# **B01L**

# CHEMICAL OR PHYSICAL LABORATORY APPARATUS FOR GENERAL USE

# **Relationships with other classification places**

- Apparatus for medical or pharmaceutical purposes <u>A61</u>
- Apparatus for industrial purposes or laboratory apparatus whose construction and performance are comparable to that of similar industrial apparatus. See the relevant classes for industrial apparatus, particularly subclasses of classes <u>B01</u> or <u>C12</u>.
- Separating or distilling apparatus <u>B01D</u>
- Mixing or stirring devices B01F
- Apparatus for enzymology or microbiology <u>C12M</u>
- Microorganisms or enzymes; Compositions thereof; Propagating, preserving or maintaining microorganisms; Mutation or genetic engineering; Culture media —<u>C12N</u>
- Measuring or testing processes involving enzymes, nucleic acids or microorganisms; Compositions or test papers therefor; Processes of preparing such compositions; Condition-responsive control in microbiological or enzymological processes — <u>C12Q</u>
- Atomisers <u>B05B</u>
- Sieves <u>B07B</u>
- Corks or bungs <u>B65D</u>
- Handling liquids in general B67
- Vacuum pumps F04
- Tubes or tube joints <u>F16L</u>
- Apparatus specially adapted for investigating or analysing materials G01, particularly G01N
- Electrical or optical apparatus see the relevant classes in sections G and H

# References

#### Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Apparatus for enzymology or microbiology	<u>C12M</u>
Microorganisms or enzymes; Compositions thereof; Propagating, preserving or maintaining microorganisms; Mutation or genetic engineering; Culture media	<u>C12N</u>
Measuring or testing processes involving enzymes, nucleic acids or microorganisms; Compositions or test papers therefor; Processes of preparing such compositions; Condition-responsive control in microbiological or enzymological processes	<u>C12Q</u>
Apparatus specially adapted for investigating or analysing materials	<u>G01, G01N</u>

#### Informative references

Apparatus for medical or pharmaceutical purposes	<u>A61</u>
Mixing or stirring devices	<u>B01F</u>
Atomisers	<u>B05B</u>
Sieves	<u>B07B</u>

Corks or bungs	<u>B65D</u>
Handling liquids in general	<u>B67</u>
Vacuum pumps	<u>F04</u>
Siphons	<u>F04F 10/00</u>
Taps or stop-cocks	<u>F16K</u>
Tubes or tube joints	<u>F16L</u>

# **Special rules of classification**

**Classification Rules:** 

Groups <u>B01L 1/00</u> – <u>B01L 99/00</u> are given for invention information, i.e. the information is such that, if you do a search on this subject-matter, it is important to see the document. The definitions below give guidance as to scope and limits of the respective groups. Additional information is classified with Indexing symbols in the range <u>B01L 1/00</u> – <u>B01L 99/00</u>. These symbols are used with or without a group in <u>B01L</u>. In addition to a group in <u>B01L</u>, indexing symbols in the range <u>B01L 2200/00</u> – <u>B01L 2400/00</u> are applied where possible to all documents classified in <u>B01L</u>. Indexing symbols <u>B01L 2200/00</u> – <u>B01L 2400/00</u> are not used for documents without a group in <u>B01L</u>. Also, if documents have only an indexing symbol in the range <u>B01L 1/00</u> – <u>B01L 99/00</u>, no Indexing symbol is used.

Double classification:

Often double classification will be necessary, also within <u>B01L</u> itself. For example, in documents relating to sample containers it might be that a document is classified for sample taking in <u>A61B 10/0045</u>, for sample storage, in <u>B01L 3/50</u>, and for a specific analysis technique, in <u>G01N</u>.

# B01L 1/00

# Enclosures; Chambers (provided with manipulation devices or glove boxes <u>B25J 21/00</u>)

#### **Definition statement**

This place covers:

Chambers, enclosures, rooms and cupboards for laboratory use which have no specific application.

Air-pressure chambers.

#### References

#### Limiting references

This place does not cover:

Chambers provided with manipulation devices, glove boxes	<u>B25J 21/00</u>	
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#### Informative references

Fume cupboards	<u>B08B</u>
Cooling chambers	<u>F25D</u>

# B01L 1/02

# Air-pressure chambers; Air-locks therefor

# **Definition statement**

This place covers:

Incubator or conditioning cabinet not otherwise provided for. Doors and bayonet designs.

# References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Glove boxes	<u>B25J</u>
Vacuum locks for discharge tubes	<u>H01J 37/18</u>

# B01L 1/025

{Environmental chambers (incubators for culturing cells <u>C12M 41/14</u>; test chambers to test weather resistance <u>G01N 17/002</u>)}

# **Definition statement**

#### This place covers:

Closed chambers, not otherwise provided for, to provide a defined environment such as temperature, pressure, humidity and other gas concentrations, climate chambers.

# References

#### **Limiting references**

This place does not cover:

Incubators for culturing cells	<u>C12M 41/14</u>
Test chambers to test weather resistance	<u>G01N 17/002</u>

# B01L 1/04

#### **Dust-free rooms or enclosures**

#### References

#### Informative references

Treatment rooms for medical purposes	<u>A61G 10/00</u>
Clean rooms for industrial use	<u>F24F 3/167</u>
Ventilation	F24F 7/00

# B01L 1/50

# {for storing hazardous materials in the laboratory, e.g. cupboards, waste containers (sample containers <u>B01L 3/50</u>)}

## **Definition statement**

This place covers:

Enclosures or chambers for storing hazardous materials in the laboratory.

#### References

#### **Limiting references**

This place does not cover:

Sample containers B01L 3/50		
	Sample containers	B01L 3/50

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Refuse receptacles	<u>B65F 1/00</u>
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# B01L 3/00

#### Containers or dishes for laboratory use, e.g. laboratory glassware; Droppers

#### **Definition statement**

#### This place covers:

Simple fluid transfer means, such as tubes, valves or fittings.

Various containers, in particular for sample or reagent storage also comprising microfluidic structures.

Droppers comprising various fluid dispensing means such as pipettes, burettes and droplet dispensers.

Spatulas.

#### References

#### **Application-oriented references**

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Petri dishes	<u>C12M 1/22</u>
Tube or bottle type	<u>C12M 1/24</u>

#### Informative references

Chemical reactors	<u>B01J 19/00</u>
Bottles	<u>B65D</u>
Culturing devices	<u>C12M 23/02</u>

Receptacles for volumetric purposes	<u>G01F</u>
Analysis of a material	<u>G01N</u>

# **Special rules of classification**

Due to the diversity of the subgroups in this group the head group is only rarely used to classify. It is preferred to use all relevant main groups instead.

# B01L 3/02

#### **Burettes; Pipettes**

## **Definition statement**

#### This place covers:

Burettes, pipettes, pipette tips, droplet counters, droplet dispensers (droppers), and other laboratory devices to withdraw and discharge a liquid.

# **Relationships with other classification places**

This class relates to generally to manually operated devices, but is not restricted to hand held devices. Automation of pipetting stations is classified in G01N 35/10.

# References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Manual dosing	<u>B05B</u>
Closures with discharging devices	<u>B65D 47/00</u>
Dispensing not otherwise provided for	<u>B67D</u>
Repeated volume dosing of fluids in general	<u>G01F 11/00</u>
Dispensing of fluids in automatic analysers	<u>G01N 35/10</u>

# **Glossary of terms**

In this place, the following terms or expressions are used with the meaning indicated:

Pipette	Means with one port
Burette	Means with two ports
Dropper	Means to dispense the liquid dropwise

# B01L 3/0203

# {Burettes, i.e. for withdrawing and redistributing liquids through different conduits}

#### **Definition statement**

This place covers:

Burettes, i.e. for withdrawing and redistributing liquids through different conduits.

#### **Limiting references**

This place does not cover:

If the volume dispensed is droplet sized	B01L 3/0241

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Medical burettes	A61M 5/1412

# B01L 3/021

## {Pipettes, i.e. with only one conduit for withdrawing and redistributing liquids}

## **Definition statement**

This place covers:

Pipettes, i.e. with only one conduit for withdrawing and redistributing liquids.

## References

#### Limiting references

This place does not cover:

If the volume dispensed is droplet sized	<u>B01L 3/0241</u>
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#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Pipette type sampler or inoculator for cell handling	<u>)4</u>
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# **Special rules of classification**

If used to fill standard multiwell plates use B01L 2300/0829.

# B01L 3/0213

#### {Accessories for glass pipettes; Gun-type pipettes, e.g. safety devices, pumps}

# **Definition statement**

#### This place covers:

This group covers accesories for (traditional) glass pipettes, such as safety devices to protect the user from inhaling hazardous fluids or pumps. This group also encompasses gun-type pipettors.

#### References

#### Informative references

Gun type pipettors in general	<u>G01F 11/026</u>
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# {of the plunger pump type (medical syringes A61M)}

# **Definition statement**

This place covers:

Piston or plunger-type pipettes.

# References

## Limiting references

This place does not cover:

Medical syringes	<u>A61M 5/178</u>
Fluid dosing with measuring chambers in general	<u>G01F 11/02</u>

# B01L 3/022

{Capillary pipettes, i.e. having very small bore (<u>B01L 3/0224</u> - <u>B01L 3/0237</u> take precedence)}

# **Definition statement**

This place covers:

Pipettes where a piston or plunger is moved within a capillary.

# **Relationships with other classification places**

Pipettes having a capillary needle but no plunger within the capillary are not classified here, use Indexing Code <u>B01L 2300/0838</u> in combination with appropriate group in <u>B01L 3/02</u> instead.

#### References

#### **Limiting references**

This place does not cover:

Capillary pipette without piston	B01L 3/021, B01L 3/0241
Pippetes having mechanical means to set stroke length	B01L 3/0224
Details of electronic control, e.g. relating to user interface	B01L 3/0237

#### Informative references

Microinjections	<u>C12N 15/89</u>
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# {having several coaxial pistons}

# **Definition statement**

This place covers:

Plunger pipettes with coaxial pistons. This group does NOT cover multiple parallel plungers.

# B01L 3/0234

# {Repeating pipettes, i.e. for dispensing multiple doses from a single charge}

# References

#### Limiting references

This place does not cover:

Drop counters; Drop formers	B01L 3/0241

# B01L 3/0241

# {Drop counters; Drop formers (making arrays for combinatorial libraries <u>B01J 19/0046</u>; automation of dispensing for analysis <u>G01N 35/10</u>)}

# **Definition statement**

This place covers:

Droplet dispensers and droplet counters. This group covers the constructional details of the dispensing part itself not the automation aspects.

# **Relationships with other classification places**

The integration into automated systems is classified for instance in G01N 35/10 and B01J 19/0046

# References

#### **Limiting references**

This place does not cover:

Making arrays for combinatorial libraries	<u>B01J 19/0046</u>
Spraying or atomising in general	<u>B05B</u>
Printing	<u>B41J</u>
Automation of dispensing for analysis	<u>G01N 35/10</u>

#### Informative references

Means for dispensing and evacuation of reagents to make chemical libraries	<u>B01J 2219/00351</u>
Microinjections	<u>C12N 15/89</u>
Investigating characteristics of particles	<u>G01N 15/00</u>

# **Special rules of classification**

If used to fill standard multiwell plates use B01L 2300/0829.

# B01L 3/0244

### {using pins}

## **Definition statement**

*This place covers:* Droplet dispensers using pins.

## References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Nibs, quills, pens for writing and drawing	B43K 1/00
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# **Special rules of classification**

Use B01L 2400/02 for details of printing action.

# B01L 3/0258

#### {using stamps}

#### References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Stamps in general	B41K
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# B01L 3/0262

#### {using touch-off at substrate or container}

#### **Definition statement**

#### This place covers:

In touch-off dispensers the liquid contacts the target surface while it still hangs at the dispenser thus leading to a bridge between the two bodies. Capillary forces draw the liquid subsequently, at least in part, to the target surface.

{using pulse dispensing or spraying, eg. inkjet type, piezo actuated ejection of droplets from capillaries}

## References

#### **Limiting references**

This place does not cover:

Ink jet printing of ink	<u>B41J 2/01</u>

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Nozzles and apparatus for spraying or atomising in general	<u>B05B 1/00</u>
nebulizers for MS after chromatography	<u>G01N 30/724</u>
Introducing samples into mass spectrometers	<u>H01J 49/04</u>

# B01L 3/0272

## {Dropper bottles}

#### References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Eye dropper	<u>A61F 9/0026</u>
Packaging container closures with dropper	<u>B65D 47/18</u>

# B01L 3/0275

## {Interchangeable or disposable dispensing tips}

#### **Definition statement**

This place covers:

Pipette tips, note that the subgroup also covers ejection means for pipette tips.

#### References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Pipette tip racks	<u>B01L 9/543</u>
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# Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

• "chip (in English translations of Japanese documents)" and " (pipette) tips"

# {co-operating with positive ejection means}

# **Definition statement**

*This place covers:* Pipette tip ejectors.

# **Relationships with other classification places**

Note that this is not restricted to the features of the tip itself but can also relate to the ejection mechanism of the pipette.

# B01L 3/0282

## {mounted within a receptacle (wash bottles **B01L 3/10**)}

## References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Eye dropper <u>A61F 9/0026</u>
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# B01L 3/0289

{Apparatus for withdrawing or distributing predetermined quantities of fluid (B01L 3/02 takes precedence; sample taking G01N 1/00; sample taking within automatic analysers G01N 35/00; volume measuring in general G01F)}

# **Definition statement**

This place covers:

Fluid handling apparatus not provided for in <u>B01L 3/02</u>, this group is restricted to gas, beads or pulverized materials.

# **Relationships with other classification places**

The subgroup is used as residual group for liquid handling.

# B01L 3/0293

{for liquids}

# **Definition statement**

*This place covers:* Liquid handling apparatus not provided for in <u>B01L 3/02</u>.

# B01L 3/06

# **Crystallising dishes**

# **Relationships with other classification places**

Often used in combination with classes in B01L 3/50.

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Crystallization for separation	<u>B01D 9/00</u>
Sugars	<u>C07H</u>
Single crystal crystallization	<u>C30B 7/00</u>
Crystals of macromolecules	<u>C30B 29/58</u>

# **Special rules of classification**

If used as a sample container double classify with relevant class in B01L 3/50

# B01L 3/08

#### Flasks

#### **Definition statement**

This place covers:

Flasks used in the lab and not otherwise provided for. Flasks usually comprise an inlet which is smaller than the main body.

## References

#### **Application-oriented references**

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Specially adapted for distillation B01D
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# B01L 3/12

## Gas jars or cylinders

#### References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Gas storage containers in general	<u>F17C</u>
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# B01L 3/16

#### Retorts

#### **Definition statement**

This place covers:

Retorts are simple distillation apparatuses. They often comprise round bases and turned down necks.

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Distillation, microdistillation	<u>B01D</u>

# B01L 3/50

# {Containers for the purpose of retaining a material to be analysed, e.g. test tubes (devices for taking samples of blood <u>A61B 5/15</u>)}

## **Definition statement**

#### This place covers:

Simple containers that only store the sample and also more complex containers with integrated passive or active parts, which inter alia transport samples within them.

## **Relationships with other classification places**

Containers for chemical synthesis, even if of small size, are classified in B01J.

Containers specific to a single analytical technique are usually classified in the respective field, e.g. in <u>G01N</u>, <u>C12M</u>. Documents are double classified in both places when, due to their constructional aspects, they are also relevant for other applications.

## References

#### Limiting references

This place does not cover:

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#### Informative references

Reagent containers	B01L 3/52
Labcontainer with identification means	<u>B01L 3/545</u>
Transport containers for preserved human or animal parts	<u>A01N 1/02</u>
Body liquid sampling	<u>A61B 10/0045</u>
Medical containers	<u>A61J</u>
Synthesis reactors	<u>B01J</u>
Containers for storage of materials	<u>B65D</u>
Constructional details of bioreactors for culturing	<u>C12M 23/00</u>
Petri dishes	<u>C12M 23/10</u>
Cuvettes constructions	<u>G01N 21/03</u>
Microscopic slides	<u>G02B 21/34</u>

# **Special rules of classification**

It is important to note that this group is restricted to sample containers and not to lab containers in general.

# B01L 3/502

{with fluid transport, e.g. in multi-compartment structures (centrifugal-type cuvettes <u>G01N 21/07</u>; analysis by separation into components <u>G01N 30/00</u>; automatic analysers <u>G01N 35/00</u>)}

## **Definition statement**

This place covers:

Sample container where fluid is transported during use between different parts of the container.

## **Relationships with other classification places**

In addition to storage of the sample these containers usually enable other function as well, such as sample preparation or analysis. Double classification is preferred.

# References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Measuring characteristics of blood in vivo and taking blood samples	<u>A61B 5/14</u>
Taking bodily sample other than blood	<u>A61B 10/0045</u>
Devices for introducing media into the body	<u>A61M</u>
Specific analysis techniques	<u>G01N</u>
Sample preparation	<u>G01N 1/00</u>
Centrifugal-type cuvettes	<u>G01N 21/07</u>
Analysis by separation into components	<u>G01N 30/00</u>
Analysing biological materials	<u>G01N 33/48</u>
Automatic analysers	<u>G01N 35/00</u>

# B01L 3/5021

# {Test tubes specially adapted for centrifugation purposes (centrifuges **B04B 5/04**)}

#### **Relationships with other classification places**

Non-tubular centrifugal sample containers are classified in B01L 3/502.

# References

#### Informative references

Centrifuges	<u>B04B</u>
Centrifugal type cuvettes	<u>G01N 21/07</u>
Physical separation of blood components	<u>G01N 33/491</u>

# {with a sample being transported to, and subsequently stored in an absorbent for analysis}

## **Definition statement**

This place covers:

Constructional details and flow shaping in sample containers where liquid is transported through an absorbent, e.g. lateral flow devices.

## **Relationships with other classification places**

Analysis technique, sensor details and chemistry of lateral flow devices are classified in <u>G01N</u>, e.g. <u>G01N 33/543</u>.

#### References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Layered products	<u>B32B</u>
Optical sensors	<u>G01N 21/75</u>
Electric, electro-chemical and magnetic analysis	<u>G01N 27/00</u>
Physical analysis of biological material	<u>G01N 33/487</u>
Immunoassays	<u>G01N 33/543</u>

# **Special rules of classification**

Double classify with <u>B01L 3/5027</u> or <u>B01L 3/5027</u> for porous microchannels in a substrate.

# B01L 3/5025

# {for parallel transport of multiple samples}

# References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Bioreactors	<u>C12M</u>
Centrifugal cuvettes	<u>G01N 21/07</u>

# B01L 3/50255

## {Multi-well filtration}

#### References

#### Informative references

Filtration per se	<u>B01D</u>
Bioreactors	<u>C12M</u>

Purifying or cleaning a sample	<u>G01N 1/34</u>

{by integrated microfluidic structures, i.e. dimensions of channels and chambers are such that surface tension forces are important, e.g. lab-on-a-chip (<u>B01L 3/5023</u> takes precedence; micromixers <u>B01F 33/30</u>; microreactors for synthesis <u>B01J 19/0093</u>; microcapillary devices in general <u>B81B 1/00</u>)}

#### **Definition statement**

This place covers:

Sample containers with integrated microfluidic components. Microfluidic components are not restricted to capillary transport but are defined by their small size.

## **Relationships with other classification places**

Microfluidic devices can be found in a number of different fields. This group covers only those devices that are used to analyse a sample. The focus is on the sample handling per se in such devices, i.e. handling of fluids, beads, single molecules. The specifics of the analysis itself is for example classified in <u>G01N</u> and <u>C12Q</u>.

Capillary fluid transport in porous materials as flow layers of sample containers, e.g. lateral flow devices, are classified in <u>B01L 3/5023</u>.

#### References

#### Limiting references

This place does not cover:

Micromixers	<u>B01F 33/30</u>
Microreactor for synthesis	<u>B01J 19/0093</u>
Microcapillary devices in general	<u>B81B 1/00</u>

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Microdevices for drug release	<u>A61K 9/0097</u>
Sample preparation	<u>G01N 1/00</u>
Introducing samples into mass spectrometers	<u>H01J 49/04</u>

# **Special rules of classification**

For microfluidic devices characterized by the specific integrated thermal control, e.g. for PCR, use double classification with B01L 7/00.

Use index codes B01L 2200/00-B01L 2400/00 as complete as possible.

# **Synonyms and Keywords**

In patent documents, the following words/expressions are often used as synonyms:

• " sample containers with integrated microfluidic components", "lab-on-a-chip" and "microfluidic device for analysis"

{characterised by the manufacture of the container or its components (by shaping or joining plastic parts <u>B29C 59/00</u>, <u>B29C 65/00</u>; by laminating <u>B32B 37/00</u>; manufacture of microstructural devices in general <u>B81C</u>)}

# **Definition statement**

This place covers:

Sample containers with integrated microfluidic components with specific manufacturing details.

#### References

#### **Limiting references**

This place does not cover:

Manufacture of microstructural devices in general	B81C
Manualdure of microstructural devices in general	0010

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Shaping or joining of plastics	<u>B29C 59/00</u> , <u>B29C 65/00</u>
Laminating	<u>B32B 37/00</u>
Microdevices for electrophoresis	<u>G01N 27/44791</u>
Photolithography	<u>G03F 7/00</u>

# B01L 3/502715

{characterised by interfacing components, e.g. fluidic, electrical, optical or mechanical interfaces}

# **Definition statement**

This place covers:

Integrated microfluidic interfaces, i.e. the section of the interface which forms part of the container.

Fluidic interfaces comprise inlets and outlets.

Optical interfaces may comprise lenses, prisms, mirrors.

Mechanical interfaces may comprise aligning marks, guides.

#### References

#### Informative references

Holders for lab-on-a-chips	<u>B01L 9/52</u>
Handling and feeding of cartridges in automated analysers	<u>G01N 35/00</u>

# {characterised by venting arrangements}

# **Definition statement**

This place covers:

Means to remove air or gases from a microfluidic sample container.

Also comprises documents where bubble formation is avoided.

# References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Venting, avoiding backpressure, avoid gas bubbles	B01L 2200/0684

# B01L 3/50273

{characterised by the means or forces applied to move the fluids (micropumps F04B 19/006, of the membrane type F04B 43/043)}

# **Definition statement**

This place covers:

Means or forces to move fluid in microfluidic sample containers, e.g. integrated pumps.

# References

# Limiting references

This place does not cover:

Influencing the flow rate for a given force	B01L 3/502746
Infusion devices with flow control	<u>A61M 5/168</u>
Micropumps in general	F04B 19/006
Micropumps of the membrane type in general	<u>F04B 43/043</u>

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Micromixers	<u>B01F 33/30</u>

# **Special rules of classification**

Use Indexing Codes B01L 2400/04 to specify the kind of force or means to move the fluid.

# {characterised by integrated valves (microvalves F16K 99/0001)}

## **Definition statement**

#### This place covers:

This group covers the constructional details of valves specific to microfluidic sample containers. It also covers valving schemes when they depend on integrated structures, like cascades of capillary valves.

#### **Relationships with other classification places**

External valve actuators are classified in F16K or G01N 35/00.

## References

#### **Limiting references**

This place does not cover:

Throttle valves in microfluidic sample containers	B01L 3/502746
Microvalves and actuators in general	<u>F16K 99/0001</u>

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

	Valves in automated analysers	<u>G01N 35/1097</u>
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#### **Special rules of classification**

For valve details use B01L 2400/06.

#### **Glossary of terms**

In this place, the following terms or expressions are used with the meaning indicated:

Valve	Means to stop or divert the whole flow of a fluid

# B01L 3/502746

{characterised by the means for controlling flow resistance, e.g. flow controllers, baffles (<u>B01L 3/502738</u> takes precedence)}

#### **Definition statement**

This place covers:

Controlling the flow resistance in a microfluidic sample container which is neither valving, where the flow is stopped, nor pumping, which is the source of the force for the flow.

For example, providing baffles in order to slow but not stop a flow in a specific section of a channel. Adapting the channel dimensions to obtain a specific flow pattern.

#### **Limiting references**

This place does not cover:

Valves for microfluidic sample containers	B01L 3/502738
Infusion devices with flow control	<u>A61M 5/168</u>
Flow control in general	<u>G05D 7/00</u>

# **Special rules of classification**

For flow control details use B01L 2400/08.

# B01L 3/502753

{characterised by bulk separation arrangements on lab-on-a-chip devices, e.g. for filtration or centrifugation (separation in general <u>B01D</u>; microapparatus for analysis using electrophoresis <u>G01N 27/44791</u>; sample preparation <u>G01N 1/28</u>)}

# **Definition statement**

#### This place covers:

Sample containers with integrated microfluidic components with bulk separation such as filtration or centrifugation. In general, the flow direction of the bulk fluid is the same as the component which is separated. In a bulk separation a certain class of particles/fluid is usually separated from another class as a group. For example, centrifugation leads to a classification of particle groups based on their densitiy.

# **Relationships with other classification places**

When the separation is the only purpose and the device is not combined with sample storage, i.e. not integrated, it should not be classified in this group.

# References

#### Limiting references

This place does not cover:

Separation or sorting of particles or molecules on an individual level	B01L 3/502761
Separation in general	<u>B01D</u>
Microapparatus for analysis using electrophoresis	<u>G01N 27/44791</u>

#### Informative references

Centrifugal test tubes	<u>B01L 3/5021</u>
Separation of solids from solids or fluids by e.g.electric or magnetic means, dielectrophoresis	<u>B03C</u>
Sample preparation	<u>G01N 1/28</u>
Centrifugal-type cuvettes	<u>G01N 21/07</u>
Analysing blood by separating its components	<u>G01N 33/491</u>
Automatic analysers using bio-disks	<u>G01N 35/00069</u>

{specially adapted for handling suspended solids or molecules independently from the bulk fluid flow, e.g. for trapping or sorting beads, for physically stretching molecules (investigating characteristics of particles <u>G01N 15/00</u>)}

# **Definition statement**

#### This place covers:

Handling of suspended solids or molecules independent from the bulk fluid flow. In general, the fluid flow direction of the bulk fluid is different from the flow direction of the component to be separated. Handling may comprise trapping, sorting, stretching, orientating of particles or molecules.

Usually particles or molecules are handled individually, thus they can be selectively handled irrespective of whether more particles or molecules of the same type/class exist in the sample. For example, a single DNA molecule may be stretched in a nanochannel although the sample comprises many more DNA molecules.

#### References

#### Limiting references

This place does not cover:

Investigating characteristics of particles	<u>G01N 15/00</u>
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#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Separation of solids from solids or fluids by e.g.electric or magnetic means, dielectrophoresis	<u>B03C</u>
Separating or Sorting solids from solids	<u>B07B</u>

# **Special rules of classification**

When particles/molecules are separated as part of a whole class (as bulk) they are classified in <u>B01L 3/502753</u>.

Details of particle/molecule handling can be coded in B01L 2200/0647.

# B01L 3/502769

#### {characterised by multiphase flow arrangements}

#### **Definition statement**

#### This place covers:

Sample containers with integrated microfluidic components having multiphase flow arrangements. Multiphase flow is meant to encompass flows where gas/liquid or liquid/liquid interfaces exist and kept during flow of the fluids. The fluids may be immiscible but under certain conditions this may not be necessary.

# **Special rules of classification**

This group is only used in the rare event that none of the groups below are suitable.

# {specially adapted for focusing or laminating flows}

## **Definition statement**

#### This place covers:

Sample containers with integrated microfluidic components having laminated flow arrangements, such as a sheath flow.

#### References

#### **Limiting references**

This place does not cover:

Micromixers	<u>B01F 33/30</u>
Investigating characteristics of particles	<u>G01N 15/00</u>

# B01L 3/502784

{specially adapted for droplet or plug flow, e.g. digital microfluidics (automatic analysis using a stream of discrete samples in a tube system <u>G01N 35/08</u>)}

## **Definition statement**

This place covers:

Droplets or plug flow in sample containers with integrated microfluidic components, such as digital microfluidics.

#### References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Automatic analysis using a stream of discrete samples in a tube system	<u>G01N 35/08</u>
(bench top sized)	

# B01L 3/502792

{for moving individual droplets on a plate, e.g. by locally altering surface tension}

#### **Definition statement**

This place covers:

Moving droplets individually on a plate, for example by electrowetting.

The droplet may also be bordered by a cover plate in addition to a bottom plate. No side walls are present to guide the droplet.

# **Special rules of classification**

If present, use Indexing Code for virtual walls B01L 2300/089

# {using swabs}

# **Definition statement**

#### This place covers:

Sample containers comprising both fluid transport and swabs. The invention is usually directed to the handling of the swab within the container and not the swab itself.

# **Relationships with other classification places**

Swabs as sample taking devices are found in G01N 1/02 and A61B 10/0045.

# References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Devices for sampling bodily liquids	<u>A61B 10/0045</u>
Ear cleaners	<u>A61F 11/006</u>
Absorbent pads, swabs	<u>A61F 13/15</u>
Surgical swabs	<u>A61F 13/36</u>
Cell sampling container with a swab	<u>C12M 1/30</u>
Sampling with a swab	<u>G01N 1/02,</u> G01N 2001/028

# B01L 3/505

# {flexible containers not provided for above}

# **Definition statement**

*This place covers:* Flexible sample containers such as bags or foldable sample cards.

# B01L 3/5055

# {Hinged, e.g. opposable surfaces}

# **Definition statement**

*This place covers:* Folded sample cards.

# B01L 3/508

# {rigid containers not provided for above}

# **Definition statement**

#### This place covers:

Sample containers having rigid walls and which do not comprise any internal sample transport.

#### **Limiting references**

This place does not cover:

	i i
Rigid sample containers with fluid transport	<u>B01L 3/502</u>

## Informative references

Attention is drawn to the following places, which may be of interest for search:

Urine sample containers	<u>A61B 10/007</u>
Cuvettes	<u>G01N 21/03</u>
Microscopic slides	<u>G02B 21/34</u>
Vacuum locks for discharge tubes (and sample vessels to be used in vacuum)	<u>H01J 37/18</u>

# B01L 3/5082

## {Test tubes per se}

# **Definition statement**

This place covers:

Sample containers having the form of tubes, also covers centrifugal type test tubes and test tube caps.

#### References

#### **Limiting references**

This place does not cover:

Sample containers with other geometrical forms	<u>B01L 3/50</u>
Test tubes with sample transport other than by centrifugation	<u>B01L 3/502</u>
Racks and holders for test tubes	<u>B01L 9/06</u>
Devices for taking samples of blood	<u>A61B 5/14</u>

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Producing plastic containers	<u>B29D 22/003</u>
Tubular or bottle type culture devices	C12M 23/08

# B01L 3/50825

{Closing or opening means, corks, bungs (closures for containers <u>B65D</u>; means for removing stoppers <u>B67B 7/02</u>)}

#### **Relationships with other classification places**

Test tube caps having additional chambers, e.g. for reagents, are also classified in B01L 3/502.

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Producing plastic closure caps	<u>B29D 99/0096</u>
Closures for packaging containers	<u>B65D 39/00</u> - <u>B65D 55/00</u>
Means for removing stoppers	<u>B67B 7/02</u>

# **Special rules of classification**

For details use B01L 2300/04.

# Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

• "stopper", "closure", "bung", "cork", "seal" and "cap"

# B01L 3/5085

#### {for multiple samples, e.g. microtitration plates}

## **Relationships with other classification places**

Microarray sensors such as DNA-chips without any sample storage are classified elsewhere, e.g. in <u>B01J 19/0046</u> or <u>G01N 33/50</u>.

#### References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Processes and Apparatus for making combinatorial libraries	<u>B01J 19/0046</u>
Chemical or biological libraries	<u>C40B</u>
Automated analysis with microtitration plates	<u>G01N 35/028</u>

# **Special rules of classification**

Use B01L 2300/0829 for standard microtiter plate format.

# B01L 3/50851

{specially adapted for heating or cooling samples (laboratory heating apparatus **B01L** 7/00; incubators **C12M**)}

# **Definition statement**

This place covers:

Sample containers for thermal treatment of samples, such as PCR containers.

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Thermostats	<u>B01L 7/00</u>

# B01L 3/50853

{with covers or lids}

## **Definition statement**

This place covers:

Constructional details of closures for multisample containers.

#### References

#### Limiting references

This place does not cover:

Closures for test tubes	<u>B01L 3/50825</u>
Handling of closures in automated systems	<u>G01N 35/00</u>

## **Special rules of classification**

For details use Indexing Codes B01L 2300/04.

# B01L 3/50855

#### {using modular assemblies of strips or of individual wells}

#### **Definition statement**

#### This place covers:

Multisample containers which can be assembled and/or disassembled during use but which form a single unit when they are assembled. These are typically assembled into a standard format using a frame.

#### References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

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# B01L 3/50857

#### {using arrays or bundles of open capillaries for holding samples}

# **Definition statement**

#### This place covers:

Multiple parallel capillaries which hold a sample by surface tension at a specific location. The sample is not transported within the device except for filling or draining.

#### Limiting references

This place does not cover:

Parallel capillaries as sample containers involving transport within said	<u>B01L 3/5027,</u>
capillaries	B01L 3/5025

# B01L 3/5088

{confining liquids at a location by surface tension, e.g. virtual wells on plates, wires (B01L 3/50857 takes precedence)}

## References

#### Limiting references

This place does not cover:

Droplet is also moved, transported on the substrate	B01L 3/502
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#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Applying liquids to render a surface hydrophobic	<u>B05D 5/08</u>
Surface shaping of plastic parts	<u>B29C 59/00</u>
Maldi-TOF sample plates	H01J 49/0418

# **Special rules of classification**

For multiple samples double classify with B01L 3/5085.

# B01L 3/52

{Containers specially adapted for storing or dispensing a reagent (<u>B01L 3/02</u> takes precedence; containers for medical or pharmaceutical purposes <u>A61J 1/00</u>; containers in general <u>B65D</u>; storing or dispensing test elements <u>G01N 33/4875</u>; automated reagent dispensing <u>G01N 35/1002</u>)}

#### **Definition statement**

This place covers:

Reagent containers.

#### **Relationships with other classification places**

Sample containers with integrated reagent containers are not classified in this group. However, if the reagent container is a (modular) unit which can be inserted into a sample container and is thus not an integral part of the sample container it should be classified in this group.

## **Limiting references**

This place does not cover:

Pipettes, Burettes, Droppers	<u>B01L 3/02</u>
Sample container	<u>B01L 3/50</u>
Automated reagent dispensers	<u>G01N 35/1002</u>

## Informative references

Attention is drawn to the following places, which may be of interest for search:

Sample containers	B01L 3/50
Lab container with identification means	<u>B01L 3/545</u>
Medical containers	<u>A61J 1/00</u>
Containers for storage of materials	<u>B65D</u>
Storing or dispensing test elements	<u>G01N 33/4875</u>

# **Special rules of classification**

Sample containers having additional integrated compartments for reagents are not classfied in this group but in <u>B01L 3/50</u> use mirror Indexing Codes <u>B01L 3/52</u> instead or <u>B01L 2200/16</u>.

# B01L 3/523

# {with means for closing or opening}

# References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Test tube closures	<u>B01L 3/50825</u>
Closures for multiwell containers	B01L 3/50853

# B01L 3/527

{for a plurality of reagents}

#### References

#### Informative references

Sample containers for multiple samples	<u>B01L 3/5085</u>
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# {Labware with identification means (identification of carriers, materials or components in automatic analysers <u>G01N 35/00732</u>)}

# **Definition statement**

This place covers:

Labels, barcodes, RFIDs and other identification means used for labware.

## References

#### **Limiting references**

This place does not cover:

Record carrier designed to carry digital markings like barcodes, RFID	<u>G06K 19/00</u>
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## Informative references

Attention is drawn to the following places, which may be of interest for search:

Control arrangments for automated analysers	<u>G01N 35/00584</u>
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# B01L 3/545

# {for laboratory containers}

# References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

ICT specially adapted for the handling or processing of patient-related	<u>G16H 10/40</u>
medical or healthcare data related to laboratory analysis	

# B01L 3/56

# {Labware specially adapted for transferring fluids}

# **Definition statement**

#### This place covers:

Simple labware to transfer fluids, in particular traditional glassware and its accessories, such as connectors, valves, tubes, funnels.

#### References

#### Limiting references

This place does not cover:

Pipettes, Burettes, Droppers	<u>B01L 3/02</u>
Devices for withdrawing samples	<u>G01N 1/02</u>

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Medical tubes, connectors, couplings, valves and the like	A61M 39/00
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# B01L 3/561

{Tubes; Conduits (in general F16L)}

#### References

#### **Limiting references**

This place does not cover:

Pipes in general F16L	<u>6L</u>
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# B01L 3/563

{Joints or fittings (in general <u>F16L</u>); Separable fluid transfer means to transfer fluids between at least two containers, e.g. connectors}

## References

#### **Limiting references**

This place does not cover:

If connectors are integrated into a sample container use	<u>B01L 3/502</u>
Joints and fittings in general	<u>F16L</u>

# B01L 3/5635

#### {connecting two containers face to face, e.g. comprising a filter}

# **Definition statement**

*This place covers:* Direct connection between only two containers.

# B01L 3/565

{Seals (in general F16L)}

#### References

#### **Limiting references**

This place does not cover:

Joints and fittings in general	<u>F16L</u>
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# {Valves, taps or stop-cocks (in combination with burettes <u>B01L 3/0203;</u> in general <u>F16K</u>)}

# **Definition statement**

This place covers:

Valves specifically used in connection with laboratory equipment.

## References

#### **Limiting references**

This place does not cover:

Valves in general	<u>F16K</u>
Automated sample transfer characterised by valves	<u>G01N 35/1097</u>

## Informative references

Attention is drawn to the following places, which may be of interest for search:

Burettes	B01L 3/0203
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# B01L 3/569

{Glassware}

# **Definition statement**

This place covers:

Residual group for glassware not falling in any of the above groups, i.e. must by made of glass.

# B01L 5/00

# Gas handling apparatus (gas jars or cylinders <u>B01L 3/12</u>; cold traps or cold baffles <u>B01D 8/00</u>)

#### References

#### **Limiting references**

This place does not cover:

Gas jars or cylinders	<u>B01L 3/12</u>
Cold traps or cold baffles	<u>B01D 8/00</u>

#### **Application-oriented references**

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Separation of gases or vapours	<u>B01D 53/00</u>
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## Informative references

Attention is drawn to the following places, which may be of interest for search:

Gas generators	<u>B01J 7/00</u>
Steam traps	<u>F16T</u>
Gas vessels	<u>F17C</u>
Investigating gases	G01N 33/0004

# B01L 5/02

Gas collection apparatus, e.g. by bubbling under water (for sampling G01N 1/22)

## References

#### **Limiting references**

This place does not cover:

For sampling	<u>G01N 1/22</u>
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# B01L 7/00

## Heating or cooling apparatus (autoclaves **B01J 3/04**); Heat insulating devices

# **Definition statement**

This place covers:

Thermostats for heating or cooling and heat insulation devices.

# References

#### Limiting references

This place does not cover:

Autoclaves	<u>B01J 3/04</u>
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#### Informative references

Evaporators	<u>B01D 1/00</u>
Cold traps	<u>B01D 8/00</u>
Drying gases or vapours, e.g. desiccators	<u>B01D 53/26</u>
Heating or cooling for centrifuges	<u>B04B 15/02</u>
Incubators	<u>C12M 41/14</u>
Heating in general	<u>F24</u>
Cooling in general	<u>F25</u>
Drying ovens	<u>F26B</u>
Furnaces or ovens	<u>F27</u>
Heat exchanger in general	<u>F28</u>

Sample preparation	<u>G01N 1/00</u>
Controlling temperature.	<u>G05D 23/00</u>
Chip cooling	<u>H02N 1/00</u>
Electric heating	<u>H05B</u>

# **Special rules of classification**

To specify the thermostating means, indexing symbol <u>B01L 2300/18</u> and subgroups are used.

# B01L 7/02

## Water baths; Sand baths; Air baths

# References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Direct contact heat exchange appratus	F28C 3/00
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# B01L 7/04

# Heat insulating devices, e.g. jackets for flasks

## **Definition statement**

*This place covers:* Stand alone heat insulation device.

# B01L 7/50

# {Cryostats}

# References

#### Informative references

Temperature processes for preservation of (parts of) animals or humans	<u>A01N 1/0284</u>
Refrigeration or cooling in general	<u>F25</u>

# B01L 7/52

{with provision for submitting samples to a predetermined sequence of different temperatures, e.g. for treating nucleic acid samples (amplification or hybridisation processes per se C12Q 1/68; controlling sequential reactions for synthesis B01J 19/0046)}

## **Definition statement**

This place covers:

Thermocyclers and other thermostats where a sample is exposed to a defined sequence of different temperatures. For example used for PCR.

## **Relationships with other classification places**

The specific analysis methods of polymerase chain reactions (PCR) are classified in C12Q 1/68.

Other integrated means such as specific detectors, or means for automation are classified in G01N.

#### References

#### **Limiting references**

This place does not cover:

PCR methods	<u>C12Q 1/68</u>
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# **Special rules of classification**

Use double classification with microfluidic sample containers of B01L 3/5027.

# B01L 7/54

#### {using spatial temperature gradients}

#### **Definition statement**

*This place covers:* Thermostats creating a defined temperature gradient in space.

# B01L 9/00

#### Supporting devices; Holding devices

#### **Definition statement**

This place covers:

Holding frame constructions, trays for drying labware or holders for labware not provided for in a subgroup.

#### References

#### Informative references

Tweezers or tongs	<u>B25B</u>
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# B01L 9/02

# Laboratory benches or tables; Fittings therefor

# References

## Informative references

Attention is drawn to the following places, which may be of interest for search:

Work space management systems	<u>A47B 83/001</u>
Dental work stands	<u>A61G 15/14</u>

# B01L 9/06

## Test-tube stands; Test-tube holders

# References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Automated analysers with conveyors for sample containers	<u>G01N 35/026</u>
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# B01L 9/50

### {Clamping means, tongs (in general F16B 2/06)}

# **Definition statement**

This place covers:

Indicating positions of wells and other receptacles by numbers, characters, grooves or other means.

# B01L 9/52

# {Supports specially adapted for flat sample carriers, e.g. for plates, slides, chips}

#### **Definition statement**

This place covers:

Supports specially adapted for flat sample carriers.

#### References

#### Informative references

Staining of samples	<u>G01N 1/30</u>
Automated analysers	<u>G01N 35/00</u>
Microscopic slides	<u>G02B 21/34</u>

# B01L 9/54

# {Supports specially adapted for pipettes and burettes (automated pipetting stations <u>G01N 35/10</u>)}

## **Definition statement**

This place covers:

Supports specially adapted for pipettes and burettes.

#### References

#### Limiting references

This place does not cover:

Automated pipetting stations	<u>G01N 35/10</u>

#### Informative references

Packages for Syringes, Needles	<u>A61M 5/002</u>
Racks for Syringes, Needles	<u>A61M 5/008</u>
Positioning tool for sampling or inoculating	<u>C12M 1/265</u>