

BORMED™ SOLUTIONS MEDICAL and DIAGNOSTICS DEVICES

September 2020

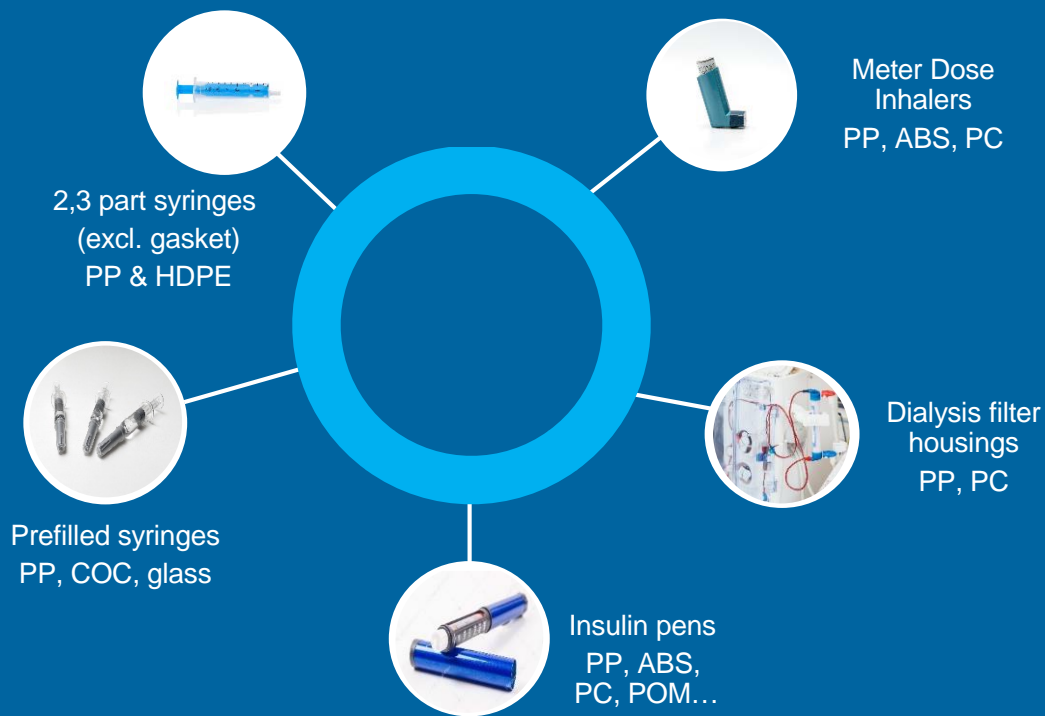


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Medical Devices – Segment Dynamics

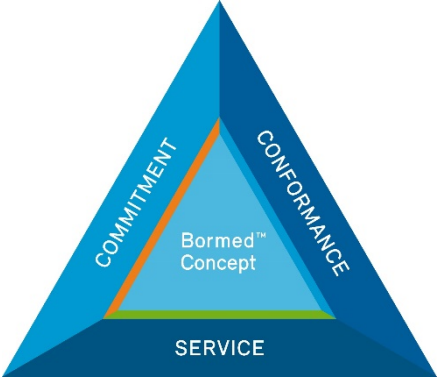


- Medical devices is a **fragmented segment** including diverse applications such as inhalers, catheters, filters for dialysis machines, housings, pumps
- Medical devices is a **regulated segment**. New EU MDR to be applied on May 2021 fostering cooperation within value chain
- In line with home treatment and advancements of digital technologies, e-health applications, **miniature wearables and devices** are seen as future trends

Medical Devices – Material Needs



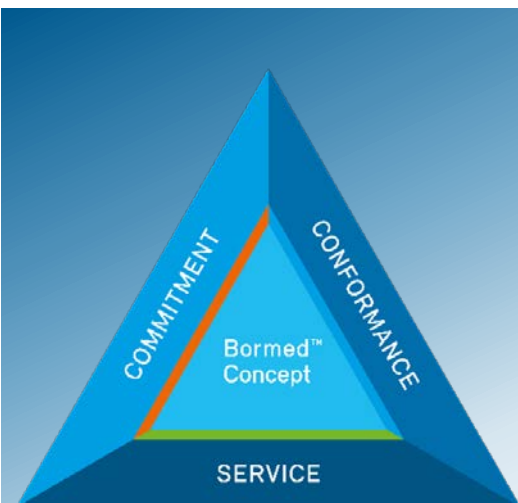
Determining the key material performance criteria is essential for successful material selection



| MATERIAL REQUIREMENTS FOR MEDICAL DEVICES | |
|---|---|
| PHYSICAL | Physical performance elements for robust design <ul style="list-style-type: none">– Stiffness– Impact resistance– Transparency– MFI |
| REGULATORY | Compliance to regulatory directives <ul style="list-style-type: none">– Compliance to directives and new EU MDR– Regulatory back up support |
| STERILISATION | Compatibility with sterilisation method <ul style="list-style-type: none">– EtO– Radiation– Steam /Autoclave |
| ADDITIVES | Functional additives for tailor made solution <ul style="list-style-type: none">– Anti-Static– Nucleation– Slip Agent– Radiation |

Bormed™ Portfolio for Medical Devices

Complying to diverse performance requirements of medical devices



- Grades with **high modulus up to 1900 MPa** for thin wall and insert sections of medical devices where high stiffness is key for robust design
- Grades with excellent balance between **high toughness & high flow** at low temperature
- **Sterilisation compatible** grades for EtO , Steam at 121°C and gamma radiation
- Grades with **special additive packages** including slip , antistatic etc. agents
- All grades have **extractable data and DMF number**
- **Excellent transparent grades** for medical devices

**The Bormed portfolio comes with Bormed service package:
Pharmacopeia compliance, change control and long-term security of supply**

Bormed™ Portfolio for Medical Devices

What are the material key performance criteria for your medical device?

| | PE High Density | | PP Homopolymers | | | | PP Block | PP Random Copolymers | | | | |
|----------------------------|-----------------|----------|-----------------|----------|---------|---------|-----------|----------------------|---------|----------|-----------|-----------|
| Key Performance Criteria | HE7541PH | HE9621PH | HD850MO | HD810MO | HF840MO | HG820MO | BJ868MO | RE870MO | RF825MO | RF830MO | RG835MO | RJ880MO |
| Stiffness | Low | Medium | High | Medium | Medium | High | Medium | Medium | Medium | Medium | Medium | Low |
| Impact Resistance | High | High | Low | Low | Low | Low | High Ret. | High | High | Medium | Medium | Medium |
| MFI (g/10dk), 230C/2,16kg | 4 | 12 | 8 | 10 | 19 | 28 | 70 | 13 | 20 | 20 | 30 | 45 |
| Transparency | Low | Low | Medium | Medium | Medium | Medium | Low | High | High | High | High | High |
| EtO Sterilisation | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Steam Sterilisation @ 121C | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Radiation Sterilisation | No | No | No | Yes | No | No | No | No | No | Yes | No | No |
| Functional Additives | - | - | - | Nuc, Rad | Slip | Nuc | - | - | Nuc | Nuc, Rad | Nuc, Slip | Nuc, Anst |



Bormed™ Portfolio for Medical Devices



Bormed grades have been used successfully in numerous medical device applications

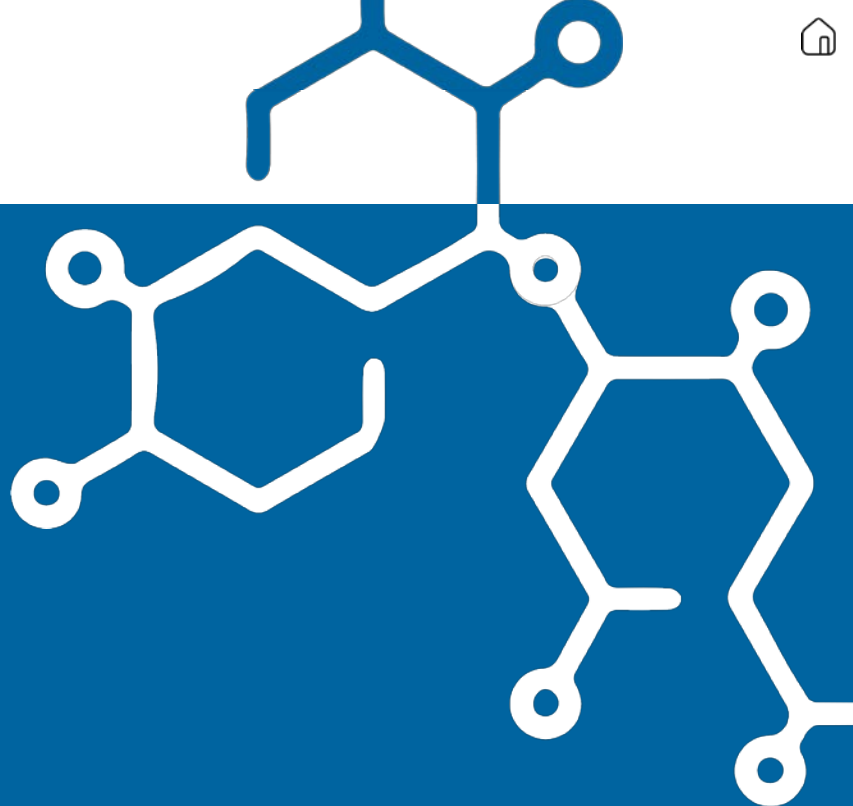
- 2 Part Syringes
- 3 Part Syringes
- Pre Filled Syringes
- Inhaler Components
- Hemodialysis Filter Housings
- Mechanical Components

Bormed™- 2 Part Syringes

APPLICATION PRINCIPLES

2 Part Syringe is a simple reciprocating pump consisting of a plunger that fits tightly within a cylindrical barrel. The basic parts of a syringe are the barrel, plunger and tip. The barrel is a tube that is open at one end and tapers into a hollow tip at the other end.

The plunger is a piston-type rod with a slightly cone-shaped top that slides on the inner surface of the barrel. The tip point of the syringe provides the point of attachment for needle. Within 2 part syringes plunger directly contacts with inner surface of the barrel requiring different material selections for both plunger and barrel due to friction between them.

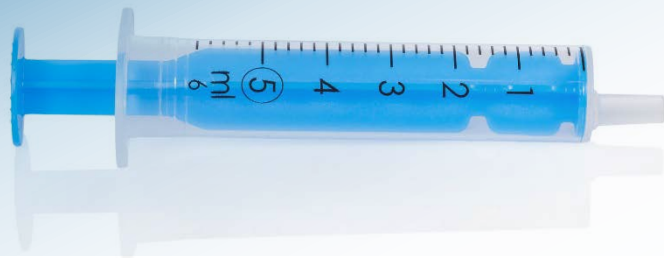




Bormed™- 2 Part Syringes

DESIRED BENEFITS ON APPLICATION

- Shorter cycle times for cost efficient production
- Compatibility to selected sterilisation methods
- Transparency for barrels
- Lower friction between barrel and plunger for better pump performance
- Rigid plungers

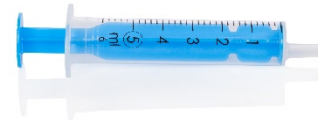


KEY MATERIAL REQUIREMENTS

- Faster crystallisation behavior
- Good sterilisation capability
- Transparency
- High stiffness
- Frictional compatible grades

Bormed™- 2 Part Syringes

Radiation Sterilisation



| 2-PART SYRINGES | GRADES FOR BARREL | | PLUNGER |
|--------------------------|-------------------|---------|----------|
| Key Performance Criteria | HD810MO | RF830MO | HE9621PH |
| Stifness | Medium | Medium | Medium |
| Impact Resistance | Low | Medium | High |
| MFI(g/10dk),230C/2,16kg | 10 | 20 | 12 |
| Transparency | Medium | High | Medium |
| Functional Additives | Nuc,Rad | Nuc,Rad | - |

Bormed™- 2 Part Syringes

ETO / Steam Sterilisation



| 2-PART SYRINGES | GRADES FOR BARREL | | PLUNGER |
|--------------------------|-------------------|---------|----------|
| Key Performance Criteria | HF840MO | RG835MO | HE9621PH |
| Stiffness | Medium | Medium | Medium |
| Impact Resistance | Low | Medium | High |
| MFI(g/10dk),230C/2,16kg | 19 | 30 | 12 |
| Transparency | Medium | High | Medium |
| Functional Additives | Slip | Nu,Slip | - |

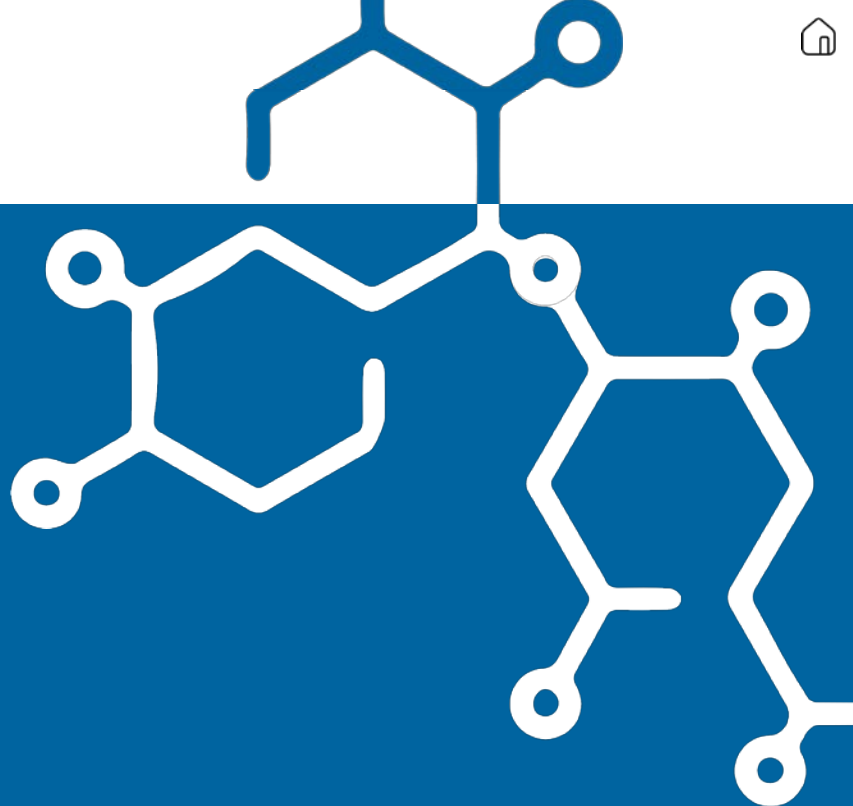
Bormed™- 3 Part Syringes

APPLICATION PRINCIPLES

3 Part Syringe is a simple reciprocating pump consisting of a plunger with elastomer stopper that fits tightly within a cylindrical barrel.

The basic parts of a syringe are the barrel, plunger, elastomer stopper and tip.

Within 3 part syringes plunger does not contact directly with inner surface of the barrel due to the usage of elastomer stopper enabling independent material selection for both plunger and barrel.





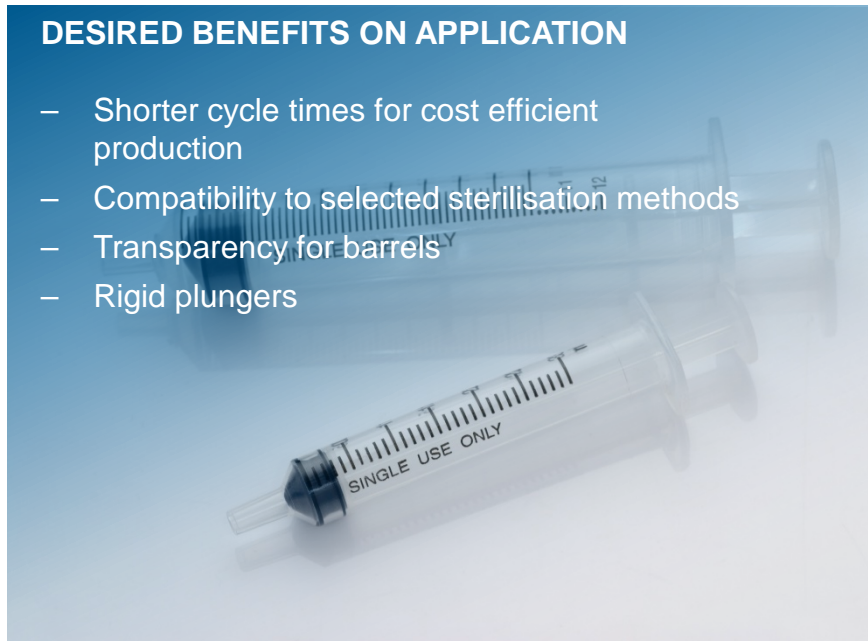
Bormed™- 3 Part Syringes

DESIRED BENEFITS ON APPLICATION

- Shorter cycle times for cost efficient production
- Compatibility to selected sterilisation methods
- Transparency for barrels
- Rigid plungers

KEY MATERIAL REQUIREMENTS

- Faster crystallisation behaviour
- Good sterilisation capability
- Transparency
- High stiffness



Bormed™- 3 Part Syringes

Radiation Sterilisation



| 3-PART SYRINGES | GRADES FOR BARREL | | GRADES FOR PLUNGER | | |
|--------------------------|-------------------|---------|--------------------|---------|---------|
| Key Performance Criteria | HD810MO | RF830MO | HE9621PH | HD810MO | RF830MO |
| Stiffness | Medium | Medium | Medium | Medium | Medium |
| Impact Resistance | Low | Medium | High | Low | Medium |
| MFI(g/10dk),230C/2,16kg | 10 | 20 | 12 | 10 | 20 |
| Transparency | Medium | High | Medium | Medium | High |
| Functional Additives | Nuc,Rad | Nuc,Rad | - | Nuc,Rad | Nuc,Rad |

Bormed™- 3 Part Syringes

ETO / Steam Sterilisation



| 3-PART SYRINGES | GRADES FOR BARREL | | | GRADES FOR PLUNGER | | |
|--------------------------|-------------------|---------|---------|--------------------|----------|---------|
| Key Performance Criteria | RF825MO | HG820MO | HD850MO | RF825MO | HE9621PH | HD850MO |
| Stiffness | Medium | High | High | Medium | Medium | High |
| Impact Resistance | High | Low | Low | High | High | Low |
| MFI(g/10dk),230C/2,16kg | 20 | 28 | 8 | 20 | 12 | 8 |
| Transparency | High | Medium | Medium | High | Medium | Medium |
| Functional Additives | Nuc | Nuc | - | Nuc | - | - |

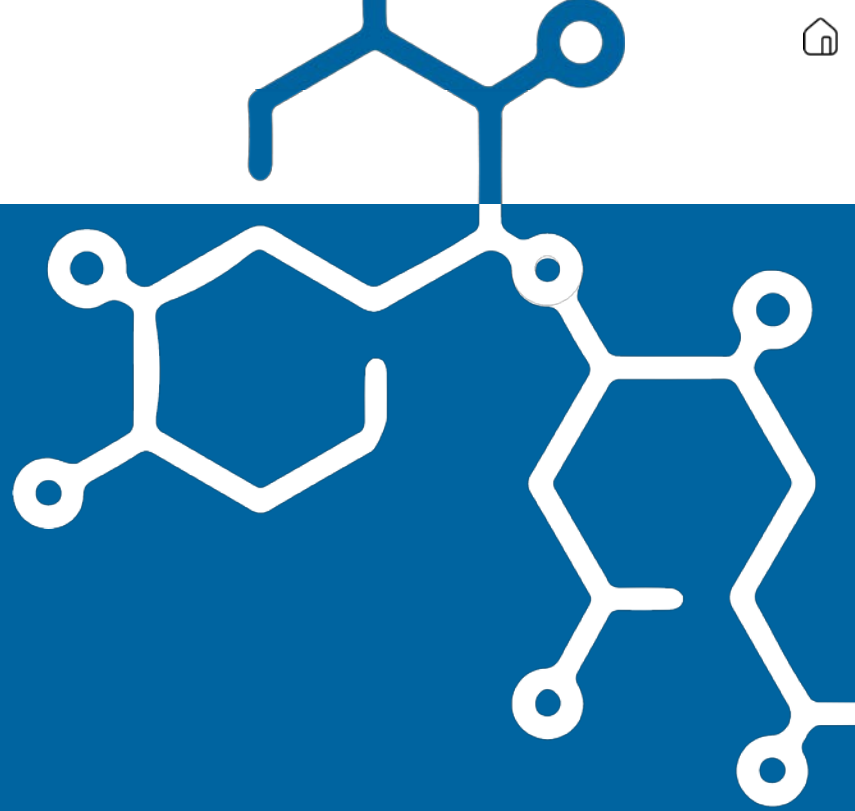


Bormed™- Pre-Filled Syringes

APPLICATION PRINCIPLES

Pre-Filled Syringe is a disposable syringe that is supplied already loaded with the substance to be injected. PFS has 2 functions:

- The first function is primary packaging. The purpose of the primary package is to assure that there is no adverse effect on the identity, strength, quality, purity of the drug over its shelf life
- The second function is delivery of drug. This delivery can be done precisely and quickly compared to normal syringes





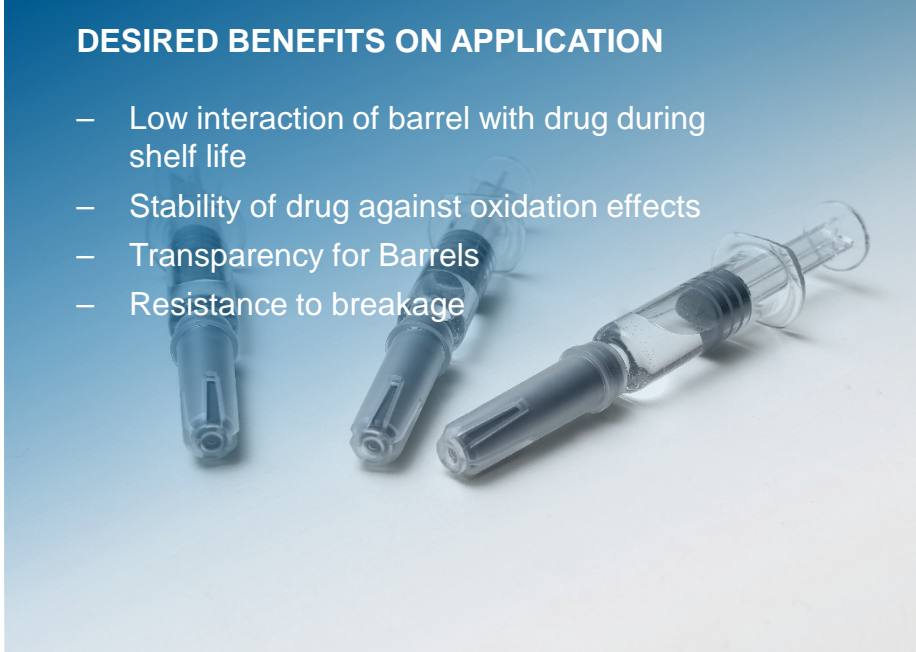
Bormed™- Pre-Filled Syringes

DESIRED BENEFITS ON APPLICATION

- Low interaction of barrel with drug during shelf life
- Stability of drug against oxidation effects
- Transparency for Barrels
- Resistance to breakage

KEY MATERIAL REQUIREMENTS

- Low extractable profile
- High oxygen barrier properties
- Transparency
- High stiffness and toughness



Bormed™- Pre-Filled Syringes



| PRE-FILLED SYRINGES | GRADES FOR BARREL | | | RADIATION GRADES | |
|----------------------------|-------------------|---------|---------|------------------|----------|
| Key Performance Criteria | RF825MO | HD850MO | HG820MO | HD810MO | RF830MO |
| Stiffness | Medium | High | High | Medium | Medium |
| Impact Resistance | High | Low | Low | Low | Medium |
| MFI (g/10dk), 230C/2,16kg | 20 | 8 | 28 | 10 | 20 |
| Transparency | High | Medium | Medium | Medium | High |
| EtO Sterilisation | Yes | Yes | Yes | Yes | Yes |
| Steam Sterilisation @ 121C | Yes | Yes | Yes | Yes | Yes |
| Radiation Sterilisation | No | No | No | Yes | Yes |
| Functional Additives | Nuc | - | Nuc | Nuc, Rad | Nuc, Rad |

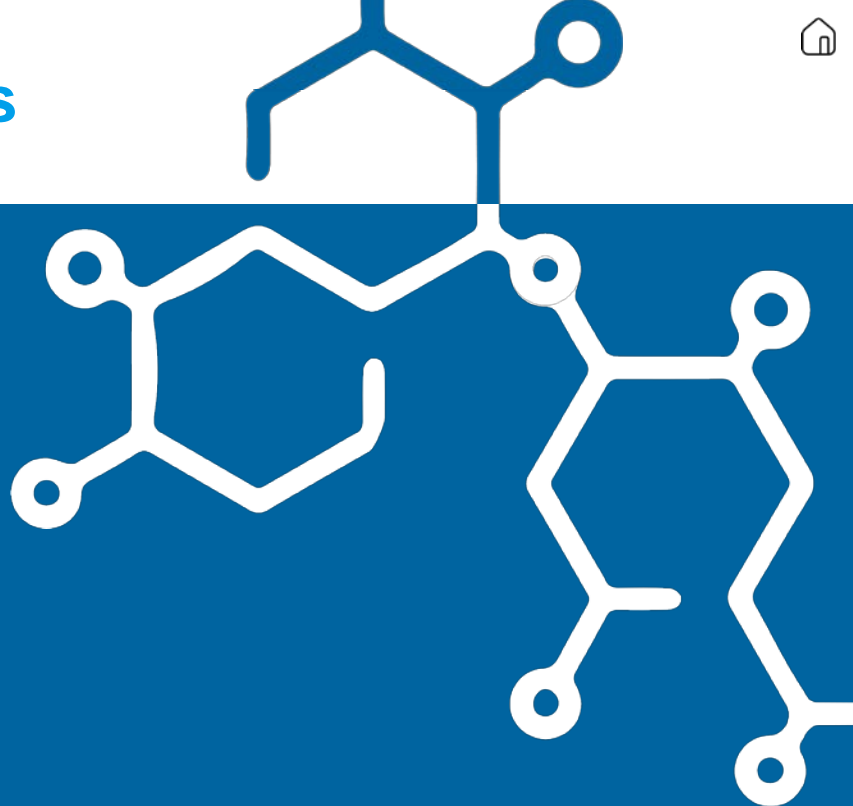
Bormed™- Inhaler Components

APPLICATION PRINCIPLES

Inhaler is a medical device used for delivering medication into the body via lungs.

Main components of an inhaler are casing, container, metering valve and actuator. MDI (Metered Dosed Inhalers) and DPI (Dry Powder Inhalers) are the major types of inhalers in the market.

There are several material key performance elements depending on the inhaler component like rigidity, surface quality, dimensional stability, anti static etc.





Bormed™- Inhaler Components

DESIRED BENEFITS ON APPLICATION

- Reliability of casing and actuator against deformation
- Consistent and accurate spraying from nozzle
- Dust free surfaces of actuator for smooth operation
- Good coloured surface quality



KEY MATERIAL REQUIREMENTS

- High stiffness
- High dimensional stability
- Antistatic agent requirement
- High MFI

Bormed™- Inhaler Components



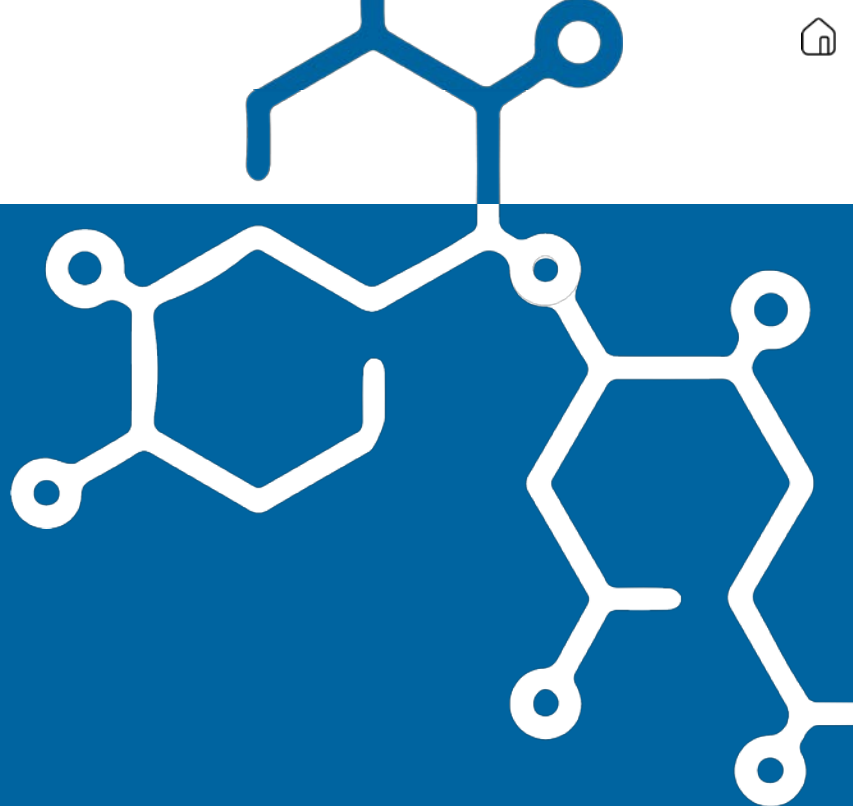
| INHALERS | GRADES FOR COMPONENTS | | | RADIATION GRADES | |
|----------------------------|-----------------------|---------|---------|------------------|----------|
| Key Performance Criteria | RJ880MO | HD850MO | HG820MO | HD810MO | RF830MO |
| Stiffness | Low | High | High | Medium | Medium |
| Impact Resistance | Medium | Low | Low | Low | Medium |
| MFI (g/10dk), 230C/2,16kg | 45 | 8 | 28 | 10 | 20 |
| Transparency | High | Medium | Medium | Medium | High |
| EtO Sterilisation | Yes | Yes | Yes | Yes | Yes |
| Steam Sterilisation @ 121C | Yes | Yes | Yes | Yes | Yes |
| Radiation Sterilisation | No | No | No | Yes | Yes |
| Functional Additives | Nuc, Anst | - | Nuc | Nuc, Rad | Nuc, Rad |

Bormed™- Hemodialysis Filter

APPLICATION PRINCIPLES

The dialysis filter is indicated for purification of dialysis fluid to obtain microbiologically highly purified dialysis fluid which is used to remove excess water, solutes and toxins from the blood during hemodialysis operation.

Although PC has been widely used in the market due to its high toughness, transparency and sterilisation capability, PP can also be an option with its cost and BPA free chemistry advantages.

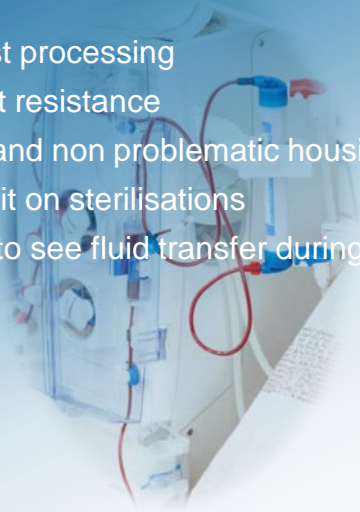




Bormed™- Hemodialysis Filter

DESIRED BENEFITS ON APPLICATION

- Robust processing
- Impact resistance
- Easy and non problematic housing assembly
- No limit on sterilisations
- Need to see fluid transfer during operation



KEY MATERIAL REQUIREMENTS

- Good flow and easy processability
- High toughness
- Good dimensional stability and high rigidity
- Compatibility to sterilization methods
- Transparency

Bormed™- Hemodialysis Filter



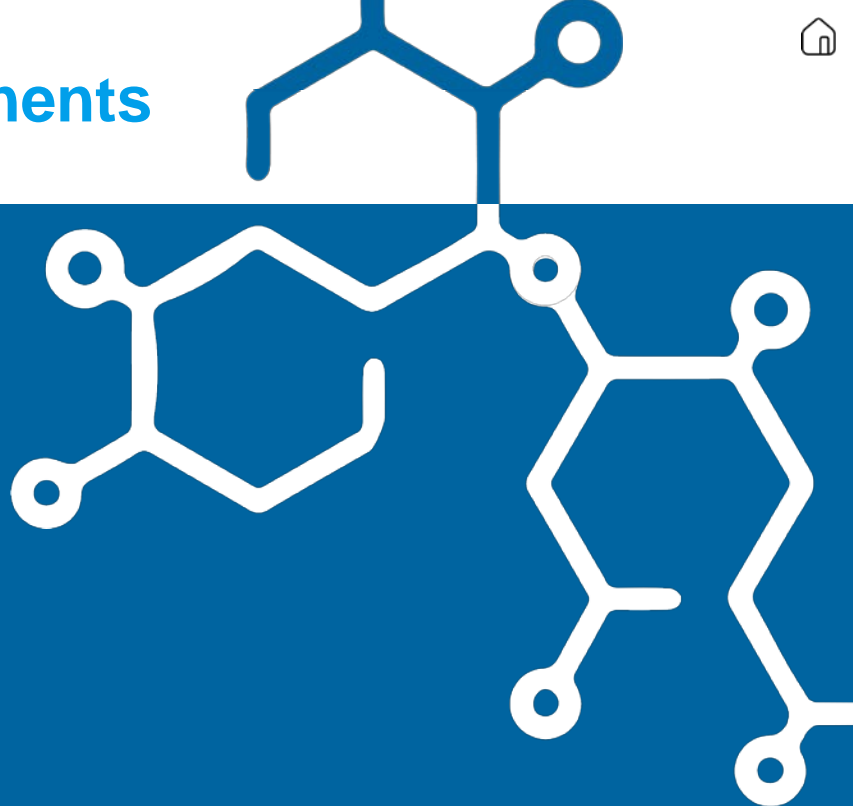
| Hemodialysis Filter Housing | GRADE | RADIATION GRADES | |
|-----------------------------|---------|------------------|----------|
| Key Performance Criteria | HD850MO | HD810MO | RF830MO |
| Stiffness | High | Medium | Medium |
| Impact Resistance | Low | Low | Medium |
| MFI (g/10dk), 230C/2,16kg | 8 | 10 | 20 |
| Transparency | Medium | Medium | High |
| EtO Sterilisation | Yes | Yes | Yes |
| Steam Sterilisation @ 121C | Yes | Yes | Yes |
| Radiation Sterilisation | No | Yes | Yes |
| Functional Additives | - | Nuc, Rad | Nuc, Rad |

Bormed™- Mechanical Components

APPLICATION PRINCIPLES

Medical devices have several mechanical components inside such as actuators, housings, spring holder etc. In line with miniaturisation and functionality integration of medical devices, complex shaped functional components are used.

Besides Engineering polymers, PP has also capability to replace engineering polymers within several medical device components.

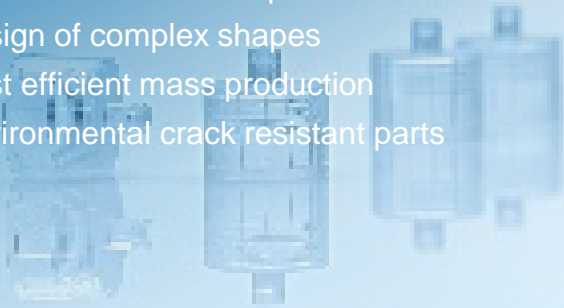




Bormed™- Mechanical Components

DESIRED BENEFITS ON APPLICATION

- Reliability of components against deformation
- Consistent and accurate mechanical performance
- Shock resistance to impacts
- Design of complex shapes
- Cost efficient mass production
- Environmental crack resistant parts



KEY MATERIAL REQUIREMENTS

- High stiffness
- High crystallinity with high stiffness
- High toughness
- High flow
- Good processability and low density
- Good chemical resistance

Bormed™- Mechanical Components

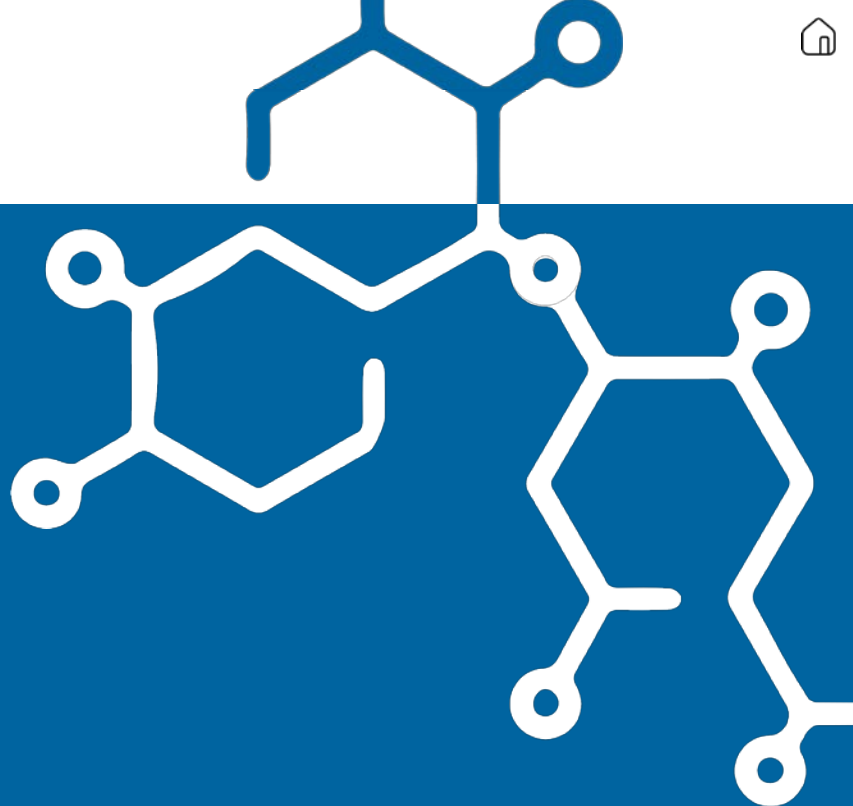


| MECHANICAL COMPONENTS | GRADES FOR COMPONENTS | | | | RADIATION GRADES | |
|----------------------------|-----------------------|---------|---------|---------|------------------|----------|
| Key Performance Criteria | BJ868MO | HD850MO | HG820MO | RF825MO | HD810MO | RF830MO |
| Stiffness | Medium | High | High | Medium | Medium | Medium |
| Impact Resistance | High Ret. | Low | Low | High | Low | Medium |
| MFI (g/10dk), 230C/2,16kg | 70 | 8 | 28 | 20 | 10 | 20 |
| Transparency | Low | Medium | Medium | High | Medium | High |
| EtO Sterilisation | Yes | Yes | Yes | Yes | Yes | Yes |
| Steam Sterilisation @ 121C | Yes | Yes | Yes | Yes | Yes | Yes |
| Radiation Sterilisation | No | No | No | No | Yes | Yes |
| Functional Additives | - | - | Nuc | Nuc | Nuc, Rad | Nuc, Rad |

Bormed™ PP performance

What is your key performance criteria?

- Bormed PP portfolio has the potential to replace engineering polymers with its optimized performance characteristics enabling sustainable processing and efficient designs

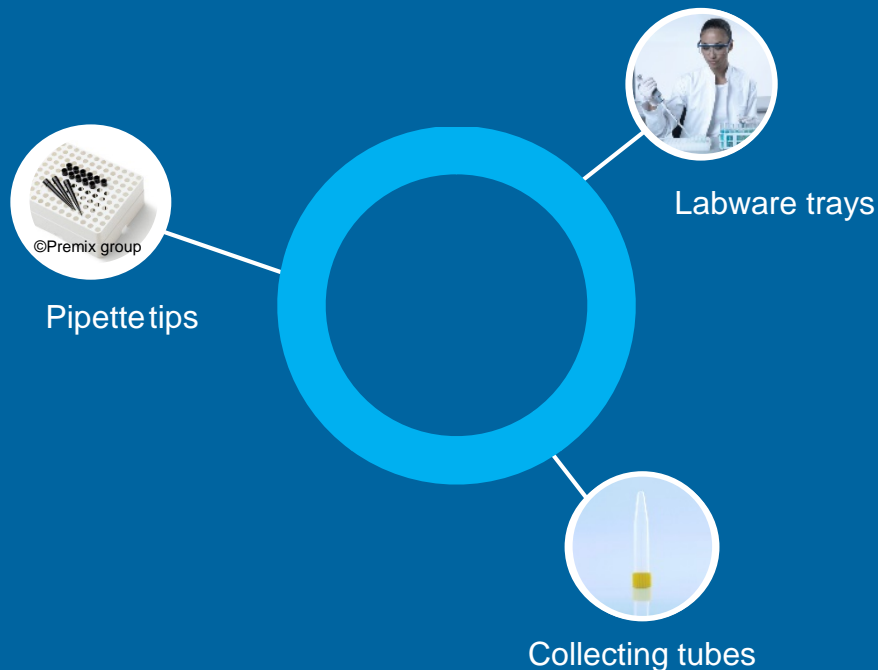


Bormed™ PP performance

| Key Performance Criteria | PP | PC /ABS | ABS | PC | PBT | POM | PA6 |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Stiffness @ room temp. | 1100-1900 MPa | 2000-2600 MPa | 1300-2700 MPa | 2100-2400 MPa | 2000-2300 MPa | 1600-3200MPa | 1000-1400MPa |
| Yield Strength @ room temp. | 25-40MPa | 40-60MPa | 45-65MPa | 55-65MPa | 50-60MPa | 60-75MPa | 45-80MPa |
| Toughness | Good | Good | Fair | Good | Fair | Fair | Very Good |
| Transparency | Good | Poor | Poor | Very Good | Poor | Poor | Poor |
| EtO Sterilisation | Good | Good | Good | Good | Good | Good | Good |
| Steam Sterilisation @ 121C | Good | Poor | Poor | Fair | Fair | Good | Fair |
| Radiation Sterilisation | Fair | Good | Good | Good | Good | Poor | Fair |
| Chemical Resistance | Very Good | Fair | Good | Poor | Fair | Fair | Fair |
| Processability | Good | Fair | Good | Fair | Fair | Fair | Good |
| Density | 0,90-0,91gr/cm3 | 1,08-1,17gr/cm3 | 1,03-1,07gr/cm3 | 1,20-1,24gr/cm3 | 1,30-1,32gr/cm3 | 1,41-1,43gr/cm3 | 1,12-1,15gr/cm3 |

- Grades with **high modulus up to 1900 MPa** for thin wall and insert sections of medical devices where high stiffness is key for robust design
- Grades with excellent balance between **high toughness & high flow** at low temperature
- **Sterilisation compatible** grades for EtO , Steam at 121°C and gamma radiation
- Very good **chemical resistance**

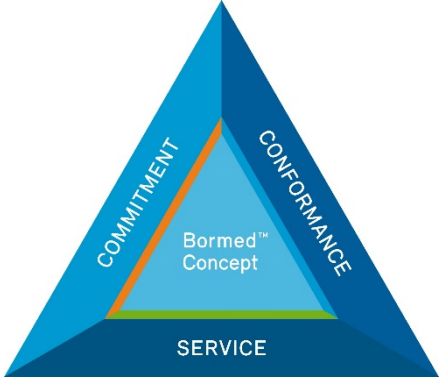
Diagnostic Devices – Segment Dynamics



- Diagnostic devices is a **fragmented segment** including diverse applications such as labware trays, collecting and diagnostic tubes, blood cards, pipette tips
- Diagnostic devices will become an even more **regulated segment**. New EU IVDR to be applied in 2022 triggering a potential shift towards medical grade plastics
- Growing importance of POC (point of care), high automation and digitalisation **are seen as future trends**

Diagnostic Applications – Material Needs

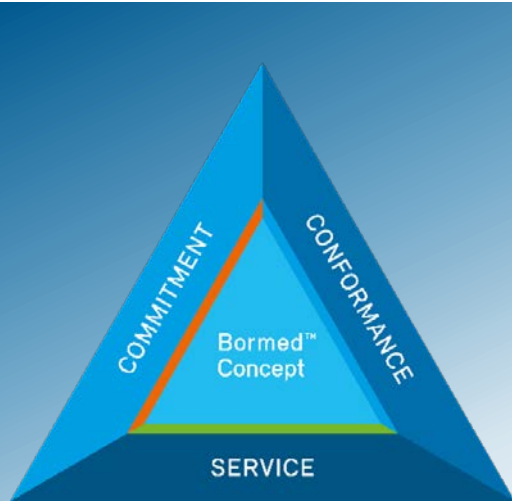
Determining the key material performance criteria is essential for successful material selection



| MATERIAL REQUIREMENTS FOR MEDICAL DEVICES | |
|---|--|
| PHYSICAL | Physical performance elements for robust design <ul style="list-style-type: none">– Stiffness for thin walled sections– High impact strength retention at low temperatures– Transparency– High MFI for multicavity tools |
| REGULATORY | Compliance to regulatory directives <ul style="list-style-type: none">– Compliance to directives and new IVDR (2022)– Regulatory back up support |
| STERILISATION | Compatibility with sterilisation method <ul style="list-style-type: none">– EtO– Radiation– Steam /Autoclave |
| ADDITIVES | Functional additives for tailor made solution <ul style="list-style-type: none">– Anti-Static– Nucleation– Slip Agent– Radiation |

Bormed™ Portfolio for Diagnostic Applications

Complying to diverse performance requirements of diagnostic applications



- Grades with **superior flow up to 75 gr/10 min MFI values** for easy flow of material within high cavity tools of diagnostic applications
- Grades with **high impact strength retention** at low temperatures
- **Sterilisation compatible** grades for EtO, Steam at 121°C and gamma radiation
- Grades with **special additive packages** including slip, antistatic etc. agents
- All grades have **extractable data and DMF number**
- **Excellent compounding compatible grades** for diagnostics applications

**The Bormed portfolio comes with Bormed service package:
Pharmacopeia compliance, change control and long-term security of supply**

Bormed™ Portfolio for Diagnostics Application

What are the material key performance criteria for your diagnostics application?

| DIAGNOSTICS | PE HIGH DENSITY | | PP HOMO | | | | PP RANDOM COPOLYMERS | | | | PP BLOCK |
|----------------------------|-----------------|-----------|---------|----------|---------|---------|----------------------|---------|-----------|----------|-----------|
| Key Performance Criteria | HE7541-PH | HE9621-PH | HF840MO | HD810MO | HD850MO | HG820MO | RG835MO | RF825MO | RJ880MO | RF830MO | BJ868MO |
| Stiffness | Low | Medium | Medium | Medium | High | High | Medium | Medium | Low | Medium | Medium |
| Impact Resistance | High | High | Low | Low | Low | Low | Medium | High | Medium | Medium | High Ret. |
| MFI (g/10dk), 230C/2,16kg | 4 | 12 | 19 | 10 | 8 | 28 | 30 | 20 | 45 | 20 | 70 |
| Transparency | Low | Low | Medium | Medium | Medium | Medium | High | High | High | High | Low |
| EtO Sterilisation | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Steam Sterilisation @ 121C | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Radiation Sterilisation | No | No | No | Yes | No | No | No | No | No | Yes | No |
| Functional Additives | - | - | Slip | Nuc, Rad | - | Nuc | Nuc, Slip | Nuc | Nuc, Anst | Nuc, Rad | - |

Diagnostics – Applications with Bormed™

Complying to diverse performance requirements of diagnostics



Bormed grades have been used successfully in several diagnostic applications

- Labware trays
- Collecting tubes
- Pipette tips

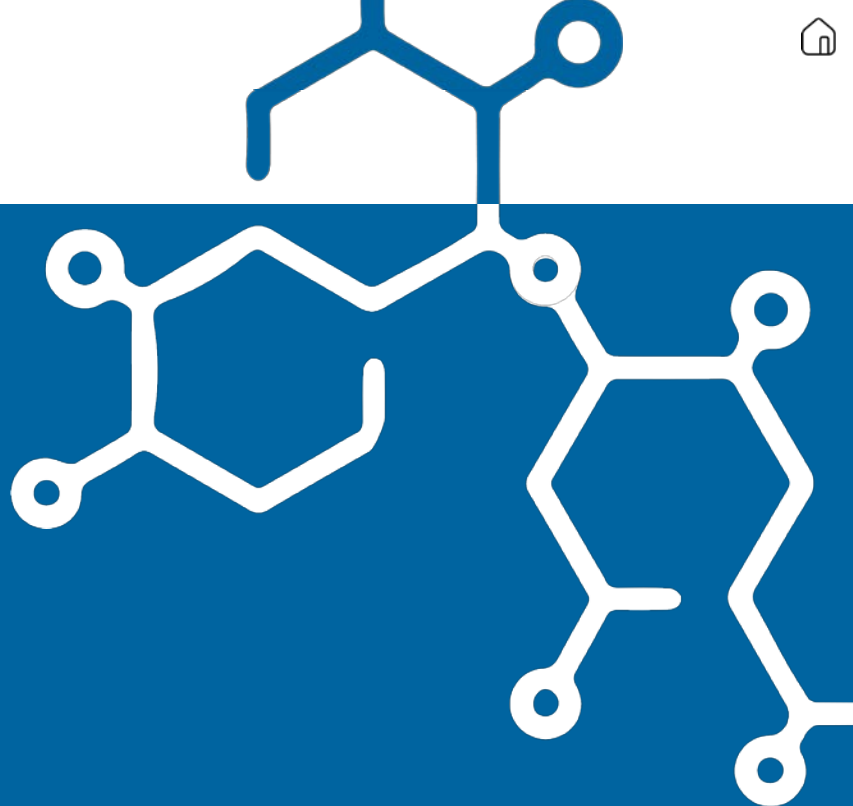
Bormed™- Labware Trays

APPLICATION PRINCIPLES

Labware trays are used in diagnostics labs to carry the collecting tubes. They have relatively flat surface and several holes requiring high flow material.

Depending on the storage method lab ware trays may also be exposed to low temperatures where impact resistance might be critical.

They should also have certain chemical resistance to withstand chemicals and fluids in the lab environment.





Bormed™- Labware Trays

DESIRED BENEFITS ON APPLICATION

- Reliable part strength
- Shock resistance to impacts
- Withstanding at storage temperature
- Environmental crack resistant parts
- No sterilisation limitation

KEY MATERIAL REQUIREMENTS

- High flow and good processability
- High toughness
- High impact retention at diverse temperatures
- Good chemical resistance
- Compatibility to sterilization methods



Bormed™- Labware Trays



| Labware trays | GRADES FOR LABWARE TRAYS | | | | | | RADIATION GRADES | |
|---------------------------|--------------------------|-----------|---------|---------|---------|---------|------------------|----------|
| Key Performance Criteria | HE7541-PH | HE9621-PH | RF825MO | HG820MO | HF840MO | HD850MO | HD810MO | RF830MO |
| Stiffness | Low | Medium | Medium | High | Medium | High | Medium | Medium |
| Impact Resistance | High | High | High | Low | Low | Low | Low | Medium |
| MFI (g/10dk), 230C/2,16kg | 4 | 12 | 20 | 28 | 19 | 8 | 10 | 20 |
| Transparency | Low | Low | High | Medium | Medium | Medium | Medium | High |
| EtO Sterilisation | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Steam Sterilisation@ 121C | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Radiation Sterilisation | No | No | No | No | No | No | Yes | Yes |
| Functional Additives | - | - | Nuc | Nuc | Slip | - | Nuc, Rad | Nuc, Rad |

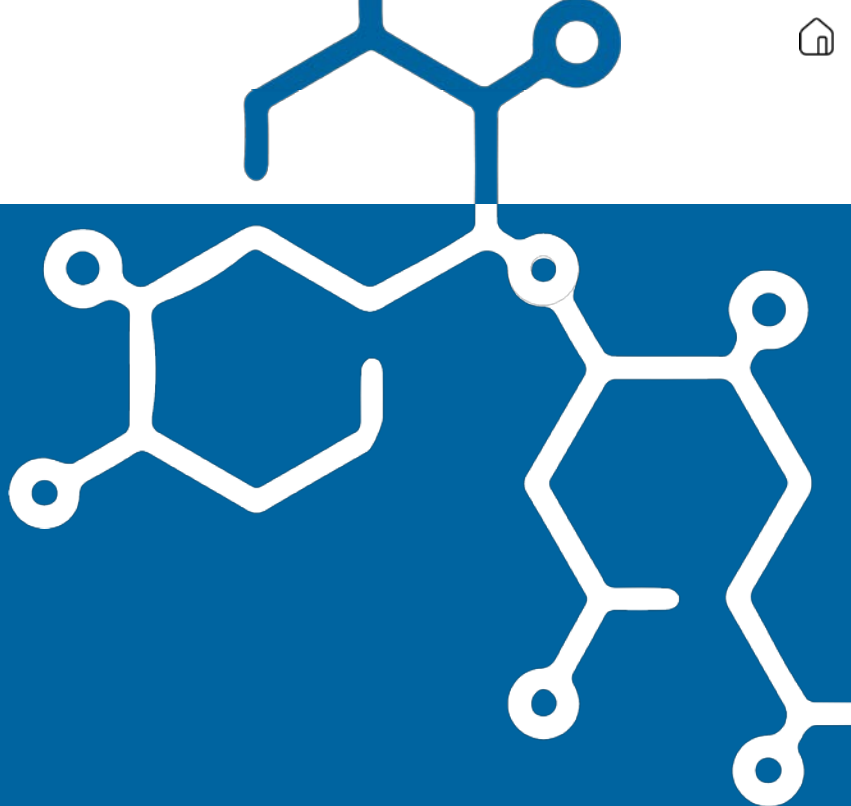
Bormed™- Collecting Tubes

APPLICATION PRINCIPLES

Collecting tubes are used in diagnostics labs to collect the samples. They are tube shaped and transparent parts molded with high cavity number tools.

Depending on the storage method lab ware tubes may also be exposed to low temperatures where impact resistance might be critical.

They should also have certain chemical resistance to withstand chemicals and fluids in the lab environment.





Bormed™- Collecting Tubes

DESIRED BENEFITS ON APPLICATION

- Visibility of sample level
- Efficient, high volume production
- Withstanding at storage temperature
- Environmental crack resistant parts
- No sterilisation limitation



KEY MATERIAL REQUIREMENTS

- Transparency
- Easy processing: moderate to high flow
- High impact retention at diverse temperatures
- Good chemical resistance
- Compatibility to sterilization methods

Bormed™- Collecting Tubes



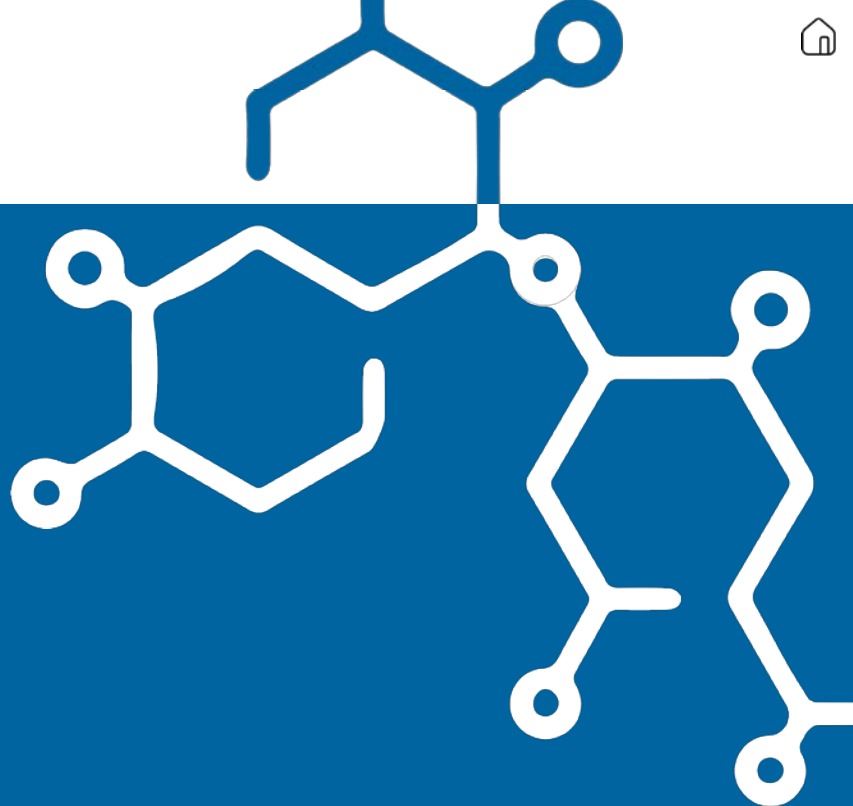
| Key Performance Criteria | RF825MO | RJ880MO | RG835MO | HD810MO | RF830MO |
|----------------------------|---------|-----------|-----------|----------|----------|
| Stiffness | Medium | Low | Medium | Medium | Medium |
| Impact Resistance | High | Medium | Medium | Low | Medium |
| MFI (g/10dk), 230C/2,16kg | 20 | 45 | 30 | 10 | 20 |
| Transparency | High | High | High | Medium | High |
| EtO Sterilization | Yes | Yes | Yes | Yes | Yes |
| Steam Sterilisation @ 121C | Yes | Yes | Yes | Yes | Yes |
| Radiation Sterilisation | No | No | No | Yes | Yes |
| Functional Additives | Nuc | Nuc, Anst | Nuc, Slip | Nuc, Rad | Nuc, Rad |

Bormed™- Pipette Tips

APPLICATION PRINCIPLES

Pipette tips are used in diagnostics labs to transport measured volume of the samples. Even though pipette tips vary in size, dimensional stability is important for their accuracy. They are molded with high cavity number tools where reliable process and high precision dimensions are keys for productivity and quality.

Depending on the storage method, pipette tips may also be exposed to low temperatures at subzero degree where impact resistance might be critical.





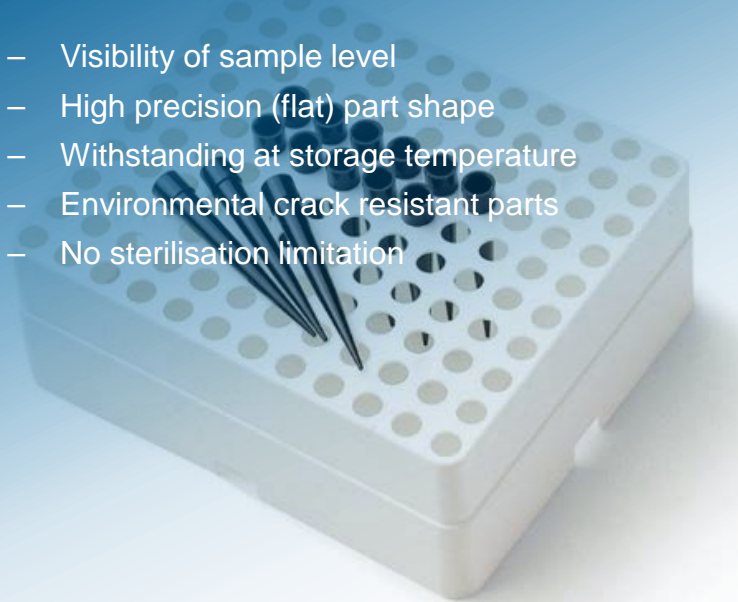
Bormed™- Pipette Tips

DESIRED BENEFITS ON APPLICATION

- Visibility of sample level
- High precision (flat) part shape
- Withstanding at storage temperature
- Environmental crack resistant parts
- No sterilisation limitation

KEY MATERIAL REQUIREMENTS

- Transparency
- Easy processing and high flow
- High impact retention at subzero temperatures
- Good chemical resistance
- Compatibility to sterilization methods



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Bormed™- Pipette Tips



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| PIPETTE TIPS | GRADES | | | | | RADIATION GRADES | |
|----------------------------|-----------|-----------|---------|---------|---------|------------------|----------|
| Key Performance Criteria | BJ868MO | RJ880MO | RF825MO | HG820MO | HF840MO | HD810MO | RF830MO |
| Stiffness | Medium | Low | Medium | High | Medium | Medium | Medium |
| Impact Resistance | High Ret. | Medium | High | Low | Low | Low | Medium |
| MFI (g/10dk), 230C/2,16kg | 70 | 45 | 20 | 28 | 19 | 10 | 20 |
| Transparency | Low | High | High | Medium | Medium | Medium | High |
| EtO Sterilisation | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Steam Sterilisation @ 121C | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Radiation Sterilisation | No | No | No | No | No | Yes | Yes |
| Functional Additives | - | Nuc, Anst | Nuc | Nuc | Slip | Nuc, Rad | Nuc, Rad |

Thank you

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