

CPC COOPERATIVE PATENT CLASSIFICATION

B01L **CHEMICAL OR PHYSICAL LABORATORY APPARATUS FOR GENERAL USE** (apparatus for medical or pharmaceutical purposes [A61](#); 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 [B01](#) and [C12](#); separating or distilling apparatus [B01D](#); mixing or stirring devices [B01F](#); atomisers [B05B](#); {vibrating devices, e.g. shaking tables,} sieves [B07B](#); corks, bungs [B65D](#); handling liquids in general [B67](#); vacuum pumps [F04](#); siphons [F04F 10/00](#); taps, stop-cocks [F16K](#); tubes, tube joints [F16L](#); apparatus specially adapted for investigating or analysing materials [G01](#), particularly [G01N](#); electrical or optical apparatus, [see](#) the relevant classes in Sections [G](#) and [H](#))

NOTE

This subclass [covers](#) only laboratory apparatus which is either applicable solely to laboratory purposes or which, by reason of its simple construction and adaptability, is such as would not be suitable for industrial use.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

- [B01L 3/14](#) covered by [B01L 3/50](#)

1/00	Enclosures; Chambers (fume cupboards B08B ; provided with manipulation devices, glove boxes B25J ; cooling chambers F25D)	3/0234	. . . . {Repeating pipettes, i.e. for dispensing multiple doses from a single charge}
1/02	. Air-pressure chambers; Air-locks therefor	3/0237	. . . . {Details of electronic control, e.g. relating to user interface}
1/025	. . {Environmental chambers (incubators for culturing cells C12M 41/14 , Test chambers to test weather resistance G01N 17/002)}	3/0241	. . {Drop counters; Drop formers (making arrays for combinatorial libraries B01J 19/0046 ; automation of dispensing for analysis G01N 35/10)}
1/04	. Dust-free rooms or enclosures {(clean rooms suitable for industrial purposes F24F 3/161)}	3/0244	. . . {using pins}
1/50	. {for storing hazardous materials in the laboratory, e.g. cupboards, waste containers}	3/0248	. . . . {Prongs, quill pen type dispenser}
3/00	Containers or dishes for laboratory use, e.g. laboratory glassware (bottles B65D ; apparatus for enzymology or microbiology {specially adapted for culturing} C12M 1/00); Droppers (receptacles for volumetric purposes G01F)	3/0251	. . . . {Pin and ring type or pin in tube type dispenser}
3/02	. Burettes; Pipettes	3/0255	. . . . {characterized by the form or material of the pin tip}
3/0203	. . {Burettes, i.e. for withdrawing and redistributing liquids through different conduits}	3/0258	. . . {using stamps}
3/0206	. . . {of the plunger pump type}	3/0262	. . . {using touch-off at substrate or container}
3/021	. . {Pipettes, i.e. with only one conduit for withdrawing and redistributing liquids}	3/0265	. . . {using valves to interrupt or meter fluid flow, e.g. using solenoids or metering valves}
3/0213	. . . {Accessories for glass pipettes; Gun-type pipettes, e.g. safety devices, pumps}	3/0268	. . . {using pulse dispensing or spraying, eg. inkjet type, piezo actuated ejection of droplets from capillaries}
3/0217	. . . {of the plunger pump type (medical syringes A61M)}	3/0272	. . . {Dropper bottles}
3/022	. . . . {Capillary pipettes, i.e. having very small bore (B01L 3/0224 - B01L 3/0237 take precedence)}	3/0275	. . {Interchangeable or disposable dispensing tips}
3/0224	. . . . {having mechanical means to set stroke length, e.g. movable stops (B01L 3/0231 , B01L 3/0234 take precedence)}	3/0279	. . . {co-operating with positive ejection means}
3/0227	. . . . {Details of motor drive means (B01L 3/0231 , B01L 3/0234 take precedence)}	3/0282	. . {mounted within a receptacle (wash bottles B01L 3/10)}
3/0231	. . . . {having several coaxial pistons}	3/0286	. . {Ergonomic aspects, e.g. form or arrangement of controls}
		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)}
		3/0293	. . . {for liquids}
		3/0296	. . . . {from piercable tubing, e.g. in extracorporeal blood sampling}
		3/04	. Crucibles

- 3/06 . Crystallising dishes
 - 3/08 . Flasks (specially adapted for distillation [B01D 3/10](#))
 - 3/10 . Wash bottles
 - 3/12 . Gas jars or cylinders
 - 3/14 . Test tubes {(devices for taking samples of blood [A61B 5/14](#)) (not used, see [B01L 3/50](#) and subgroups)}
- WARNING**
- This is no longer used for the classification of new documents as from 1 April 2012. The back-file is being transferred to [B01L 3/50](#) and subgroups
- 3/16 . Retorts
 - 3/18 . Spatulas
 - 3/50 . {Containers for the purpose of retaining a material to be analysed, e.g. test tubes (devices for taking samples of blood [A61B 5/14](#))}
 - 3/502 . . {with fluid transport, e.g. in multi-compartment structures (centrifugal-type cuvettes [G01N 21/07](#); analysis by separation into components [G01N 30/00](#); automatic analysers [G01N 35/00](#))}
 - 3/5021 . . . {Test tubes specially adapted for centrifugation purposes (centrifuges [B04B 5/04](#))}
 - 3/50215 {using a float to separate phases}
 - 3/5023 . . . {with a sample being transported to, and subsequently stored in an absorbent for analysis}
 - 3/5025 . . . {for parallel transport of multiple samples}
 - 3/50255 {Multi-well filtration}
 - 3/5027 . . . {by integrated micro-fluidic structures, i.e. dimensions of channels and chambers are such that surface tension forces are important, e.g. lab-on-a-chip ([B01L 3/5023](#) takes precedence; micromixers [B01F 13/0059](#); microreactors for synthesis [B01J 19/0093](#); micro-capillary devices in general [B81B 1/00](#))}
 - 3/502707 {characterised by the manufacture of the container or its components (manufacture of micro-structural devices in general [B81C](#); by shaping or joining plastic parts [B29C 59/00](#) [B29C 65/00](#), by laminating [B32B 37/00](#))}
 - 3/502715 {characterised by interfacing components, e.g. fluidic, electrical, optical or mechanical interfaces}
 - 3/502723 {characterised by venting arrangements}
 - 3/50273 {characterised by the means or forces applied to move the fluids (micro pumps [F04B 19/006](#), of the membrane type [F04B 43/043](#))}
 - 3/502738 {characterised by integrated valves (microvalves [F16K 99/0001](#))}
 - 3/502746 {characterised by the means for controlling flow resistance, e.g. flow controllers, baffles ([B01L 3/502738](#) takes precedence)}
 - 3/502753 {characterised by bulk separation arrangements on lab-on-a-chip devices, e.g. for filtration or centrifugation (separation in general [B01D](#); micro-apparatus for analysis using electrophoresis [G01N 27/44791](#); sample preparation [G01N 1/28](#))}
 - 3/502761 {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 G01N 15/00](#))}
 - 3/502769 {characterised by multiphase flow arrangements}
 - 3/502776 {specially adapted for focusing or laminating flows}
 - 3/502784 {specially adapted for droplet or plug flow, e.g. digital micro-fluidics (automatic analysis using a stream of discrete samples in a tube system [G01N 35/08](#))}
 - 3/502792 {for moving individual droplets on a plate, e.g. by locally altering surface tension}
 - 3/5029 . . . {using swabs}
 - 3/505 . . {flexible containers not provided for above}
 - 3/5055 . . . {Hinged, e.g. opposable surfaces}
 - 3/508 . . {rigid containers not provided for above}
 - 3/5082 . . . {Test tubes *per se*}
 - 3/50825 {Closing or opening means, corks, bungs (closures for containers [B65D](#); means for removing stoppers [B67B 7/02](#))}
 - 3/5085 . . . {for multiple samples, e.g. micro-titration plates}
 - 3/50851 {specially adapted for heating or cooling samples (laboratory heating apparatus [B01L 7/00](#); incubators [C12M](#))}
 - 3/50853 {with covers or lids}
 - 3/50855 {using modular assemblies of strips or of individual wells}
 - 3/50857 {using arrays or bundles of open capillaries for holding samples}
 - 3/5088 . . . {confining liquids at a location by surface tension, e.g. virtual wells on plates, wires ([B01L 3/50857](#) takes precedence)}
 - 3/52 . {Containers specially adapted for storing or dispensing a reagent ([B01L 3/02](#) takes precedence; containers for medical or pharmaceutical purposes [A61J 1/00](#); containers in general [B65D](#); storing or dispensing test elements [G01N 33/4875](#); automated reagent dispensing [G01N 35/1002](#))}
 - 3/523 . . {with means for closing or opening}
 - 3/527 . . {for a plurality of reagents}
 - 3/54 . {Labware with identification means (identification of carriers, materials or components in automatic analysers [G01N 35/00732](#))}
 - 3/545 . . {for laboratory containers}
 - 3/5453 . . . {for test tubes}
 - 3/5457 . . . {for container closures}
 - 3/56 . {Labware specially adapted for transferring fluids}
 - 3/561 . . {Tubes; Conduits (in general [F16L](#))}
 - 3/563 . . {Joints or fittings (in general [F16L](#)); Separable fluid transfer means to transfer fluids between at least two containers, e.g. connectors}
 - 3/5635 . . . {connecting two containers face to face, e.g. comprising a filter}
 - 3/565 . . {Seals (in general [F16L](#))}
 - 3/567 . . {Valves, taps or stop-cocks (in combination with burettes [B01L 3/0203](#); in general [F16K](#))}
 - 3/569 . . {Glassware}

5/00	Gas handling apparatus (gas jars or cylinders B01L 3/12 ; cold traps, cold baffles B01D 8/00 ; separation of gases or vapours B01D 53/00 ; gas generators B01J 7/00 ; steam traps F16T)	2200/0605	. . Metering of fluids
		2200/061	. . Counting droplets
		2200/0615	. . Loss of fluid by dripping
5/02	. Gas collection apparatus, e.g. by bubbling under water (for sampling G01N)	2200/0621	. . Control of the sequence of chambers filled or emptied
5/04	. Gas washing apparatus, e.g. by bubbling	2200/0626	. . using levitated droplets
7/00	Heating or cooling apparatus (evaporators B01D 1/00 ; drying gases or vapours, e.g. desiccators, B01D 53/26 ; autoclaves B01J 3/04 ; drying ovens F26B ; furnaces, ovens F27); Heat insulating devices	2200/0631	. . Purification arrangements, e.g. solid phase extraction [SPE]
7/02	. Water baths; Sand baths; Air baths	2200/0636	. . Focussing flows, e.g. to laminate flows
7/04	. Heat insulating devices, e.g. jackets for flasks	2200/0642	. . Filling fluids into wells by specific techniques
7/50	. {Cryostats}	2200/0647	. . Handling flowable solids, e.g. microscopic beads, cells, particles
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)}	2200/0652	. . . Sorting or classification of particles or molecules
7/525	. . {with physical movement of samples between temperature zones}	2200/0657	. . . Pipetting powder
7/5255	. . . {by moving sample containers}	2200/0663	. . . Stretching or orienting elongated molecules or particles
7/54	. {using spatial temperature gradients}	2200/0668	. . . Trapping microscopic beads
9/00	Supporting devices; Holding devices (tweezers, tongs B25B)	2200/0673	. . Handling of plugs of fluid surrounded by immiscible fluid
9/02	. Laboratory benches or tables; Fittings therefor	2200/0678	. . Facilitating or initiating evaporation
9/04	. Retort stands; Retort clamps	2200/0684	. . Venting, avoiding backpressure, avoid gas bubbles
9/06	. Test-tube stands; Test-tube holders	2200/0689	. . Sealing
9/065	. . {specially adapted for capillary tubes}	2200/0694	. . Creating chemical gradients in a fluid
9/50	. {Clamping means, tongs (in general F16B 2/06)}	2200/08	. Ergonomic or safety aspects of handling devices
9/52	. {Supports for flat sample carrier, e.g. used for plates, slides, chips}	2200/082	. . Handling hazardous material
9/523	. . {for multisample carriers, e.g. used for microtitration plates}	2200/085	. . Protection against injuring the user
9/527	. . {for microfluidic devices, e.g. used for lab-on-a-chip}	2200/087	. . Ergonomic aspects
9/54	. {Supports related to pipettes and burettes}	2200/10	. Integrating sample preparation and analysis in single entity, e.g. lab-on-a-chip concept
9/543	. . {for disposable pipette tips, e.g. racks or cassettes}	2200/12	. Specific details about manufacturing devices
9/547	. . {for dispensing pins}	2200/14	. Process control and prevention of errors
99/00	Subject matter not provided for in other groups of this subclass {(chemical indicators in general G01N)}	2200/141	. . Preventing contamination, tampering
2200/00	Solutions for specific problems relating to chemical or physical laboratory apparatus	2200/142	. . Preventing evaporation
2200/02	. Adapting objects or devices to another	2200/143	. . Quality control, feedback systems
2200/021	. . Adjust spacings in an array of wells, pipettes or holders, format transfer between arrays of different size or geometry	2200/145	. . . Detecting door closure
2200/022	. . . Variable spacings	2200/146	. . . Employing pressure sensors
2200/023	. . adapted for different sizes of tubes, tips or container	2200/147	. . . Employing temperature sensors
2200/025	. . Align devices or objects to ensure defined positions relative to each other	2200/148	. . Specific details about calibrations
2200/026	. . Fluid interfacing between devices or objects, e.g. connectors, inlet details	2200/16	. Reagents, handling or storing thereof
2200/027	. . . for microfluidic devices	2200/18	. Transport of container or devices
2200/028	. . Modular arrangements	2200/185	. . Long distance transport, e.g. mailing
2200/04	. Exchange or ejection of cartridges, containers or reservoirs	2300/00	Additional constructional details
2200/06	. Fluid handling related problems	2300/02	. Identification, exchange or storage of information
		2300/021	. . Identification, e.g. bar codes
		2300/022	. . . Transponder chips
		2300/023	. . Sending and receiving of information, e.g. using bluetooth
		2300/024	. . Storing results with means integrated into the container
		2300/025	. . Displaying results or values with integrated means
		2300/026	. . . Drum counters
		2300/027	. . . Digital display, e.g. LCD, LED
		2300/028	. . . Graduation
		2300/04	. Closures and closing means
		2300/041	. . Connecting closures to device or container
		2300/042	. . . Caps; Plugs
		2300/043	. . . Hinged closures
		2300/044	. . . pierceable, e.g. films, membranes
		2300/045	. . . whereby the whole cover is slidable

2300/046	. . Function or devices integrated in the closure	2300/163	. . . Biocompatibility
2300/047	. . . Additional chamber, reservoir	2300/165	. . . Specific details about hydrophobic, oleophobic surfaces
2300/048	. . . enabling gas exchange, e.g. vents	2300/166	. . . . Suprahydrophobic; Ultraphobic; Lotus-effect
2300/049	. . . Valves integrated in closure	2300/168	. . Specific optical properties, e.g. reflective coatings
2300/06	. Auxiliary integrated devices, integrated components	2300/18	. Means for temperature control
2300/0609	. . Holders integrated in container to position an object	2300/1805	. . Conductive heating, heat from thermostatted solids is conducted to receptacles, e.g. heating plates, blocks
2300/0618	. . . for removable separation walls	2300/1811	. . . using electromagnetic induction heating
2300/0627	. . Sensor or part of a sensor is integrated	2300/1816	. . . using induction heating
2300/0636	. . . Integrated biosensor, microarrays	2300/1822	. . . using Peltier elements
2300/0645	. . . Electrodes	2300/1827	. . . using resistive heater
2300/0654	. . . Lenses; Optical fibres	2300/1833	. . using electrical currents in the sample itself
2300/0663	. . . Whole sensors	2300/1838	. . using fluid heat transfer medium
2300/0672	. . Integrated piercing tool	2300/1844	. . . using fans
2300/0681	. . Filter	2300/185	. . . using a liquid as fluid
2300/069	. . Absorbents; Gels to retain a fluid	2300/1855	. . using phase changes in a medium
2300/08	. Geometry, shape and general structure	2300/1861	. . using radiation
2300/0803	. . Disc shape	2300/1866	. . . Microwaves
2300/0806	. . . Standardised forms, e.g. compact disc [CD] format	2300/1872	. . . Infrared light
2300/0809	. . rectangular shaped	2300/1877	. . using chemical reactions
2300/0812	. . . Bands; Tapes	2300/1883	. . using thermal insulation
2300/0816	. . . Cards, e.g. flat sample carriers usually with flow in two horizontal directions	2300/1888	. . Pipettes or dispensers with temperature control
2300/0819	. . . Microarrays; Biochips	2300/1894	. . Cooling means; Cryo cooling
2300/0822	. . . Slides	2400/00 Moving or stopping fluids	
2300/0825	. . . Test strips	2400/02	. Drop detachment mechanisms of single droplets from nozzles or pins
2300/0829	. . . Multi-well plates; Microtitration plates	2400/021	. . non contact spotting by inertia, i.e. abrupt deceleration of the nozzle or pin
2300/0832	. . cylindrical, tube shaped	2400/022	. . droplet contacts the surface of the receptacle
2300/0835	. . . Ampoules	2400/024	. . . touch-off at the side wall of the receptacle
2300/0838	. . . Capillaries	2400/025	. . . tapping tip on substrate
2300/0841	. . . Drums	2400/027	. . electrostatic forces between substrate and tip
2300/0845	. . . Filaments, strings, fibres, i.e. not hollow	2400/028	. . Pin is moved through a ring which is filled with a fluid
2300/0848	. . Specific forms of parts of containers	2400/04	. Moving fluids with specific forces or mechanical means
2300/0851	. . . Bottom walls	2400/0403	. . specific forces
2300/0854	. . . Double walls	2400/0406	. . . capillary forces
2300/0858	. . . Side walls	2400/0409	. . . centrifugal forces
2300/0861	. . Configuration of multiple channels and/or chambers in a single devices	2400/0412	. . . . using additionally coriolis forces
2300/0864	. . . comprising only one inlet and multiple receiving wells, e.g. for separation, splitting	2400/0415	. . . . electrical forces, e.g. electrokinetic
2300/0867	. . . Multiple inlets and one sample wells, e.g. mixing, dilution	2400/0418	. . . . electro-osmotic flow [EOF]
2300/087	. . . Multiple sequential chambers	2400/0421	. . . . electrophoretic flow
2300/0874	. . . Three dimensional network	2400/0424	. . . . Dielectrophoretic forces
2300/0877	. . . Flow chambers	2400/0427	. . . . Electrowetting
2300/088	. . . Channel loops	2400/043	. . . magnetic forces
2300/0883	. . . Serpentine channels	2400/0433	. . . vibrational forces
2300/0887	. . Laminated structure	2400/0436	. . . . acoustic forces, e.g. surface acoustic waves [SAW]
2300/089	. . Virtual walls for guiding liquids	2400/0439	. . . . ultrasonic vibrations, vibrating piezo elements
2300/0893	. . having a very large number of wells, microfabricated wells	2400/0442	. . . thermal energy, e.g. vaporisation, bubble jet
2300/0896	. . Nano scaled	2400/0445	. . . . Natural or forced convection
2300/10	. Means to control humidity and/or other gases	2400/0448	. . . . Marangoni flow; Thermocapillary effect
2300/105	. . using desiccants	2400/0451	. . . . Thermophoresis; Thermodiffusion; Soret-effect
2300/12	. Specific details about materials	2400/0454	. . . radiation pressure, optical tweezers
2300/123	. . Flexible; Elastomeric	2400/0457	. . . passive flow or gravitation
2300/126	. . Paper	2400/046	. . . Chemical or electrochemical formation of bubbles
2300/14	. Means for pressure control		
2300/16	. Surface properties and coatings		
2300/161	. . Control and use of surface tension forces, e.g. hydrophobic, hydrophilic		

- 2400/0463 . . . Hydrodynamic forces, venturi nozzles
- 2400/0466 . . . Evaporation to induce underpressure
- 2400/0469 . . . Buoyancy
- 2400/0472 . . . Diffusion
- 2400/0475 . . specific mechanical means and fluid pressure
- 2400/0478 . . . pistons
- 2400/0481 . . . squeezing of channels or chambers
- 2400/0484 . . . Cantilevers
- 2400/0487 . . . fluid pressure, pneumatics
- 2400/049 vacuum
- 2400/0493 . . Specific techniques used
- 2400/0496 . . . Travelling waves, e.g. in combination with electrical or acoustic forces
- 2400/06 . . Valves, specific forms thereof
- 2400/0605 . . check valves
- 2400/0611 . . . duck bill valves
- 2400/0616 . . . Ball valves
- 2400/0622 . . distribution valves, valves having multiple inlets and/or outlets, e.g. metering valves, multi-way valves
- 2400/0627 . . Molecular gates forcing or inhibiting diffusion
- 2400/0633 . . with moving parts
- 2400/0638 . . . membrane valves, flap valves
- 2400/0644 . . . rotary valves
- 2400/065 . . . sliding valves
- 2400/0655 . . . pinch valves
- 2400/0661 . . . shape memory polymer valves
- 2400/0666 . . . Solenoid valves
- 2400/0672 . . . Swellable plugs
- 2400/0677 . . phase change valves; Meltable, freezing, dissolvable plugs; Destructible barriers
- 2400/0683 . . . mechanically breaking a wall or membrane within a channel or chamber
- 2400/0688 . . surface tension valves, capillary stop, capillary break
- 2400/0694 . . vents used to stop and induce flow, backpressure valves
- 2400/08 . . Regulating or influencing the flow resistance
- 2400/082 . . Active control of flow resistance, e.g. flow controllers
- 2400/084 . . Passive control of flow resistance
- 2400/086 . . . using baffles or other fixed flow obstructions
- 2400/088 . . . by specific surface properties