

### General information about vials and caps

#### Technical Information – Vials

In chromatography a broad variety of glass or plastic vials are used as sample containers for analysis usage. As they are mainly used within autosamplers or any other automatic instrument, strict obedience of all dimensions is crucial for a trouble-free run. Besides these physical properties the vials also have to fulfill requirements regarding inertness and cleanliness, as otherwise analysis results may be incorrect. LLG Labware consider the physical and chemical demands in their production process by various implementations:

Almost all vials are made out of 1st hydrolytic class glass. First hydrolytic class glass is very hard and has a low expansion coefficient even at high temperature variations. It shows an excellent chemical resistance to acidic and neutral solutions, and even to alkaline solutions due to its relatively low Alkali content. Higher density of the glass surface offers a higher hydrolytic resistance. Clear Glass of 1st hydrolytic class is differentiated by 33 expansion (Type 1, Class A) and 51 expansion glass (Type 1, Class B), whereas amber is generally worldwide only available as 51 expansion glass. The indicated lower expansion coefficient of 33 implies that this harder clear glass has to be processed at higher temperatures. These amount to approx. 1,200°C for 33 expansion glass in comparison to only approx. 1,000°C for glass of 51 expansion. In the USA typically clear glass in 33 expansion and amber glass in 51 expansion is used, whereas in Europe solely 51 expansion glass is processed. From a quality point of view both types of glass are equally suitable for usage in chromatography, as they both are glasses of 1st hydrolytic class.

#### Technical Information – Seals

Seals are the assembled combination of a cap and a septa. To carry out a correct analysis, it is important that besides the vial the seal is also inert and uncontaminated. The closures sold by LLG Labware are automatically assembled and packed according to internally defined conditions of the supplier. Photocells check the side-orientation of the liner, so that it is ensured that the PTFE lamination is always directed towards the sample to build an inert barrier between sample and carrier material of the septa. A gauge control ensures that not more or less than one septa is installed. The final seals are automatically counted – and not weighed – by automates to guarantee quantity obedience. They are packed in tamper-proof evident zip-lock bags that allow easy identification of the content due to the transparent PE material. The zip-lock enables resealing of the bag to avoid any contamination of the closures during consumption. The batch number of the manufactured seal is printed on each PE-bag for traceability.

#### Technical Information – Septa

The right choice of septa depends on the application. Almost all septa are laminated on one side with PTFE, which has a high chemical resistance and forms an inert barrier between sample and carrier material of the septa. The carrier materials have different physical and chemical properties, such as temperature resistance, resealability properties, cleanliness, hardness, thickness, etc.

| The individual conditions of the customer's application aim at the specific characteristics of the carrier material, e.g.: |                                |                 |              |                              |   |                           |   |
|--|--------------------------------|-----------------|--------------|------------------------------|---|---------------------------|---|
| Multiple injection?  | Temperature?                   |                 |              | thin, fragile needle?        | blunt, thick needle?                            | critical analysis?        | low coring?                               |
| ↓  | -40°C                          | -40°C           | -60°C        | ↓                            | ↓   | ↓                         | ↓   |
| good resealability properties necessary  | up to 120°C                    | up to 110°C     | up to 200°C  | soft and thin septa required | slitted/pre-cut liner as penetration aid (HPLC) | very clean liner required | both sided PTFE laminated liners required |
| ↓  | ↓                              | ↓               | ↓            | ↓                            | ↓   | ↓                         | ↓   |
| Natural Rubber/TEF   | Natural Rubber/TEF; Butyl/PTFE | Red Rubber/PTFE | Silicon/PTFE | e.g. Silicon/PTFE            | e.g. 08 02 0039                                 | Silicon/PTFE              | PTFE/Silicon/PTFE/Butyl/PTFE              |



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### LLG- Vials and autosamplers: compatibility chart

| <b>Agilent</b>  |  |
|---|--|
| Alternative LLG Labware products for use on Agilent GC, HPLC and Headspace instruments. |  |

| <b>Agilent GC Products</b> |                            |                             |                           |                             |                            |                             |
|----------------------------|----------------------------|-----------------------------|---------------------------|-----------------------------|----------------------------|-----------------------------|
|                            | <b>Crimp Neck<br/>ND 8</b> | <b>Agilent<br/>Art.-No.</b> | <b>Screw Neck<br/>ND9</b> | <b>Agilent<br/>Art.-No.</b> | <b>Crimp Neck<br/>ND11</b> | <b>Agilent<br/>Art.-No.</b> |
| <b>Vials</b>               | 4.001 554                  | 5180-0841                   | 9.003 448                 | 5182-0714                   | 7.086 520                  | 5181-3375                   |
|                            | 6.235 006                  | 5180-0844                   | 6.803 174                 | 5182-0715                   | 7.608 160                  | 5182-0543                   |
|                            |                            |                             | 6.088 871                 | 5182-0716                   | 7.620 828                  | 5181-3376                   |
|                            |                            |                             | 4.008 249                 | 5183-2030                   | 6.233 918                  | 9301-1388                   |
| <b>Micro-Inserts</b>       |                            |                             | 7.401 744                 | 5183-2085                   | 7.401 744                  | 5183-2085                   |
|                            |                            |                             | 6.093 247                 | 5181-1270                   | 6.093 247                  | 5181-1270                   |
|                            |                            |                             | 4.008 196                 | 5181-3377                   | 4.008 196                  | 5181-3377                   |
| <b>Seals</b>               | 9.003 444                  | 5180-0842                   | 4.008 228                 | 5182-0717                   | 4.008 243                  | 5181-1210                   |
|                            |                            |                             | 9.003 451                 | 5182-0720                   | 9.003 446                  | 5182-0552                   |
|                            |                            |                             | 4.008 218                 | 5182-0723                   | 7.050 759                  | 5181-1211                   |
|                            |                            |                             | 4.008 216                 | 5182-0717                   | 4.001 564                  | 5188-5386                   |
|                            |                            |                             | 4.008 214                 | 5185-5823                   | 4.008 239                  | 5181-1210                   |

| <b>Agilent HPLC Products</b> |                           |                             |                            |                             |                           |                             |
|------------------------------|---------------------------|-----------------------------|----------------------------|-----------------------------|---------------------------|-----------------------------|
|                              | <b>Screw Neck<br/>ND9</b> | <b>Agilent<br/>Art.-No.</b> | <b>Crimp Neck<br/>ND11</b> | <b>Agilent<br/>Art.-No.</b> | <b>Snap Ring<br/>ND11</b> | <b>Agilent<br/>Art.-No.</b> |
| <b>Vials</b>                 | 9.003 448                 | 5182-0714                   | 7.086 520                  | 5181-3375                   | 6.073 833                 | 5182-0544                   |
|                              | 6.803 174                 | 5182-0715                   | 7.608 160                  | 5182-0543                   | 7.622 228                 | 5182-0546                   |
|                              | 6.088 871                 | 5182-0716                   | 7.620 828                  | 5181-3376                   | 7.613 330                 | 5182-0545                   |
|                              | 4.008 249                 | 5183-2030                   | 6.233 918                  | 9301-1388                   | 4.008 255                 | 5188-6593                   |
| <b>Micro-Inserts</b>         | 7.401 744                 | 5183-2085                   | 7.401 744                  | 5183-2085                   | 7.401 744                 | 5183-2085                   |
|                              | 6.093 247                 | 5181-1270                   | 6.093 247                  | 5181-1270                   | 6.093 247                 | 5181-1270                   |
|                              | 4.008 196                 | 5181-3377                   | 4.008 196                  | 5181-3377                   | 4.008 196                 | 5181-3377                   |
| <b>Seals</b>                 | 4.008 228                 | 5182-0717                   | 4.008 243                  | 5181-1210                   | 4.008 257                 | 5182-3458                   |
|                              | 9.003 451                 | 5182-0720                   | 9.003 446                  | 5182-0552                   | 4.008 258                 | 5182-0541                   |
|                              | 4.008 218                 | 5182-0723                   | 7.050 759                  | 5181-1211                   | 4.008 259                 | 5182-0566                   |
|                              | 4.008 216                 | 5182-0717                   | 4.001 564                  | 5188-5386                   | 4.008 256                 | 5183-4511                   |
|                              | 4.008 214                 | 5185-5823                   | 4.008 239                  | 5181-1210                   |                           |                             |
|                              | 4.008 215                 | 5185-5824                   | 4.001 555                  |                             |                           |                             |
|                              | 4.001 521                 | 5183-2076                   |                            |                             |                           |                             |

| <b>Agilent Headspace Products</b> |  |                             |   |                             |
|-----------------------------------|--|-----------------------------|---|-----------------------------|
|                                   | <b>Headspace<br/>Screw<br/>ND 18<br/>(Combi Pal + G<br/>1888A)</b> | <b>Agilent<br/>Art.-No.</b> | <b>Headspace<br/>Crimp Neck<br/>ND 20</b> | <b>Agilent<br/>Art.-No.</b> |
| <b>Vials</b>                      | 9.003 466  | 5188-5392                   | 7.050 285                                 | 5182-0838                   |
|                                   | 6.227 874  | 5188-6538                   | 9.003 452                                 | 5182-0837                   |
|                                   | 4.008 270  | 5188-2753                   |   |                             |
|                                   | 6.237 909  | 5188-6537                   |   |                             |
| <b>Seals</b>                      | 4.008 268  | 5188-2759                   | 4.001 557                                 | 5183-4479                   |
|                                   |  |                             | 9.003 460                                 | 5183-4477                   |
|                                   |  |                             | 9.003 453                                 | 5183-4474                   |

#### Autosampler compatibility chart

The autosampler compatibility chart generally shows the most typical LLG-Labware vials and closures for usage on instruments of different manufacturers. Additionally the corresponding part number of the manufacturer is indicated. Beside these there also may be further products in our catalogue which may technically and functionally be suitable. We will gladly recommend other suitable products.

If applicable for a manufacturer, each table has been divided by the application HPLC, GC and Headspace. We generally recommend asking for cost-free samples for testing purposes.

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LLG- Vials and autosamplers: compatibility chart

**CTC Analytics**

Alternative LLG Labware products for use on CTC Analytics GC, HPLC and Headspace instruments.

**CTC Analytics GC Products**

|                      | Crimp Neck<br>ND 8 | CTC<br>Art.-No. | Screw Neck<br>ND9 | CTC<br>Art.-No. | Crimp Neck<br>ND11 | CTC<br>Art.-No. |
|----------------------|--------------------|-----------------|-------------------|-----------------|--------------------|-----------------|
| <b>Vials</b>         | 4.001 554          |                 | 9.003 448         |                 | 7.086 520          |                 |
|                      | 6.235 606          |                 | 6.803 174         |                 | 7.608 160          |                 |
|                      | 4.001 515          |                 | 6.088 871         |                 | 7.620 828          |                 |
|                      | 6.902 044          |                 | 4.008 249         |                 | 6.233 918          |                 |
|                      | 4.008 202          |                 |                   |                 |                    |                 |
|                      | 4.008 203          |                 |                   |                 |                    |                 |
| <b>Micro-Inserts</b> |                    |                 | 7.401 744         |                 | 7.401 744          |                 |
|                      |                    |                 | 6.093 247         |                 | 6.093 247          |                 |
|                      |                    |                 | 4.008 196         |                 | 4.008 196          |                 |
| <b>Seals</b>         | 9.003 444          |                 | 4.008 228         |                 | 4.001 564          | GC PAL          |
|                      | 4.008 198          |                 | 9.003 451         |                 | 9.003 446          |                 |
|                      |                    |                 | 4.001 521         |                 | 7.050 759          |                 |
|                      |                    |                 | 4,008 218         |                 |                    |                 |
|                      |                    |                 | 4.008 215         |                 |                    |                 |

**CTC Analytics HPLC Products**

|                      | Crimp Neck<br>ND 8 | CTC<br>Art.-No. | Screw Neck<br>ND9 | CTC<br>Art.-No. | Crimp Neck<br>ND11 | CTC<br>Art.-No. | Snap Ring<br>ND11 | CTC<br>Art.-No. |
|----------------------|--------------------|-----------------|-------------------|-----------------|--------------------|-----------------|-------------------|-----------------|
| <b>Vials</b>         | 4.001 554          |                 | 9.003 448         |                 | 7.086 520          |                 | 6.073 833         |                 |
|                      | 6.235 606          |                 | 6.803 174         |                 | 7.608 160          |                 | 7.622 228         |                 |
|                      | 4.001 515          |                 | 6.088 871         |                 | 7.620 828          |                 | 7.613 330         |                 |
|                      | 6.902 044          |                 | 4.008 249         |                 | 6.233 918          |                 | 4.008 255         |                 |
|                      | 4.008 202          |                 |                   |                 |                    |                 |                   |                 |
|                      | 4.008 203          |                 |                   |                 |                    |                 |                   |                 |
| <b>Micro-Inserts</b> |                    |                 | 7.401 744         |                 | 7.401 744          |                 | 7.401 744         |                 |
|                      |                    |                 | 6.093 247         |                 | 6.093 247          |                 | 6.093 247         |                 |
|                      |                    |                 | 4.008 196         |                 | 4.008 196          |                 | 4.008 196         |                 |
| <b>Seals</b>         | 9.003 444          |                 | 4.008 228         |                 | 4.008 243          |                 | 4.008 258         |                 |
|                      | 4.008 198          |                 | 9.003 451         |                 | 9.003 446          |                 | 4.008 259         |                 |
|                      |                    |                 | 4.001 521         |                 | 7.050 759          |                 |                   |                 |
|                      |                    |                 | 4,008 218         |                 |                    |                 |                   |                 |
|                      |                    |                 | 4.008 215         |                 |                    |                 |                   |                 |

**CTC Analytics Headspace Products**

|              | Headspace<br>Screw Neck<br>ND 18<br>(Combi Pal) | CTC<br>Art.-No. | Headspace<br>Crimp Neck<br>ND 20<br>(Combi Pal) | CTC<br>Art.-No. |
|--------------|---|-----------------|---|-----------------|
| <b>Vials</b> | 9.003 466                                       |                 | 7.850 009                                       |                 |
|              | 6.227 874                                       |                 | 9.003 453                                       |                 |
|              | 4.008 270                                       |                 |   |                 |
|              | 6.237 909                                       |                 |   |                 |
| <b>Seals</b> | 4.008 268                                       |                 | 7.850 010                                       |                 |
|              | 6.241 111                                       |                 | 6.234 541                                       |                 |

### LLG- Vials and autosamplers: compatibility chart

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|--|
| <b>Dionex</b>  |
| Alternative LLG Labware products for use on Dionex HPLC instruments. |

| Dionex HPLC Products |                    |                    |                   |                    |                   |                    |                    |                    |                   |                    |
|----------------------|--------------------|--------------------|-------------------|--------------------|-------------------|--------------------|--------------------|--------------------|-------------------|--------------------|
|                      | Crimp Neck<br>ND 8 | Dionex<br>Art.-No. | Screw Neck<br>ND8 | Dionex<br>Art.-No. | Screw Neck<br>ND9 | Dionex<br>Art.-No. | Crimp Neck<br>ND11 | Dionex<br>Art.-No. | Snap Ring<br>ND11 | Dionex<br>Art.-No. |
| <b>Vials</b>         | 4.008 206          |                    | 9.003 481         |                    | 9.003 448         |                    | 7.086 520          |                    | 6.073 833         |                    |
|                      | 6.235 606          |                    | 7.613 087         |                    | 6.803 174         |                    | 7.608 160          |                    | 7.622 228         |                    |
|                      | 4.001 554          |                    | 9.003 480         |                    | 6.088 871         |                    | 7.620 828          |                    | 7.613 330         |                    |
|                      |                    |                    | 7.613 388         |                    | 4.008 249         |                    | 6.233 918          |                    | 4.008 255         |                    |
| <b>Micro-Inserts</b> |                    |                    | 7.401 066         |                    | 7.401 744         |                    | 7.401 744          |                    | 7.401 744         |                    |
|                      |                    |                    | 4.001 556         |                    | 6.093 247         |                    | 6.093 247          |                    | 6.093 247         |                    |
|                      |                    |                    | 4.008 194         |                    | 4.008 196         |                    | 4.008 196          |                    | 4.008 196         |                    |
| <b>Seals</b>         | 4.008 200          |                    | 4.008 209         |                    | 4.008 228         |                    | 4.008 243          |                    | 4.008 257         |                    |
|                      | 9.003 444          |                    | 9.003 484         |                    | 9.003 451         |                    | 9.003 446          |                    | 4.008 258         |                    |
|                      |                    |                    | 6.232 178         |                    | 4.001 521         |                    | 7.050 759          |                    | 4.008 259         |                    |
|                      |                    |                    |                   |                    | 4.008 214         |                    | 4.001 555          |                    | 4.008 256         |                    |
|                      |                    |                    |                   |                    | 4.008 215         |                    |                    |                    |                   |                    |

#### Autosampler compatibility chart

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## LLG- Vials and autosamplers: compatibility chart

**PerkinElmer**

Alternative LLG Labware products for use on Agilent GC, HPLC and Headspace instruments.

**PerkinElmer GC Products**

|                      | Crimp Neck<br>ND 8 | PerkinElmer<br>Art.-No. | Screw Neck<br>ND9 | PerkinElmer<br>Art.-No. | Screw Neck<br>ND10 | PerkinElmer<br>Art.-No. | Crimp Neck<br>ND11 | PerkinElmer<br>Art.-No. |
|----------------------|--------------------|-------------------------|-------------------|-------------------------|--------------------|-------------------------|--------------------|-------------------------|
| <b>Vials</b>         | 6.235 606          | N9302136                | 9.003 448         | N9306201                | 6.242 103          |                         | 7.086 520          | N9301385                |
|                      | 9.003 427          | N9301069                | 6.803 174         | N9306201                | 7.615 715          |                         | 7.608 160          | N9301385                |
|                      |                    |                         | 4.008 247         | N9306220                | 6.238 867          |                         | 7.620 828          | N9302680                |
|                      |                    |                         | 6.088 871         | N9306220                |                    |                         |                    |                         |
| <b>Micro-Inserts</b> |                    |                         | 6.093 247         | N9300703                | 6.093 247          | N9300703                | 6.093 247          | N9300703                |
|                      |                    |                         | 4.008 196         | N9300704                | 4.008 196          | N9300704                | 4.008 196          | N9300704                |
| <b>Seals</b>         | 4.001 558          | N9302140                | 4.008 228         | N9306200                | 4.008 234          | N9306205                | 7.060 469          | N9306230                |
|                      | 9.003 443          | 03300806                | 9.003 451         | N9306202                | 4.008 235          | N9306205                | 4.008 243          | N9306015                |
|                      | 4.008 200          | 03300806                | 4.008 214         | N9306202                |                    |                         | 4.001 522          | N9302684                |
|                      |                    |                         |                   |                         |                    |                         | 7.300 348          | N9302685                |
|                      |                    |                         |                   |                         |                    |                         | 6.900 233          | N9302686                |
|                      |                    |                         |                   |                         |                    |                         | 9.003 446          | N9306228                |
|                      |                    |                         |                   |                         |                    |                         | 7.050 759          | N9306229                |

**PerkinElmer HPLC Products**

|                      | Crimp Neck<br>ND 8 | PerkinElmer<br>Art.-No. | Screw Neck<br>ND9 | PerkinElmer<br>Art.-No. | Screw Neck<br>ND10 | PerkinElmer<br>Art.-No. | Crimp Neck<br>ND11 | PerkinElmer<br>Art.-No. | Snap Ring<br>ND11 | PerkinElmer<br>Art.-No. |
|----------------------|--------------------|-------------------------|-------------------|-------------------------|--------------------|-------------------------|--------------------|-------------------------|-------------------|-------------------------|
| <b>Vials</b>         | 6.235 606          | N9302136                | 9.003 448         | N9306201                | 6.242 103          |                         | 7.086 520          | N9301385                | 6.073 833         | N9303418                |
|                      |                    |                         | 6.803 174         | N9306201                | 7.615 715          |                         | 7.608 160          | N9301385                | 7.622 228         |                         |
|                      |                    |                         | 4.008 247         | N9306220                | 6.238 867          |                         | 7.620 828          | N9302680                | 7.613 330         |                         |
|                      |                    |                         | 6.088 871         | N9306220                |                    |                         |                    |                         |                   |                         |
| <b>Micro-Inserts</b> |                    |                         | 6.093 247         | N9300703                | 6.093 247          | N9300703                | 6.093 247          | N9300703                | 6.093 247         | N9300703                |
|                      |                    |                         | 4.008 196         | N9300704                | 4.008 196          | N9300704                | 4.008 196          | N9300704                | 4.008 196         | N9300704                |
| <b>Seals</b>         | 9.003 443          | 03300806                | 4.008 228         | N9306200                | 4.008 234          | N9306205                | 7.060 469          | N9306230                | 6.073 555         | N9303417                |
|                      | 4.008 200          | 03300806                | 9.003 451         | N9306202                | 4.008 235          | N9306205                | 4.008 243          | N9306015                | 4.001 544         | N9303419                |
|                      |                    |                         | 4.008 214         | N9306202                | 4.008 237          | N9306052                | 4.001 522          | N9302684                | 4.008 256         | N9303416                |
|                      |                    |                         | 4.001 521         | N9306203                |                    |                         | 7.300 348          | N9302685                |                   |                         |
|                      |                    |                         |                   |                         |                    |                         | 6.900 233          | N9302686                |                   |                         |
|                      |                    |                         |                   |                         |                    |                         | 9.003 446          | N9306228                |                   |                         |
|                      |                    |                         |                   |                         |                    |                         | 7.050 759          | N9306229                |                   |                         |
|                      |                    |                         |                   |                         |                    |                         | 4.001 555          |                         |                   |                         |

**PerkinElmer Headspace Products**

|              | Headspace<br>Screw Neck<br>ND 18<br>CTC Combi<br>Pal + Turbo<br>Matrix™<br>HS16+40 | PerkinElmer<br>Art.-No. | Headspace<br>Crimp Neck<br>ND20<br>CTC<br>Combi PAL | PerkinElmer<br>Art.-No. | Headspace<br>Crimp Neck<br>ND20<br>Turbo<br>Matrix™ HS<br>16, 40 + 110<br>*** not suitable<br>for<br>TurboMatrix™<br>110 | PerkinElmer<br>Art.-No. |
|--------------|--|-------------------------|---|-------------------------|--|-------------------------|
| <b>Vials</b> | 9.003 466  | N6356479                | 7.850 009   | N6356478                | 7.052 186 ***  | N9302134                |
|              | 6.227 874  |                         | 9.003 453   | N6356471                | 7.060 463  | N9306079                |
|              | 4.008 270  | N9306075                |   |                         | 4.008 281  | N9303349                |
|              | 6.237 909  |                         |   |                         |  |                         |
| <b>Seals</b> | 4.008 268  | N9306077                | 7.850 010   | N6356559                | 4.001 557  | N9306266                |
|              | 6.241 111  | N6356475                | 6.234 541   | N6356566                | 9.003 455  | N9306266                |
|              |  |                         | 6.902 419   | N6356562                | 4.008 276  | N9306266                |
|              |  |                         | 6.229 635   | N6356560                | 9.003 456  | B0104241                |
|              |  |                         | 4.001 548   | N6356560                | 7.050 286  | B0104242                |
|              |  |                         |   |                         | 7.060 477  | B0110728                |
|              |  |                         |   |                         | 7.060 433  | B0038137                |

**LLG- Vials and autosamplers: compatibility chart**

**Shimadzu**  
 Alternative LLG Labware products for use on Shimadzu GC, HPLC and Headspace instruments.

| <b>Shimadzu GC Products</b> |                    |                      |                   |                      |                    |                      |                    |                      |                    |                      |
|-----------------------------|--------------------|----------------------|-------------------|----------------------|--------------------|----------------------|--------------------|----------------------|--------------------|----------------------|
|                             | Crimp Neck<br>ND 8 | Shimadzu<br>Art.-No. | Screw Neck<br>ND9 | Shimadzu<br>Art.-No. | Screw Neck<br>ND10 | Shimadzu<br>Art.-No. | Crimp Neck<br>ND11 | Shimadzu<br>Art.-No. | Screw Neck<br>ND13 | Shimadzu<br>Art.-No. |
| <b>Vials</b>                | 4.001 554          |                      | 9.003 448         |                      | 6.242 103          |                      | 7.086 520          | 980-01705            | 9.003 482          |                      |
|                             | 6.235 006          |                      | 4.008 247         |                      |                    |                      | 7.608 160          |                      | 7.058 142          |                      |
|                             | 4.001 515          |                      | 4.008 249         |                      |                    |                      | 7.620 828          |                      |                    |                      |
|                             | 6.902 044          |                      |                   |                      |                    |                      | 6.233 918          |                      |                    |                      |
|                             | 4.008 202          |                      |                   |                      |                    |                      |                    |                      |                    |                      |
|                             | 4.008 203          |                      |                   |                      |                    |                      |                    |                      |                    |                      |
| <b>Micro-Inserts</b>        |                    |                      | 7.401 744         | 980-04987            | 7.401 744          | 980-04987            | 7.401 744          | 980-04987            | 7.055 4856         |                      |
|                             |                    |                      | 6.093 247         | 980-01707            | 6.093 247          | 980-01707            | 6.093 247          | 980-01707            |                    |                      |
|                             |                    |                      | 4.008 196         |                      | 4.008 196          |                      | 4.008 196          |                      |                    |                      |
| <b>Seals</b>                | 9.003 444          |                      | 9.003 451         |                      | 4.008 234          |                      | 4.001 564          | 0980-01706           | 7.510 053          |                      |
|                             | 4.008 198          |                      | 4.008 218         |                      | 4.008 235          |                      | 9.003 446          |                      |                    |                      |
|                             |                    |                      | 4.008 214         |                      | 4.008 236          |                      | 7.050 759          |                      |                    |                      |

| <b>Shimadzu HPLC Products</b> |                    |                      |                   |                      |                    |                      |                    |                      |                    |                      |
|-------------------------------|--------------------|----------------------|-------------------|----------------------|--------------------|----------------------|--------------------|----------------------|--------------------|----------------------|
|                               | Crimp Neck<br>ND 8 | Shimadzu<br>Art.-No. | Screw Neck<br>ND9 | Shimadzu<br>Art.-No. | Screw Neck<br>ND10 | Shimadzu<br>Art.-No. | Crimp Neck<br>ND11 | Shimadzu<br>Art.-No. | Snap Ring<br>ND 11 | Shimadzu<br>Art.-No. |
| <b>Vials</b>                  | 4.001 554          |                      | 9.003 448         |                      | 6.242 103          |                      | 7.086 520          | 980-01705            | 6.073 833          |                      |
|                               | 6.235 006          |                      | 4.008 247         |                      |                    |                      | 4.001 565          |                      | 6.224 358          |                      |
|                               |                    |                      | 4.008 249         |                      |                    |                      | 4.001 516          |                      |                    |                      |
| <b>Micro-Inserts</b>          |                    |                      | 7.401 744         | 980-04987            | 7.401 744          | 980-04987            | 7.401 744          | 980-04987            | 7.401 744          | 980-04987            |
|                               |                    |                      | 6.093 247         | 980-01707            | 6.093 247          | 980-01707            | 6.093 247          | 980-01707            | 6.093 247          | 980-01707            |
|                               |                    |                      | 4.008 196         |                      | 4.008 196          |                      | 4.008 196          |                      | 4.008 196          |                      |
| <b>Seals</b>                  | 9.003 444          |                      | 9.003 451         |                      | 4.008 234          |                      | 4.008 243          | 0980-01706           | 4.008 256          |                      |
|                               | 4.008 198          |                      | 4.008 222         |                      | 4.008 235          |                      | 9.003 446          |                      | 4.008 260          |                      |
|                               | 4.008 200          |                      | 4.008 224         |                      | 4.008 237          |                      | 4.001 555          |                      | 4.001 544          |                      |
|                               |                    |                      | 4.008 225         |                      |                    |                      |                    |                      | 4.008 258          |                      |
|                               |                    |                      | 4.008 214         |                      |                    |                      |                    |                      |                    |                      |
|                               |                    |                      | 4.001 521         |                      |                    |                      |                    |                      |                    |                      |
|                               |                    |                      | 4.008 223         |                      |                    |                      |                    |                      |                    |                      |
|                               |                    | 4.008 226            |                   |                      |                    |                      |                    |                      |                    |                      |
|                               |                    | 4.008 215            |                   |                      |                    |                      |                    |                      |                    |                      |
|                               |                    | 4.008 221            |                   |                      |                    |                      |                    |                      |                    |                      |

| <b>Shimadzu Headspace Products</b> |                                   |                      |                                  |                      |                                 |                      |
|------------------------------------|-----------------------------------|----------------------|----------------------------------|----------------------|---------------------------------|----------------------|
|                                    | Screw Neck<br>ND 18<br>(AOC 5000) | Shimadzu<br>Art.-No. | Headspace<br>ND 18<br>(AOC 5000) | Shimadzu<br>Art.-No. | Headspace<br>ND 18<br>(HTA200H) | Shimadzu<br>Art.-No. |
| <b>Vials</b>                       | 9.003 466                         | 980-00247            | 7.850 009                        | 980-00664            | 7.050 285                       |                      |
|                                    | 4.003 270                         | 961-00915            | 9.003.453                        | 980-00111            | 9.003 453                       | 980-00111            |
| <b>Seals</b>                       | 4.008 268                         | 961-00914            | 7.850 010                        | 961-01256            | 9.003 447                       |                      |
|                                    | 6.241 111                         | 980-01708            | 6.234 541                        | 980-03372            | 4.001 553                       |                      |
|                                    |                                   |                      | 6.229 635                        | 980-00112            |                                 |                      |
|                                    |                                   |                      | 4.001 548                        | 980-00112            |                                 |                      |

**Autosampler compatibility chart**

The autosampler compatibility chart generally shows the most typical LLG-Labware vials and closures for usage on instruments of different manufacturers. Additionally the corresponding part number of the manufacturer is indicated. Beside these there also may be further products in our catalogue which may technically and functionally be suitable. We will gladly recommend other suitable products.

If applicable for a manufacturer, each table has been divided by the application HPLC, GC and Headspace. We generally recommend asking for cost-free samples for testing purposes.

We kindly ask for your understanding that we do not take any guarantee for the correctness nor for the completeness of the data indicated here.

### LLG- Vials and autosamplers: compatibility chart

#### Thermo Scientific

Alternative LLG Labware products for use on Thermo Scientific GC, HPLC and Headspace instruments.

#### Thermo Scientific GC Products

|               | Crimp Neck<br>ND 8 | Thermo<br>Scientific<br>Art.-No. | Screw Neck<br>ND8 | Thermo<br>Scientific<br>Art.-No. | Screw Neck<br>ND9 | Thermo<br>Scientific<br>Art.-No. | Crimp Neck<br>ND11 | Thermo<br>Scientific<br>Art.-No. |
|---------------|--------------------|----------------------------------|-------------------|----------------------------------|-------------------|----------------------------------|--------------------|----------------------------------|
| Vials         | 9.003 427          | 60180-707                        | 9.003 481         | 60180-508                        | 9.003 448         | 60180-723                        | 7.086 520          | 60180-701                        |
|               | 4.001 554          |                                  | 7.613 087         |                                  | 6.803 174         | 60180-509                        | 7.608 160          | 60180-502                        |
|               | 6.235 606          |                                  | 9.003 480         | 60180-560                        | 4.008 247         | 60180-724                        | 7.089 998          | 60180-702                        |
|               | 4.008 206          | 60180-505                        | 7.613 388         |                                  | 6.088 871         | 60180-561                        | 7.620 828          |                                  |
|               | 4.001 515          |                                  |                   |                                  |                   |                                  |                    |                                  |
|               | 6.902 044          |                                  |                   |                                  |                   |                                  |                    |                                  |
|               | 4.008 202          |                                  |                   |                                  |                   |                                  |                    |                                  |
| Micro-Inserts | 4.008 203          |                                  | 7.401 066         | 60180-265                        | 7.401 744         |                                  | 7.401 744          |                                  |
|               |                    |                                  | 9.003 435         |                                  | 6.093 247         | 60180-734                        | 6.093 247          | 60180-734                        |
|               |                    |                                  | 4.001 556         | 60180-721                        | 4.008 196         | 60180-735                        | 4.008 196          | 60180-735                        |
|               |                    |                                  | 4.008 194         | 60180-722                        | 4.001 547         | 60180-266                        | 4.001 547          | 60180-266                        |
| Seals         | 9.003 443          |                                  | 4.008 209         |                                  | 4.008 228         | 60180-728                        | 4.001 564          | GC PAL                           |
|               | 4.008 200          |                                  | 9.003 484         | 60180-719                        | 9.003 451         | 60180-729                        | 4.008 239          |                                  |
|               | 9.003 444          | 60180-525                        | 4.008 207         |                                  | 4.008 218         |                                  | 7.060 469          |                                  |
|               | 4.008 198          |                                  |                   |                                  | 4.008 214         |                                  | 4.008 243          | 60180-705                        |
|               |                    |                                  |                   |                                  |                   |                                  | 9.003 446          | 60180-706                        |
|               |                    |                                  |                   |                                  |                   | 7.050 759                        |                    |                                  |

#### Thermo Scientific HPLC Products

|               | Crimp Neck<br>ND 8 | Thermo<br>Scientific<br>Art.-No. | Screw Neck<br>ND8 | Thermo<br>Scientific<br>Art.-No. | Screw Neck<br>ND9 | Thermo<br>Scientific<br>Art.-No. | Crimp Neck<br>ND11 | Thermo<br>Scientific<br>Art.-No. | Snap Ring<br>ND 11 | Thermo<br>Scientific<br>Art.-No. |
|---------------|--------------------|----------------------------------|-------------------|----------------------------------|-------------------|----------------------------------|--------------------|----------------------------------|--------------------|----------------------------------|
| Vials         | 4.001 554          |                                  | 9.003 481         | 60180-508                        | 9.003 448         | 60180-723                        | 7.086 520          |                                  | 6.073 833          | 60180-740                        |
|               | 6.235 006          |                                  | 7.613 087         |                                  | 6.803 174         | 60180-509                        | 7.608 160          | 60180-502                        | 7.622 228          |                                  |
|               | 4.008 206          | 60180-505                        | 9.003 480         | 60180-560                        | 4.008 247         | 60180-724                        | 7.089 998          |                                  | 7.613 330          | 60180-711                        |
|               | 4.001 515          |                                  | 7.613 388         |                                  | 6.088 871         | 60180-561                        | 7.620 828          |                                  |                    |                                  |
|               | 6.902 044          |                                  |                   |                                  |                   |                                  |                    |                                  |                    |                                  |
|               | 4.008 202          |                                  |                   |                                  |                   |                                  |                    |                                  |                    |                                  |
|               | 4.008 203          |                                  |                   |                                  |                   |                                  |                    |                                  |                    |                                  |
| Micro-Inserts |                    |                                  | 7.401 066         | 60180-265                        | 7.401 744         |                                  | 7.401 744          |                                  | 7.401 744          |                                  |
|               |                    |                                  | 9.003 435         |                                  | 6.093 247         | 60180-734                        | 6.093 247          | 60180-734                        | 6.093 247          | 60180-734                        |
|               |                    |                                  | 4.001 556         | 60180-721                        | 4.008 196         | 60180-735                        | 4.008 196          | 60180-735                        | 4.008 196          | 60180-735                        |
|               |                    |                                  | 4.008 194         | 60180-722                        | 4.001 547         | 60180-266                        | 4.001 547          | 60180-266                        | 4.001 547          | 60180-266                        |
| Seals         | 9.003 443          | 60180-708                        | 4.008 209         |                                  | 4.008 228         | 60180-728                        | 4.008 239          |                                  | 4.008 256          |                                  |
|               | 4.008 200          |                                  | 9.003 484         | 60180-719                        | 9.003 451         | 60180-729                        | 7.060 469          |                                  | 4.008 260          |                                  |
|               | 9.003 444          | 60180-525                        | 4.008 207         |                                  | 4.008 218         |                                  | 4.008 243          | 60180-705                        | 4.001 544          |                                  |
|               | 4.008 198          |                                  |                   |                                  | 4.008 214         |                                  | 9.003 446          | 60180-706                        | 4.008 258          | 60180-713                        |
|               |                    |                                  |                   |                                  |                   |                                  | 7.050 759          |                                  | 4.008 261          |                                  |
|               |                    |                                  |                   |                                  |                   |                                  |                    | 4.008 257                        | 60180-712          |                                  |

#### Thermo Scientific Headspace Products

|       | Headspace<br>Screw Neck<br>ND 18<br>(Combi Pal) | Thermo<br>Scientific<br>Art.-No. | Headspace<br>Crimp Neck<br>ND 20<br>(Combi Pal) | Thermo<br>Scientific<br>Art.-No. | Headspace<br>Crimp Neck<br>ND 20<br>(HS850/HS20) | Thermo<br>Scientific<br>Art.-No. |
|-------|---|----------------------------------|---|----------------------------------|--|----------------------------------|
| Vials | 9.003 466                                       |                                  | 7.850 009                                       | 60180-740                        | 7.850 009  | 60180-504                        |
|       | 6.227 874                                       |                                  | 9.003.453                                       | 60180-506                        | 9.003 453  | 60180-506                        |
|       | 4.008 270                                       |                                  |   |                                  |  |                                  |
| Seals | 6.237 909                                       |                                  |   |                                  |  |                                  |
|       | 4.008 268                                       |                                  | 7.850 010                                       |                                  | 4.001 553  | 60180-511                        |
|       | 6.241 111                                       |                                  | 6.234 541                                       | 60180-520                        | 9.003 454  | 60180-513                        |
|       |   |                                  | 6.229 635                                       |                                  | 4.001 549  | 60180-513                        |
|       |   |                                  | 4.001 548                                       |                                  |  |                                  |

**LLG- Vials and autosamplers: compatibility chart**

**VWR (Merck / Hitachi)**

Alternative LLG Labware products for use on VWR (Merck / Hitachi) HPLC instruments.

**VWR (Merck / Hitachi) HPLC Products**

|                      | Crimp Neck<br>ND 8 | VWR<br>(Merck)<br>Art.-No. | Screw Neck<br>ND8 | VWR<br>(Merck)<br>Art.-No. | Screw Neck<br>ND9 | VWR<br>(Merck)<br>Art.-No. | Crimp Neck<br>ND11 | VWR<br>(Merck)<br>Art.-No. | Snap Ring<br>ND11 | VWR (Merck)<br>Art.-No. | Screw Neck<br>ND13 | VWR<br>(Merck)<br>Art.-No. |
|----------------------|--------------------|----------------------------|-------------------|----------------------------|-------------------|----------------------------|--------------------|----------------------------|-------------------|-------------------------|--------------------|----------------------------|
| <b>Vials</b>         | 6.235 606          | 548-0078                   | 9.003 481         | 548-0018                   | 9.003 448         | 548-0028                   | 7.086 520          | 548-0003                   | 6.073 833         | 548-0011                | 9.003 0482         | 548-0051                   |
|                      | 4.001 554          | 548-0080                   | 7.613 087         | 548-0420                   | 6.803 174         | 548-0029                   | 7.608 160          | 548-0004                   | 7.622 228         | 548-0422                | 13 09 1335         | 548-0509                   |
|                      |                    |                            | 9.003 480         | 548-0448                   | 6.088 871         | 548-0030                   | 7.620 828          | 548-0005                   | 7.613 330         | 548-0012                | 9.003 549          | 548-0052                   |
|                      |                    |                            | 7.613 388         | 548-0019                   | 4.008 249         | 548-0081                   | 6.233 918          | 548-1442                   | 4.008 255         | 548-1442                | 13 09 1336         | 548-0510                   |
| <b>Micro-Inserts</b> |                    |                            | 7.401 066         | 548-0020                   | 7.401 744         | 548-0006                   | 7.401 744          | 548-0006                   | 7.401 744         | 548-0006                | 7.055 486          | 548-0093                   |
|                      |                    |                            | 9.003 435         | 548-0308                   | 6.093 247         | 548-0002                   | 6.093 247          | 548-0002                   | 6.093 247         | 548-0002                | 4.001 567          | 548-0094                   |
|                      |                    |                            | 4.001 556         | 548-0083                   | 4.008 196         | 548-0001                   | 4.008 196          | 548-0001                   | 4.008 196         | 548-0001                |                    |                            |
|                      |                    |                            | 4.008 194         | 548-0780                   |                   |                            |                    |                            |                   |                         |                    |                            |
| <b>Seals</b>         | 9.003 444          | 548-0040                   | 4.008 209         | 548-3322                   | 4.008 228         | 548-0896                   | 4.008 243          | 548-3272                   | 4.008 258         | 548-0432                | 7.510 053          | 548-0054                   |
|                      | 4.008 198          | 548-0038                   | 9.003 484         | 548-0024                   | 9.003 451         | 548-0085                   | 9.003 446          | 548-0009                   | 4.008 259         | 548-0434                |                    |                            |
|                      |                    |                            | 6.232 178         | 548-0834                   | 4.001 521         | 548-0088                   | 7.050 759          | 548-0007                   |                   |                         |                    |                            |
|                      |                    |                            |                   |                            | 4.008 218         | 548-0087                   |                    |                            |                   |                         |                    |                            |
|                      |                    |                            |                   |                            | 4.008 215         | 548-0373                   |                    |                            |                   |                         |                    |                            |

**Waters**

Alternative LLG Labware products for use on Waters HPLC instruments.

**Waters HPLC Products**

|                      | Screw Neck<br>ND9 | Waters<br>Art.-No. | Screw Neck<br>ND10 | Waters<br>Art.-No. | Snap Ring<br>ND11 | Waters<br>Art.-No. | Screw Neck<br>ND13 | Waters<br>Art.-No. | Shell Vials<br>ND8 | Waters<br>Art.-No. |
|----------------------|-------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| <b>Vials</b>         | 9.003 448         |                    | 6.242 103          | WAT063300          | 6.073 833         |                    | 9.003 482          | 186000840          | 7.300 174          | WAT025054C         |
|                      | 6.803 174         | 186000273          | 7.615 715          |                    | 7.622 228         | WAT094219          | 9.003 549          | 186001135          | 4.008 205          | WAT025053C         |
|                      | 6.088 871         | 186000848          | 6.238 867          |                    | 7.613 330         | WAT094220          |                    |                    |                    |                    |
|                      | 4.008 249         |                    |                    |                    | 4.008 255         |                    |                    |                    |                    |                    |
|                      | 4.008 250         |                    |                    |                    |                   |                    |                    |                    |                    |                    |
|                      | 4.008 252         |                    |                    |                    |                   |                    |                    |                    |                    |                    |
| <b>Micro-Inserts</b> | 7.401 744         |                    | 7.401 744          |                    | 7.401 744         |                    | 7.055 486          | WAT015199          |                    |                    |
|                      | 6.093 247         | WAT094170          | 6.093 247          | WAT094170          | 6.093 247         | WAT094170          | 4.001 567          | WAT072708          |                    |                    |
|                      | 4.008 196         |                    | 4.008 196          |                    | 4.008 196         |                    |                    |                    |                    |                    |
| <b>Seals</b>         | 4.008 214         | 186000274          | 4.008 243          | WAT058874          | 4.008 258         | 186000303          | 7.510 053          | 186000841          |                    |                    |
|                      | 4.008 215         | 186000305          | 9.003 446          |                    | 6.242 212         | 186000304          |                    |                    |                    |                    |
|                      |                   |                    | 7.050 759          |                    |                   |                    |                    |                    |                    |                    |

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