TG is to merge the marking requirements of fittings, valves, and instrumentation into a consolidated list of criteria. The existing marking content is being reviewed and combined with new content.

Off Angle Fittings

Investigating and developing a harmonized list of dimensions for 88 and 92 degree elbows. TG is creating a proposal to incorporate these off angle fittings into the next edition.

**MJ** Material Joining

**Scope**

Duplex Stainless Steel PQR Limits

TG to write a White Paper. No impact is expected on the ASME BPE Standard.

Bead on Tube vs. Butt Joint Weld Coupons

There is an ongoing effort within ASME B31.3 to standardize terminology within that Standard and we will look at what needs to be done in the ASME BPE after their work is complete. We have active members working on both Committees.

Concavity and Convexity as it correlates to AWSA3.0 terms .

A proposal has been generated and it now needs to be balloted

Vessel Full Penetration Welds

TG recommendations include changing limits from only butt joints to all joints on product contact surfaces, and change telltale hole vent. This terminology needs to be cleaned up throughout the standard.

**SUBCOMMITTEE REPORTS & TASK GROUPS (cont.)****PM (cont.)**

Fitting Manufacturer Weld Requirements (From DT)

A proposal has been generated and will be issued for comments this week. It will address the Addition of welding process requirements and acceptance criteria for Part DT components, addresses As-Finished, As Welded welds and inspection.

Clarification of the Use of Terms "Acceptable" and "Unacceptable"

Includes revisions to the text, tables, and figures to make them consistent. Ballot was issued on 12/09/2019.

Search of Entire BPE Document for Welding Terms

This effort is ongoing now that the 2019 Edition of the ASME BPE Standard has been published.

TG Looking at Allowing Rewelding for Concavity and Convexity  
Review of the Term Inspector's Delegate as it Contradicts B31.3 use of this Term  
Discoloration Levels on Pipe Welds

Balloted and approved, will be included in the 2022 Edition.

Ongoing, now that the 2019 Edition has been published. In some cases this will be changed to Quality Inspectors Delegate (QID), as required.

Task Group is looking at discoloration levels on pipe and how it references the existing ASME BPE Color Charts that were developed specifically for tubing. This will be corrected in the next revision of the Standard.

Discoloration Levels on Vessel Welds

Task Group is looking at discoloration levels on vessels and how it references the existing ASME BPE Color Charts that were developed specifically for tubing. This will be corrected in the next revision of the Standard.

Discoloration Levels on the Weld Bead and Potential Revisions to the Existing ASME BPE Color Charts

Further corrosion studies to determine the affect of discoloration on the weld bead itself. This is very similar to what was done previously on the Heat Affected Zone (HAZ).

**SF Surface Finish****Scope**

Rewrite of Non Mandatory Appendix H Electropolishing

This task has been in existence for quite a while and has done a lot of good of work.

An attempt was made to create a Mandatory Appendix for electropolishing which was approved by SC SF but received a lot of negative votes from the Standards Committee. The current plan is to make recommended changes from the Standards Committee ballot and create a new record and ballot for a re-write of Nonmandatory Appendix H.

The general feeling is that moving forward with the re-write of Nonmandatory Appendix H will expedite getting the new content into the standard.

**SUBCOMMITTEE REPORTS & TASK GROUPS (cont.)**

**SF (cont.)**

Surface Finish Anomalies

The task group has initiated a study funded by interested parties and run through ASME to evaluate the cleanability of different size and depth pits as well as scratches.

The testing has been completed and SF is waiting for a final report to start evaluating the data that was collected. The impact to SF acceptance criteria table(s) to be determined.

**CR Certification**

**Scope**

Assess owner requirements for BPE certified components and equipment.

A proposal for additional language to be added to the QMS checklist to help owners.

This TG will resolve whether or not a Material Test Report (MTR) should include the publication year of the BPE Standard that coincides with the date the MTR was created.

While this is a matter for Part CR to rectify, the resulting outcome of this TG will reside in Part GR.

Harmonize terminology between CA-1 and BPE

This effort is in progress with an expected proposal to be submitted in San Juan 2020.

Determine the actual intent of CR-2.5.5 (g) Quality Control.

CR-18-04 Determine the actual intent of CR-2.5.5 (g) Quality Control. Paragraph CR-2.5.5(g) and all other matter relating to the preparation and content of a Quality Management System program has been relocated to Appendix Z – Quality Management System. The TG’s focus has since been shifted to the same wording now contained in Appendix Z.

With regard to certification, this TG will clarify the difference between manufacturing a product and selling a product. This relates to whether or not a supplier should be or could be a candidate for certification.

This TG is will report in San Juan 2020.

Identify the necessary verbiage that needs to be contained in the standard in order to audit a vessel fabricator for BPE Certification.

Currently working on defining pressure boundary for pressure vessels and developing a pressure vessel checklist that auditors will use in checking for compliance against a QMS and appropriate requirements within the standard.

Modifications CR-2.5.1.2

Paragraph CR-2.5.5(g) and all other matter relating to the preparation and content of a Quality Management System program has been relocated to Appendix Z – Quality Management System. The TG’s focus has since been shifted to the same wording now contained in Appendix Z.

Raw Material Definition

Definition has been proposed with the added question of, how far upstream in the supply chain does the audit need to go? Still working to resolve.

**SUBCOMMITTEE REPORTS & TASK GROUPS (cont.)**

**CR (Cont.)**

**Scope**

Z - 3.8 Proposal

Proposal was voice voted in Baltimore and approved. PM will prepare to ballot standards committee.

Define the extent, if any, to which accredited Calibration Laboratories are audited.

A TG proposal will be submitted in San Juan 2019.

Special process is a term used in Appendix Z for developing a QMS. While the term is used in such activities as Material joining, heat treatment, nondestructive examination (NDE), surface finish/treatment, and special controlled environments, it does not define what a special process is. This is the focus of this TG.

This TG is in the process of considering and defining what makes a process a special activity beyond all the other activities necessary to complete a task.

**MM Metallic Materials**

**Scope**

Referenced Material Specifications

Currently, material specifications are listed in Part MM without a specific year edition, with the caveat that “the most current edition is implied.”

This is a standing agenda item to permit the discussion and review of any pertinent changes in the material specifications listed in Part MM.

ASME B31.3 Appendix A List of Material Specifications

The task group will review the list of material specifications in Part MM and compare it with those listed in Appendix A of ASME B31.3 and will continue to work with the ASME B31 committee to add pertinent material specifications listed in Part MM to Appendix A of ASME B31.3.

Revision of MM-5.2 to address Nickel Alloys

Table MM-2.1-2 lists three nickel alloy base metals, but there is no supporting paragraph in MM-5.2 to provide guidance for the use of these alloys. There are currently paragraphs to address concerns with austenitic alloys (MM-5.2.1), super austenitic alloys (MM-5.2.2), duplex stainless steel alloys (MM-5.2.3), castings (MM-5.2.4) and even copper alloys (MM-5.2.5), but nothing for nickel alloys.

**SUBCOMMITTEE REPORTS & TASK GROUPS (cont.)****MM (Cont.)**

- Reorganization of MM-5.2 Base Metals As a follow-up action of adding a supporting paragraph for nickel alloys (record #17-1257) the subparagraphs of MM-5.2 should be renumbered to reflect the list of materials in related MM tables. This renumbering would also require the referenced figures and tables to be renumbered. Format and editorial changes of MM-5.2 would be similar to MJ to maintain continuity between the sections.
- Review of MM-5.2.3 Duplex Stainless Steels Since UNS S32101 was added to Table MM 2.1-1 of the 2019 Edition this paragraph needs to be revised.
- Review of References to Metallic Materials Specific metallic materials listed in ASTM specifications shall be referenced by using UNS numbers. However, the terms 316-type and 316L-type are deemed appropriate as examples of generally accepted materials for use. Consensus is not to change these to UNS numbers when referencing a range of materials and to proceed accordingly for other types of metallic materials as well.
- Review of MM-4.6 Hollow Products, Rod and Bar Stock The last paragraph of MM-4.6 limits the use of hollow products, rod, and bar stock to nozzles and where permitted by the owner/user. Many standard and nonstandard BPE fittings are currently manufactured from these product forms. On the other hand the use of rod and bar is limited by Section VIII, Division 1. The last paragraph of MM-4.6 should be revised to provide clear guidance which process components may be manufactured from hollow products, rod, and bar.
- Cleanup of Table MM-5.3-1 Filler Metals Table MM-5.3-1 became a multi-page table with partly changing heading in the middle of one page. To enhance clarity this table should be split up in individual tables for each alloy category.
- Addition of JIS materials and specifications to Part MM This task group will provide sufficient information and data to include austenitic stainless steels as per JIS specifications to the relevant paragraphs and tables of Part MM. Main focus will be 304/304L-type and 316/316L-type stainless steels.

## **SUBCOMMITTEE REPORTS & TASK GROUPS**

### **SG** Seals

#### Re-Organizing SG-5

#### **Scope**

The goal is to improve the usability of the paragraph. The focus will be to move non-requirements to a Non Mandatory Appendix and consolidate redundant content.

#### Static Seal Performance

We will develop a standard test method for determining Intrusion Category I or II for hygienic union gaskets. The gasket manufacturer shall rate their Intrusion Category when the gasket is compressed to 0.065".

#### Valve Certification

We found over 250 references in the Standard that state requirements for valves, ~140 of them relate to the valve manufacturer. These are being reviewed to make sure they are auditable and will grouped in check list items for a Certification Auditor. Creating an Auditor check list of Valve Certification

## BACKGROUND

The Bioprocessing Equipment Standard (The BPE) is a small part in a vast, and far reaching organization called, the (ASME) American Society of Mechanical Engineers ([www.asme.org](http://www.asme.org)). This name, American Society of Mechanical Engineers is somewhat misleading. The ASME is a wide-reaching body of professionals whose reach goes far beyond the borders of America, and quite literally embraces professionals worldwide.

Technology has allowed the world to become a much smaller place. Thusly, the exchange of ideology has become almost instantaneous. Although at times in the Codes and Standards world it seems as though we move at a snail's pace, the interaction between international volunteer's breed's new life and ideas into the Standard.

It is this interaction that makes the BPE relevant today as we respond to the needs of our worldwide industry identified and brought forth by our membership. The BPE Standard is a living document, that evolves every two years with changes and new ideas, all quite literally for the betterment of our existence.

The ASME BPE Standard fills a niche in the wide-ranging codes and standards of ASME that, prior to its first publication in 1997, did not exist.

The BPE Standard has grown from its 1997 issue, which included six Parts spanning over 108 pages to the ten Parts and Appendices that now span over 370 pages in the 2019 issue.

It's not over-stating a fact in saying that development and maintenance of the BPE Standard has, by far, exceeded what anyone could have had in mind during the 1980's and 1990's when this ASME standard was first conceived, then organized, and compiled into this much needed industry standard. Which gets us to the point of this Newsletter.

## GETTING INVOLVED

While there are a few closed-door meetings at these Committee meetings the vast majority are open to the public. Not only are these meetings open to the public, there is a high level of hope that the public will take advantage of the opportunity and attend, and even get involved.

The entire ASME program, as a standards developer, is built around both volunteer member support and that of the public at large. So, the meetings not only have an open-door policy, they promote involvement.

These meetings typically corral the members of the committee, subcommittee, or subgroup at a table to have a better handle on any voting that may take place during the meeting, or to determine whether a quorum of members has been met.

Visitors that attend these meetings are encouraged to voice their opinion, comment, and contribute to the conversation. It is also encouraged that visitors interested in joining a subcommittee volunteer to join a Task Group (TG). A list of our current Task Groups is shown on Page 2 of this newsletter. This is a way to get involved before becoming an actual member.

Task Groups are small ad hoc groups that perform the bulk of the work necessary to research, compile, assess, and present content for adoption into the Standard or to make changes to what is already contained in the Standard.

There is a packet of introductory information that is available for the asking. It's an introduction to the BPE and describes how to become a member. If you're interested in getting involved contact the ASME BPE staff secretary, Mr. Paul Stumpf ([stumpfa@asme.org](mailto:stumpfa@asme.org)) and request the introductory packet of information for the BPE. ■

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*To provide a response, ask a question, or to request additional information with regard to content within the Newsletter or about the BPE in general, please send an email with "BPE Newsletter" in the subject line to: [kimbrel@vncorp.com](mailto:kimbrel@vncorp.com)*

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**FUTURE NEWSLETTERS, ETC.**

The BPE Newsletter will be published three times per year to inform its readers of upcoming meetings and to describe the various activities and work being done by the Committee.

The meetings themselves begin on a Monday and end on a Thursday. Monday consists mainly of ad hoc TG meetings, but there are subcommittee (SC) meetings held for Part CR SC and Part GR SC. But before continuing, following is a diagram of the various groups that make up the BPE:

and ballots. In order to become a member of a SC two forms need to be submitted. One is the PAF (Participation Acknowledgment Form) and the other is the PF-1 (Personnel) form.

The PAF simply asks you to acknowledge that you will adhere to society policies and ethics rules, as well as copyright requirements. The PF-1 provides information and a profile of sorts of the applicant so that SC officers and ASME can see where your expertise lies. A resume' can be attached to this form if it makes sense to do so. Or just provide a brief profile.

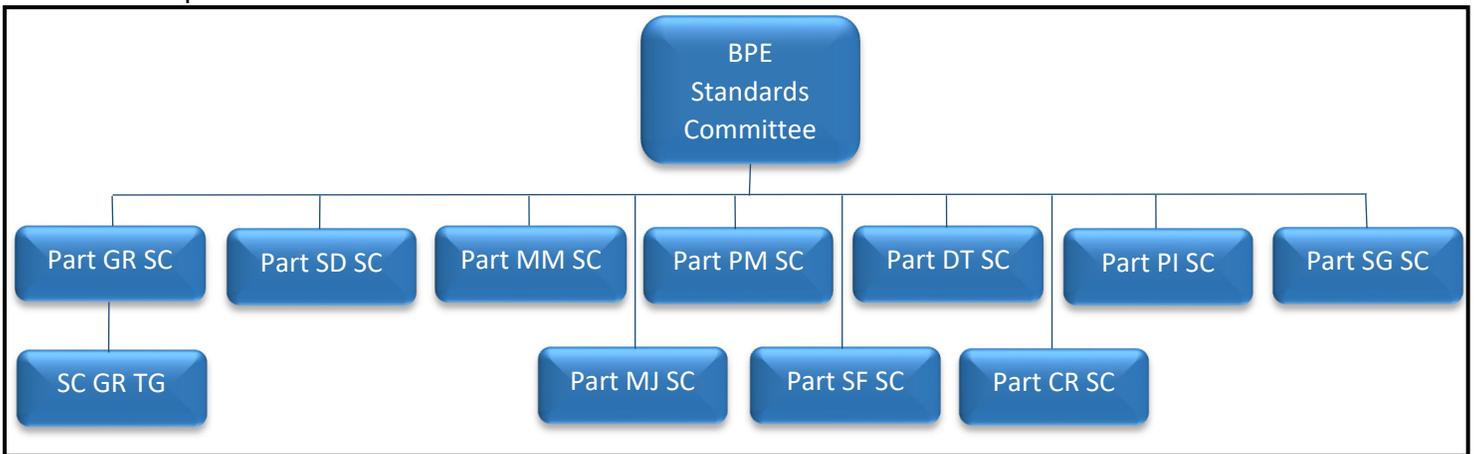


Figure 1 Hierarchy within the Standards Committee

As indicated in the Fig. 1 chart, all subcommittees report to the Standards Committee. Task Groups report to the respective subcommittee responsible for their activities.

Getting back to the actual meetings, the remaining eight subcommittees hold their meetings on Tuesday and Wednesday. On Thursday all subcommittees report at the Standards Committee meeting.

At this same Standards Committee meeting other items of interest are discussed, liaison reports from other organizations are given, and delegates from other countries report.

As mentioned earlier, it is not required that you be a member of the BPE to attend the meeting or even join in the debates and discussion. It is necessary that you become a member in order to vote on any of the proposals

Once a new applicant becomes familiar with the various subcommittees and wishes to become a member of one, the two forms can be submitted either to any officer of that SC or they can be submitted to the BPE Secretary, Mr. Paul Stumpf. This can be done at a meeting or by email attachment.

The committee will require assurances from the applicant's employer that they are in support of the decision to join the BPE and will support them in their travels and work on behalf of the Standard.

As a member you will be participating in discussions of where the BPE Standard goes and how it will define the future of bioprocessing engineering. Not only will you participate in creating that future, you will also learn from it. Things learned only from the experts you will be working with to make that future a better one.■