Guideline for filling out the Excel-files

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1. General information
   - Go to http://www....
   - Download the Excel-files for your products. There are different files for Bipolarplates (BPP), Catalysts, Gas-Diffusion-Layer (GDL), Seals, Membranes and Membrane-Electrode-Assemblies (MEAs)
   - Fill out the Excel-Files. You can enter information only in column C & D. In column G are information, how to fill out the row.
   - Information you must enter, are marked in red, information you should enter, are marked in yellow
   - After you enter your information, the Excel-file will check your input:
     - If the cell is marked green, your information is filled in according to the rules
     - If the cell is marked yellow, please check if there is information missing
     - If the cell is marked red, please check the requirements with column E — or see the following pages
   - After filling out the Excel-File, please exchange the following information in the filename:
     - Year: 4 digit year, e.g.: 2021
     - Month: 2 digit month, e.g.: 01
     - Day: 2 digit month, e.g.: 17
     - Company Name: Your company name
   - So after saving, the filename should for example look like: 20210117_BPP_MyCompany.xlsx
   - Please sent the Excel-File to Tina.Kaempfer@vdma.org. Please use *Input Stack-Component Register* as subject
   - We will create your one-pager and sent it to you for release. After we have received your release, it will be published in the stack-component register.

   - Please note: The process of transforming the Excel-File to your input in the stack-component register is highly automated. So please read the following pages carefully and stick to the process.
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2. Information on text editing and special signs

As your input will be compiled automatically, please do not use any formatting tools in Excel (like bold or italic) - this information will not be transferred.

If you have a longer text (e.g. in the company description) please do not use ENTER, unless you want to make a paragraph.

Please ensure, that you do not have empty lines in your text.

There are certain special signs, that you can add to your text:

- The registered trademark sign: ®
- The copyright sign: ©
- The elevated 2, e.g. for cm²: ²
- The elevated 3, e.g. for cm³: ³
- The apostrophe: ‘
- The sign for degree Celsius: °
- The Euro-Sign: €
- The Dollar-Sign: $
- The Yen-Sign: ¥

If you need other symbols, please let us know up-front. If we know it up-front, we can include this in the compiling process. This is significantly less work, than debugging error-messages, if an unknown symbol is used.
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3. Company information

- Each file starts with the company information.
- They look like this
- In the first line (row 4) please enter your Company Name. This information is mandatory. There are no limitations on this. This company name will be used as headline.
- Next is your address. It should have at least three lines: Your street, your town and your country.
- Row 6: Here you can enter a phone number for first contact.
- Row 7 is an email-address. This will be a hyperlink in the final document, so that your costumer can contact you directly.
- Row 8 is your website. This will be a hyperlink, too.
- Please enter the person responsible for your information in this line. This is mandatory.
- In row 10 you have 800 characters to describe your company. You can use listings by using the — in the front and you can use enumerations by a number followed by a point. The number of characters used and allowed will be displayed in column E while you type.

The company information will look the following way:
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3. Application & usage information

- For every material there are the blocks for usage (which fuel cell types do you support) and application (which target industry for fuel cells do you support)
- This information is in different rows (depending on the material you selected), but always looks like this:
- For these fields put an X in column C, if you support it. Leave blank, if you don’t support it.
- All car applications are summarized under Automotive. Bus, Truck, Train, Ship and heavy construction are summarized under Heavy Duty. Fork-Lifts go under Material Handling. Mobile applications, like chargers, camping and caravanning go under Portable. Combined heat and power and off-grid applications go under Stationary.
- The information you enter under Usage will be put into one sentence in your text. The information under Application will be put as a listing in your text:
- Additionally, this information will be put in a table in the appendix for quick-search:

<table>
<thead>
<tr>
<th>Usage:</th>
<th>LT-PEM</th>
<th>HT-PEM</th>
<th>DMFC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Application:</th>
<th>Material Handling</th>
<th>X</th>
<th>Automotive</th>
<th>X</th>
<th>Heavy Duty</th>
<th>X</th>
<th>Portable</th>
<th>X</th>
</tr>
</thead>
</table>

We offer products for the following fuel cell types: LT-PEM and DMFC. Our products are used in the following applications:

- Automotive
- Heavy Duty
- Portable

8.1 BPP business

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Application</th>
<th>Usage</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Automotive</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Heavy Duty</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Material Handling</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Portable</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stationary</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LT-PEM</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HT-PEM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DMFC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MetalPlate</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BPP extremely high</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BPP extremely low</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Compounds for making app</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

2.1.1 Test-Company

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Application</th>
<th>Usage</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Automotive</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Heavy Duty</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Material Handling</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Portable</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stationary</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LT-PEM</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HT-PEM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DMFC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MetalPlate</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BPP extremely high</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BPP extremely low</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Compounds for making app</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>
Guideline for filling out the Excel-files

5.a.) Specific information: BPP

- In row 11-15 you can select which type of product you offer:
  - Metallic BPP
  - BPP made out of compounds
  - BPP made out of graphite, which is afterwards sealed, e.g. by impregnation or CVD
  - Compounds for making BPP
  - Others

- Please make an X in Column C for your products
- As long as you have entered nothing, the columns are marked in yellow. When you have entered at least one X, the columns will turn to green.
- If you select others, please give some more details in column D with a maximum of 100 characters.
- The selection you make here will determine in which section of the stack-component register you will be placed. There is one for suppliers of metallic BPP, one for suppliers of “black” BPP (BPP made of compound and of graphite and suppliers of compounds) and one for others.
- The information you enter will be put in a listing in your text:
- And additionally in the table in the appendix:
Guideline for filling out the Excel-files

5.a.) Specific information: BPP

- In row 24 you can mark in column C, if you offer seal on BPP. If yes, put a X in there.
- In row 25 you can specify your maximum size. You have 75 characters available for this.
- In row 26 you can specify your minimum purchase order. You have 75 characters available for this.
- If you have put an X for Seal on BPP, there will be the sentence: „We offer seal on BPP.“ in your text — otherwise this sentence will not be in your text.
- The maximum and minimum order will be put in your text like this:

<table>
<thead>
<tr>
<th></th>
<th>Seal on BPP possible:</th>
<th>Max. size:</th>
<th>Min. Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>X</td>
<td>250 * 300 mm</td>
<td>10</td>
</tr>
</tbody>
</table>

We offer seal on BPP.
The maximum we can offer is: 250 * 300 mm.
Our minimum order is: 10.
Guideline for filling out the Excel-files

5.b.) Specific information: Catalyst

- In row 19-23 you can give more details about the type of catalyst you offer. Make an X in column C for every type of product you offer. You have the possibility to select:
  - Platinum on carbon (Pt/C)
  - Binary alloy catalyst on carbon (Pt-M/C), e.g.: Pt-Co on carbon
  - Ternary alloy catalyst on carbon (Pt-M-M/C), e.g.: Pt-Ni-Co on carbon
  - Non Precious metal catalyst
  - Others
- If you select others, please give in column D some more details. You have 150 characters for this.
- Your information will be put as a listing in your text:
- … and in the table in the appendix:
- In row 24 you can specify your minimum order volume. If you—for example enter: “Our minimum order is: 100gr. Samples for testing available.” this would look like this in your text:

---

We offer the following types of materials:

- Platinum on carbon
- Binary platinum-alloy on carbon

---

Our minimum order is: 100gr. Samples for testing available.
5.c.) Specific information: GDL

- In row 14 and 15 you can enter the information, how your material is available. You can make a X in one or both fields — or leave both fields empty.
- This information will be integrated as one sentence in your text.
- In row 21-26 you can give more information on your products. Row 21-23 are information on the material. Row 24-25 gives the information, if you offer GDLs with and / or without MPL. You can mark both lines. In row 26 you can specify other GDLs. If you mark this with an X, please give some more details in column D. You have 100 characters for this.
- This information will be placed as a list in your text:
  - Without MPL
  - With MPL

We offer products for the following fuel cell types: LT-PEM, HT-PEM and DMFC. Our materials are available as role and sheet. Our products are used in the following applications:

<table>
<thead>
<tr>
<th>Type:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon fiber paper</td>
<td></td>
</tr>
<tr>
<td>dry laid paper</td>
<td></td>
</tr>
<tr>
<td>carbon cloth</td>
<td></td>
</tr>
<tr>
<td>without MPL</td>
<td></td>
</tr>
<tr>
<td>with MPL</td>
<td></td>
</tr>
<tr>
<td>others, please specify:</td>
<td></td>
</tr>
</tbody>
</table>
### Guideline for filling out the Excel-files

#### 5.c.) Specific information: GDL

- In row 26 you can mark in column C, if you offer seal on BPP. If yes, put a X in there.
- In row 27 you can specify your maximum size. You have 75 characters available for this.
- In row 28 you can specify your minimum purchase order. You have 75 characters available for this.
- In row 29, you can specify, if customized sizes are available. If yes, put a X in column C.
- This will be put in your text like this:

  We offer seal on GDL.
  The maximum size we offer is: Roll with: 1m, length: 100m.
  Our minimum order is: 100€.
  We offer customized sizes.
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5.d) Specific information: Membrane

- In row 14 and 15 you can enter the information, how your material is available. You can make a X in one or both fields — or leave both fields empty.
- Row 16-22 is to give some more information on your material. You can select if you offer:
  - Reinforced membranes
  - Non-reinforced membranes
  - Chemically stabilized membranes

  If you have such products, simply put a X in column C.
- Then you can enter which material you use for your membranes. Nafion, Hydrocarbon and PBI based can simply be selected by putting a X in column C. If you have other, please put a X in column C on row 22, and give more details in column D. You have up to 100 characters for this.
- The availability of your material will be put as a sentence in your text:
- The information on your materials will be put as a list in your text, e.g. if you have selected Non-Reinforced and PBI-based, the text will look like this:
- And additionally in the table in the appendix:
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5.d) Specific information: Membrane

- In row 28 and 29 you can specify your minimum and maximum thickness of your membrane.
- In row 30 you can specify the maximum size you can supply.
- In row 31 you can give the minimum order volume or minimum size.
- In row 32 you can put a X in column C, if you offer costumized size.
- All this information will be integrated in your text as separate sentences:

<table>
<thead>
<tr>
<th>Thickness: Minimum</th>
<th>20 μm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness: Maximum</td>
<td>100 μm</td>
</tr>
</tbody>
</table>

Max. Size: Roll with 1m, length 100 m

Min. Order Volume / Size: 1 roll

Customized Size available: X

Our minimum membrane thickness is 20 μm. Our maximum membrane thickness is 100 μm. The maximum size we offer is: Roll with 1m with, 100m length.

The maximum size we offer is: Roll with 1m, length 100m.

Our minimum order is: 1 roll.

We offer costumized sizes.
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5.e) Specific information: MEAs

- In row 14 and 15 you can enter the information, how your material is available. You can make a X in one or both fields — or leave both fields empty.
- Row 21-24 is to give some more information on your material. You can select if you offer:
  - 3-Layer MEAs (Catalyst coated membranes CCM): Membranes coated on both sides with catalyst layer
  - 5-Layer MEAs: Meaning CCMs plus GDLs (with or without MPL) on both sides
  - 7-Layer MEAs: Additional subgasket
  - 7-Layer MEA + Sealing: Additional sealing included

If you have such products, simply but a X in column C.
- In column 25 you can specify you maximum size
- In column 26 you can give your minimum order volume.
- The availability of your material will be put as a sentence in your text:
- The products you offer, will be put as a list in your text:
- The information on your maximum size and your minimum order will be put as sentences in your text:
- And additionally in the table in the appendix:
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5.f) Specific information: Sealings

- In row 11 to 15 you can enter information about your material. You can select the given materials by putting a X in column C. Or specify your own material by putting an X in column C15 and putting up to 150 characters in column D..
- This information will be put as a list in your text:
- And additionally in the table in the appendix:

<table>
<thead>
<tr>
<th>Sealing Materials</th>
<th>Silicon</th>
<th>FKM</th>
<th>FFKM</th>
<th>EPDM</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Others, please specify:

We offer products for the following fuel cell types: LT-PEM, HT-PEM and DMFC. We offer products made of the following materials:

- Silicon
- FKM
- FFKM
- EPDM
- NBR / HNBR / SBR etc.
Guideline for filling out the Excel-files

5.f) Specific information: Sealings

- Row 19-24 you can specify, how you supply your material:
  - Raw material, e.g. for dispensing or hot-pressing
  - Plate
  - Ready made seal
  - Seal on Bipolar plate
  - Seal on Gas-diffusion-layer
  - Seal on MEA or CCM

This information will be put as a list in your text:

- Row 25 you can specify you maximum size.
- Row 26 you can specify your minimum order volume
- Row 27 you can specify, if customized sizes are available.

<table>
<thead>
<tr>
<th>Supply:</th>
<th>Raw material for e.g. dispensing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Plate</td>
</tr>
<tr>
<td></td>
<td>Ready Seal</td>
</tr>
<tr>
<td></td>
<td>Seal on BPP</td>
</tr>
<tr>
<td></td>
<td>Seal on GDL</td>
</tr>
<tr>
<td></td>
<td>Seal on MEA / CCM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Max. size:</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Min. Order Volume / Size:</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Customized Size available:</th>
<th></th>
</tr>
</thead>
</table>

We offer the following types of products:

- Plate
- Ready seal
- Seal on BPP
- Seal on GDL
- Seal on MEA / CCM

We offer customer geometry.

The maximum size we offer is: 500 x 500.

Our minimum order is: 1.