

ECLA EUROPEAN CLASSIFICATION

G01N

INVESTIGATING OR ANALYSING MATERIALS BY DETERMINING THEIR CHEMICAL OR PHYSICAL PROPERTIES (separating components of materials in general B01D, B01J, B03, B07; apparatus fully provided for in a single other subclass, see the relevant subclass e.g. B01L; measuring or testing processes other than immunoassay, involving enzymes or micro-organisms C12M, C12Q; investigation of foundation soil in situ [E02D1/00](#); sensing humidity changes for compensating measurements of other variables or for compensating readings of instruments for variations in humidity, see G01D or the relevant subclass for the variable measured; testing or determining the properties of structures G01M; measuring or investigating electric or magnetic properties of materials G01R; systems or methods in general, using reception or emission of radiowaves or other waves and based on propagation effects, e.g. Doppler effect, propagation time, direction of propagation, G01S; determining sensivity, graininess, or density of photographic materials [G03C5/02](#); testing component parts of nuclear reactors [G21C17/00](#); [N: controlling or regulating non-electric variables G05D; measuring degree of ionisation of ionised gases, i.e. plasma [H05H1/00A](#); testing electrographic developer properties [G03G15/08H6](#)])

Notes

- In this subclass, the following terms are used with the meanings indicated :
 - "investigating" means testing or determining;
 - "materials" includes solid, liquid or gaseous media, e.g. the atmosphere.
- Attention is drawn to the Notes following the title of class G01.
- Inventions relating to investigating the properties of materials, specially adapted for use in processes covered by subclass B23K, are classified in group [B23K31/12](#).

G01N1/00

Sampling; Preparing specimens for investigation

- G01N1/02 . Devices for withdrawing samples (for medical or veterinary purposes A61; [N: sampling of foundation soil [E02D1/04](#); obtaining samples of soil or well fluids [E21B49/00](#); [N: collecting or conveying radioactive samples [G01T7/00](#), e.g. [G01T7/02](#), [G01T7/08](#)] [C9510])
- G01N1/04 . . in the solid state, e.g. by cutting
- G01N1/06 . . . providing a thin slice, e.g. microtome
- G01N1/08 . . . involving an extracting tool, e.g. core bit
- G01N1/10 . . in the liquid or fluent state [N: burettes, pipettes [B01L3/02](#); Sampling of ground water [E02D1/06](#); metering by volume of fluids or fluent solid material [G01F11/00](#), [G01F13/00](#)] [C9510]
- G01N1/12 . . . Dippers; Dredgers
- G01N1/12B [N: adapted for sampling molten metals]
- G01N1/14 . . . Suction devices, e.g. pumps; Ejector devices
- G01N1/14B [N: adapted for sampling molten metals]
- G01N1/16 . . . with provision for intake at several levels [N: [G01N1/20B](#)] ([G01N1/12](#),

- [G01N1/14](#) take precedence)
- G01N1/18 . . . with provision for splitting samples into portions ([G01N1/12](#), [G01N1/14](#) take precedence; fraction-collection apparatus for chromatography [B01D15/08](#))
 - G01N1/20 . . . for flowing or falling materials [N: [G01N1/20B](#)] ([G01N1/12](#), [G01N1/14](#) take precedence)
 - G01N1/20B [N: by deviating part of a fluid stream, e.g. by drawing-off or tapping]
 - G01N1/20B2 [N: using a piston actuated by the pressure of the liquid to be sampled]
 - G01N1/22 . . . in the gaseous state [N: (specially adapted for biological material [G01N33/497](#); measuring breath flow [A61B5/087](#))]
 - G01N1/22B [N: involving separation of sample components during sampling] [C0506]
 - G01N1/22B1 [N: with filters] [N0506]
 - G01N1/22B3 [N: with impactors] [N0506]
 - G01N1/22B5 [N: with cyclones] [N0506]
 - G01N1/22B7 [N: by sorption] [N0506]
 - G01N1/22C [N: Sampling from a closed space, e.g. food package, head space] [N0506]
 - G01N1/22F [N: Sampling from a flowing stream of gas] [N0506]
 - G01N1/22F2 [N: in a vehicle exhaust] [N0506]
 - G01N1/22F3 [N: in a stack or chimney] [N0506]
 - G01N1/22G [N: Atmospheric sampling] [N0506]
 - G01N1/22S [N: Sampling soil gases or the like] [N0506]
 - G01N1/24 . . . Suction devices [N: ([G01N1/22](#) to [G01N1/22S](#) take precedence)] [C0506]
 - G01N1/26 . . . with provision for intake from several spaces

 - G01N1/28 . . . Preparing specimens for investigation [N: including physical details of (bio-)chemical methods covered elsewhere, e.g. [G01N33/50](#), [C12Q](#)] (mounting specimens on microscopic slides [G02B21/34](#); means for supporting the objects or the materials to be analysed in electron microscopes [H01J37/20](#); [N: laboratory gas handling apparatus [B01L5/00](#)])
 - G01N1/28D . . . [N: Means for preparing replicas of specimens, e.g. for microscopical analysis]
 - G01N1/28F . . . [N: Producing thin layers of samples on a substrate, e.g. smearing, spinning-on ([G01N1/30](#) takes precedence)]
 - G01N1/28G . . . [N: Shadowing samples]
 - G01N1/28M . . . [N: involving mechanical work, e.g. chopping, disintegrating, compacting, homogenising (microtomes [G01N1/06](#); pulverising in general [B02C](#); mixing in general [B01F](#))]
 - G01N1/30 . . . Staining; Impregnating [N: Fixation; Dehydration; Multistep processes for preparing samples of tissue, cell or nucleic acid material and the like for analysis]
 - G01N1/31 Apparatus therefor
 - G01N1/31B [N: for samples mounted on planar substrates]
 - G01N1/32 . . . Polishing; Etching
 - G01N1/34 . . . Purifying; Cleaning [N: (processes or apparatus for extracting or separating nucleic acids from biological samples [C12N15/10A](#))] [C0912]
 - G01N1/36 . . . Embedding or analogous mounting of samples
 - G01N1/38 . . . Diluting, dispersing or mixing samples
 - G01N1/40 . . . Concentrating samples [C0806]
 - G01N1/40A [N: by transferring a selected component through a membrane] [N0806]

- G01N1/40B . . . [N: by thermal techniques; Phase changes] [N0806]
- G01N1/40G . . . [N: by chemical techniques; Digestion; Chemical decomposition] [N0806]
- G01N1/40P . . . [N: by adsorption or absorption] [N0806]
- G01N1/40S . . . [N: by solubility techniques] [N0806]
- G01N1/40V . . . [N: by other techniques involving separation of suspended solids] [N0806]
- G01N1/42 . . Low-temperature sample treatment, e.g. cryofixation
- G01N1/44 . . Sample treatment involving radiation, e.g. heat

G01N3/00 Investigating strength properties of solid materials by application of mechanical stress (strain gauges G01B; measuring stress in general G01L)

Note

This group covers the stressing of materials not only below but also beyond the elastic limit, e.g. until breaking occurs.

- G01N3/02 . Details
- G01N3/04 . . Chucks
- G01N3/06 . . Special adaptations of indicating or recording means (indicating or recording means for measuring in general [G01D](#))
- G01N3/06B . . . [N: with mechanical indicating or recording means]
- G01N3/06C . . . [N: with hydraulic indicating or recording means]
- G01N3/06D . . . [N: with electrical indicating or recording means]
- G01N3/06E . . . [N: with optical indicating or recording means]
- G01N3/08 . by applying steady tensile or compressive forces ([G01N3/28](#) takes precedence)
- G01N3/10 . . generated by pneumatic or hydraulic pressure ([G01N3/18](#) takes precedence)
- G01N3/12 . . . Pressure testing (testing fluid-tightness [G01M3/00](#))
- G01N3/14 . . generated by dead weight, e.g. pendulum; generated by springs tension ([G01N3/18](#) takes precedence)
- G01N3/16 . . applied through gearing ([G01N3/18](#) takes precedence)
- G01N3/16C . . . [N: generated by rotation, i.e. centrifugal force (for testing structures or apparatus [G01M19/00C](#))]
- G01N3/18 . . Performing test at high or low temperatures
- G01N3/20 . by applying steady bending forces ([G01N3/26](#), [G01N3/28](#) take precedence)
- G01N3/22 . by applying steady torsional forces ([G01N3/26](#), [G01N3/28](#) take precedence)
- G01N3/24 . by applying steady shearing forces ([G01N3/26](#), [G01N3/28](#) take precedence)
- G01N3/26 . Investigating twisting or coiling properties
- G01N3/28 . Investigating ductility, e.g. suitability of sheet metal for deep-drawing or spinning
- G01N3/30 . by applying a single impulsive force, e.g. by falling weight
- G01N3/303 . . generated only by free-falling weight [N0102]
- G01N3/307 . . generated by a compressed or tensile-stressed spring; generated by pneumatic or

- hydraulic means [N0102]
- G01N3/31 . . generated by a rotating fly-wheel [N0102]
- G01N3/313 . . generated by explosives [N0102]
- G01N3/317 . . generated by electromagnetic means [N0102]
- G01N3/32 . by applying repeated or pulsating forces (generation of such forces in general, see the relevant classes or subclasses, e.g. B06, G10) [C9507]
- G01N3/34 . . generated by mechanical means, e.g. hammer blows
- G01N3/34B . . . [N: for tensile or compressive investigation]
- G01N3/34C . . . [N: for bending investigation]
- G01N3/34D . . . [N: for torsional investigation]
- G01N3/36 . . generated by pneumatic or hydraulic means
- G01N3/36B . . . [N: for tensile or compressive investigation]
- G01N3/36C . . . [N: for bending investigation]
- G01N3/36D . . . [N: for torsional investigation]
- G01N3/38 . . generated by electromagnetic means
- G01N3/38B . . . [N: for tensile or compressive investigation]
- G01N3/38C . . . [N: for bending investigation]
- G01N3/38D . . . [N: for torsional investigation]
- G01N3/40 . Investigating hardness or rebound hardness
- G01N3/40B . . [N: by determining the vibration frequency of a sensing element in contact with the specimen]
- G01N3/42 . . by performing impressions under a steady load by indentors, e.g. sphere, pyramid (G01N3/54 takes precedence)
- G01N3/44 . . . the indentors being put under a minor load and a subsequent major load, i.e. Rockwell system
- G01N3/46 . . . the indentors performing a scratching movement
- G01N3/48 . . by performing impressions under impulsive load by indentors, e.g. falling ball (G01N3/54 takes precedence)
- G01N3/50 . . by measuring rolling friction, e.g. by rocking pendulum (G01N3/54 takes precedence)
- G01N3/52 . . by measuring extent of rebound of a striking body (G01N3/54 takes precedence)
- G01N3/54 . . Performing tests at high or low temperatures
- G01N3/56 . Investigating resistance to wear or abrasion
- G01N3/56B . . [N: using radioactive tracers]
- G01N3/56D . . [N: of granular or particulate material]
- G01N3/56F . . [N: by submitting the specimen to the action of a fluid or of a fluidised material, e.g. cavitation, jet abrasion (G01N3/56D takes precedence)]
- G01N3/58 . Investigating machinability by cutting tools; Investigating the cutting ability of tools
- G01N3/60 . Investigating resistance of materials, e.g. refractory materials, to rapid heat changes [N: (thermal testing of structures or apparatus G01M19/00B)] [C9505]
- G01N3/62 . Manufacturing, calibrating, or repairing devices used in investigations covered by the preceding subgroups

G01N5/00 **Analysing materials by weighing, e.g. weighing small particles separated from a gas or liquid ([G01N9/00](#) takes precedence; [N: weighing per se [G01G](#)])**

- G01N5/02 . by absorbing or adsorbing components of a material and determining change of weight of the adsorbent, e.g. determining moisture content [N: [absorption bulbs \[B01D53/00\]\(#\)](#)]
- G01N5/02B . . [N: for determining moisture content]
- G01N5/04 . by removing a component, e.g. by evaporation, and weighing the remainder
- G01N5/04B . . [N: for determining moisture content]

G01N7/00 **Analysing materials by measuring the pressure or volume of a gas or vapour**

- G01N7/02 . by absorption, adsorption, or combustion of components and measurement of the change in pressure or volume of the remainder [N: [absorption bulbs \[B01D53/00\]\(#\)](#)]
- G01N7/04 . . by absorption or adsorption alone
- G01N7/06 . . by combustion alone
- G01N7/08 . . by combustion followed by absorption or adsorption of the combustion products
- G01N7/10 . by allowing diffusion of components through a porous wall and measuring a pressure or volume difference
- G01N7/12 . . the diffusion being followed by combustion or catalytic oxidation
- G01N7/14 . by allowing the material to emit a gas or vapour, e.g. water vapour, and measuring a pressure or volume difference [N: [determining urea \[G01N33/487D\]\(#\)](#)]
- G01N7/16 . . by heating the material
- G01N7/18 . . by allowing the material to react
- G01N7/20 . . . the reaction being fermentation
- G01N7/22 of dough

G01N9/00 **Investigating density or specific gravity of materials; Analysing materials by determining density or specific gravity (weighing apparatus [G01G](#))**

- G01N9/00B . [N: using variation of the resonant frequency of an element vibrating in contact with the material submitted to analysis ([G01N9/34](#) takes precedence)]
- G01N9/02 . by measuring weight of a known volume
- G01N9/04 . . of fluids
- G01N9/06 . . . with continuous circulation through a pivotally supported member
- G01N9/08 . by measuring buoyant force of solid materials by weighing both in air and in a liquid
- G01N9/10 . by observing bodies wholly or partially immersed in fluid materials
- G01N9/12 . . by observing the depth of immersion of the bodies, e.g. hydrometers
- G01N9/14 . . . the body being built into a container
- G01N9/16 . . . the body being pivoted

- G01N9/18 . . . Special adaptations for indicating, recording, or control
- G01N9/20 . . by balancing the weight of the bodies
- G01N9/22 . . . with continuous circulation of the fluid
- G01N9/24 . by observing the transmission of wave or particle radiation through the material
- G01N9/26 . by measuring pressure differences
- G01N9/26B . . [N: for determining gas density]
- G01N9/28 . . by measuring the blowing pressure of gas bubbles escaping from nozzles at different depths in a liquid
- G01N9/30 . by using centrifugal effects
- G01N9/32 . by using flow properties of fluids, e.g. flow through tubes or apertures
- G01N9/34 . . by using elements moving through the fluid, e.g. vane
- G01N9/36 . Analysing materials by measuring the density or specific gravity, e.g. determining quantity of moisture ([methods of measurement in general G01N9/02 to G01N9/32](#))

- G01N11/00** **Investigating flow properties of materials, e.g. viscosity, plasticity; Analysing materials by determining flow properties**
- G01N11/02 . by measuring flow of the material
- G01N11/04 . . through a restricted passage, e.g. tube, aperture
- G01N11/06 . . . by timing the outflow of a known quantity
- G01N11/08 . . . by measuring pressure required to produce a known flow
- G01N11/10 . by moving a body within the material
- G01N11/10B . . [N: by detecting the balance position of a float moving in a duct conveying the fluid under test]
- G01N11/12 . . by measuring rising or falling speed of the body; by measuring penetration of wedged gauges ([G01N11/16 takes precedence](#))
- G01N11/14 . . by using rotary bodies, e.g. vane ([G01N11/16 takes precedence](#))
- G01N11/14B . . . [N: Sample held between two members substantially perpendicular to axis of rotation, e.g. parallel plate viscometer]
- G01N11/16 . . by measuring damping effect upon oscillatory body
- G01N11/16B . . . [N: Oscillations being torsional, e.g. produced by rotating bodies]
- G01N11/16B1 [N: Sample held between two members substantially perpendicular to axis of rotation, e.g. parallel plate viscometer]
- G01N11/16B2 [N: Sample holder oscillates, e.g. rotating crucible]

- G01N13/00** **Investigating surface or boundary effects, e.g. wetting power; Investigating diffusion effects; Analysing materials by determining surface, boundary, or diffusion effects (scanning-probe techniques or apparatus G01Q)**
- G01N13/02 . Investigating surface tension of liquids
- G01N13/04 . Investigating osmotic effects

- G01N15/00** Investigating characteristics of particles; Investigating permeability, pore-volume, or surface-area of porous materials (identification of micro-organisms [C12Q](#))
- G01N15/02 . Investigating particle size or size distribution ([G01N15/04](#), [G01N15/10](#) take precedence; by measuring osmotic pressure [G01N7/10](#); by filtering [B01D](#); by sifting [B07B](#))
- G01N15/02B . . [N: by optical means, e.g. by light scattering, diffraction, holography or imaging] [[C0812](#)]
- G01N15/02B2 . . . [N: Investigating a scatter or diffraction pattern]
- G01N15/02B3 . . . [N: using imaging, e.g. a projected image of suspension; using holography]
- G01N15/02C . . [N: with mechanical, e.g. inertial, classification, and investigation of sorted collections (with centrifuges [G01N15/04B](#))]
- G01N15/02D . . [N: with electrical classification]
- G01N15/02F . . [N: with screening; with classification by filtering ([B01D](#) takes precedence)]
- G01N15/04 . Investigating sedimentation of particle suspensions
- G01N15/04B . . [N: by centrifuging and investigating centrifugates (centrifuges per se [B04B](#))]
- G01N15/05 . . in blood
- G01N15/06 . Investigating concentration of particle suspensions ([G01N15/04](#), [G01N15/10](#) take precedence; by weighing [G01N5/00](#))
- [N: **Informative note**
[\[C0408\]](#) References listed below indicate ECLA places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group and its subgroups:
- Investigating or analysing materials;
 - by the use of optical means: [G01N21/00](#), e.g. [G01N21/47](#), [G01N21/90](#);
 - by other radiations or by particles: [G01N23/00](#), e.g. [G01N23/02](#), [G01N23/201](#);
 - by measuring impedance: [G01N27/02](#), e.g. [G01N27/06](#), [G01N27/22](#);
 - by electrochemical means: [G01N27/00](#), e.g. [G01N27/26](#), [G01N27/56B](#);
 - by measuring absorption of sonic or ultrasonic vibrations: [G01N29/00](#), e.g. [G01N29/02](#)
]
- G01N15/06A . . [N: by collecting particles on a support] [N0406]
- G01N15/06A1 . . . [N: Optical scan of the deposits ([G01N15/06A3B](#) takes precedence)] [N0406]
- G01N15/06A3 . . . [N: of the filter type ([G01N15/06A5B](#) takes precedence)] [N0406]
- G01N15/06A3B [N: Optical scan of the deposits] [N0406]
- G01N15/06A3D [N: Separation of liquids, e.g. by absorption, wicking] [N0406]
- G01N15/06A5 . . . [N: Moving support] [N0406]
- G01N15/06A5B [N: of the filter type] [N0406]
- G01N15/06C . . [N: using condensation nuclei counters]
- G01N15/06D . . [N: using electric, e.g. electrostatic methods or magnetic methods (by investigating individual particles [G01N15/10D](#), [G01N15/12](#))]
- G01N15/08 . Investigating permeability, pore-volume, or surface area of porous materials

- G01N15/08A . . [N: Details, e.g. sample holders, mounting samples for testing] [N0608]
- G01N15/08C . . [N: Investigating permeability by forcing a fluid through a sample]
- G01N15/08C1 . . . [N: and measuring fluid flow rate, i.e. permeation rate or pressure change]
- G01N15/08M . . [N: Investigating volume, surface area, size or distribution of pores; Porosimetry]
- G01N15/08M1 . . . [N: Mercury porosimetry]
- G01N15/08M2 . . . [N: by measuring weight or volume of sorbed fluid, e.g. B.E.T. method]

- G01N15/10 . Investigating individual particles
- G01N15/10C . . [N: Calibrating particle analysers; References therefor]
- G01N15/10D . . [N: by measuring electrical or magnetic effects thereof, e.g. onconductivity or capacity (using nano-scale size effects, other than for sizing or counting, by translocation through nano-pores [G01N33/487B5](#); involving the use of Coulter counters [G01N15/12](#))] [C0903]
- G01N15/10M . . [N: Micro-structural devices for other than electro-optical measurement (for electro-optical measurement [G01N15/14M](#))] [N1204]
- G01N15/12 . . Coulter-counters
- G01N15/12B . . . [N: Details]
- G01N15/12B1 [N: concerning the aperture]
- G01N15/12B2 [N: Circuits]
- G01N15/12C . . . [N: Devices using more than one aperture]
- G01N15/14 . . Electro-optical investigation, e.g. flow cytometers
- G01N15/14C . . . [N: Fluid conditioning in flow cytometers, e.g. flow cells; Supply; Control of flow]
- G01N15/14D . . . [N: using an analyser being characterised by its control arrangement] [N0812]
- G01N15/14D2 [N: with the synchronisation of components, a time gate for operation of components, or suppression of particle coincidences] [N0812] [M1208]
- G01N15/14E . . . [N: using an analyser being characterised by its signal processing] [N0812]
- G01N15/14E2 [N: the electronics being integrated with the analyser, e.g. hand-held devices for on-site investigation] [N0812]
- G01N15/14F . . . [N: using an analyser being characterised by its optical arrangement] [N0812]
- G01N15/14F1 [N: the optical arrangement forming an integrated apparatus with the sample container, e.g. a flow cell] [N0812] [M1208]
- G01N15/14G . . . [N: without spatial resolution of the texture or inner structure of the particle, e.g. processing of pulse signals] [C0608]
- G01N15/14G1 [N: the analysis being performed on a sample stream] [N0608]
- G01N15/14G3 [N: using image analysis for extracting features of the particle] [N0608]

[N: **Note**

References listed below indicate ECLA places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group:

- counting objects disposed at random with size distinction [G06M11/04](#)
 - extraction of features from image for pattern recognition [G06K9/46](#)
 - specific image analysis method for the recognition of microscopic objects [G06K9/00B](#)
 - image enhancement in general [G06T5/00](#)
 - image analysis in general [G06T7/00](#)] [N0812]
-]

- G01N15/14H . . . [N: with spatial resolution of the texture or inner structure of the particle] [C0608]
 [N: Informative Note References listed below indicate ECLA places which could also be interest when carrying out a search in respect of the subject matter covered by the preceding group: -counting objects disposed at random with size distinction G06M11/04 -extraction of features from image for pattern recognition G06K9/46 -specific image analysis method for the recognition of microscopic objects G06K9/00B -image enhancement in general G06T5/00 -image analysis in general G06T7/00]

[N: **Informative Note**

References listed below indicate ECLA places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group:

- counting objects disposed at random with size distinction [G06M11/04](#)
- extraction of features from image for pattern recognition [G06K9/46](#)
- image enhancement [G06T5/00](#)
- image analysis [G06T7/00](#)

- G01N15/14H1 [N: the analysis being performed on a sample stream] [N0408]
 G01N15/14H3 [N: using image analysis for extracting features of the particle] [N0408] [C0608]
 G01N15/14M [N: micro-structural devices] [N0408]

[N: **WARNING**

This group is incomplete; see provisionally also groups [G01N15/14](#), [G01N15/14C](#), [G01N15/14G](#) and related ICO-codes
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G01N17/00 Investigating resistance of materials to the weather, to corrosion, or to light

- G01N17/00A . [N: Test chambers] [N9712]
 G01N17/00C . [N: to light]
 G01N17/00D . [N: of metals] [N9703]
 G01N17/00E . [N: Monitoring fouling] [N0005]
 G01N17/02 . Electrochemical measuring systems for weathering, corrosion or corrosion-protection measurement
 G01N17/04 . Corrosion probes [N9712]
 G01N17/04A . . [N: Coupons] [N9712]
 G01N17/04A2 . . . [N: Means for supporting or introducing coupons] [N9712]

G01N19/00 Investigating materials by mechanical methods ([G01N3/00](#) to [G01N17/00](#) take precedence)

- G01N19/02 . Measuring coefficient of friction between materials [N: (testing of tyres [G01M17/02](#); determinations of friction coefficient used in vehicle braking or traction control systems

[B60T8/172](#)) [[C0505](#)]

- G01N19/04 . Measuring adhesive force between materials, e.g. of sealing tape, of coating
- G01N19/06 . Investigating by removing material, e.g. spark-testing
- G01N19/08 . Detecting presence of flaws or irregularities ([measuring roughness or irregularity of surfaces G01B5/28](#))
- G01N19/10 . Measuring moisture content, e.g. by measuring change in length of hygroscopic filament; Hygrometers

G01N21/00

Investigating or analysing materials by the use of optical means, i.e. using infra-red, visible, or ultra-violet light ([G01N3/00](#) to [G01N19/00](#) take precedence; [measuring stress in general G01L1/00](#); optical elements of measuring instruments [G02B](#)) [[C9602](#)]

Note

This group does not cover the investigation of spectral properties of light per se, or measurements of the properties of materials where spectral properties of light are sensed and primary emphasis is placed on creating, detecting or analysing the spectrum providing that the properties of the materials to be investigated are of minor importance (see also Note (4) after the title of class G01). Those subjects are covered by group G01J 3/00.

- G01N21/01 . Arrangements or apparatus for facilitating the optical investigation
- G01N21/03 . . Cuvette constructions
- G01N21/03A . . . [[N: Optical path conditioning in cuvettes, e.g. windows; adapted optical elements or systems; path modifying or adjustment \(G01N21/03B to G01N21/15 take precedence\)](#)]
- G01N21/03B . . . [[N: Multipass arrangements](#)]
- G01N21/03C . . . [[N: High pressure cuvettes; \(G01N21/03G to G01N21/15 take precedence\)](#)]
- G01N21/03G . . . [[N: with temperature control \(control of temperature G05D23/00; cryostats F17C3/08\)](#)]
- G01N21/05 . . . Flow-through cuvettes ([G01N21/09](#) takes precedence; handling fluid samples [G01N1/10](#))
- G01N21/07 . . . Centrifugal type cuvettes ([G01N21/09](#) takes precedence; centrifuges per se [B04B](#))
- G01N21/09 . . . adapted to resist hostile environments or corrosive or abrasive materials
- G01N21/11 . . Filling or emptying of cuvettes
- G01N21/13 . . Moving of cuvettes or solid samples to or from the investigating station [[N: handling materials for automatic analysis G01N35/00](#)]
- G01N21/15 . . Preventing contamination of the components of the optical system or obstruction of the light path
- G01N21/17 . Systems in which incident light is modified in accordance with the properties of the material investigated ([where the material investigated is optically excited causing a change in wavelength of the incident light G01N21/63](#))
- G01N21/17B . . [[N: with opto-acoustic detection, e.g. for gases or analysing solids](#)]
- G01N21/17C . . [[N: with calorimetric detection, e.g. with thermal lens detection](#)]

- G01N21/17M . . . [N: with a modulation of one or more physical properties of the sample during the optical investigation, e.g. electro-reflectance]
 - G01N21/19 . . . Dichroism
 - G01N21/21 . . . Polarisation-affecting properties ([G01N21/19](#) takes precedence)
 - G01N21/21B [N: Ellipsometry (optical thickness measurement [G01B11/06](#))]
 - G01N21/23 Bi-refringence
 - G01N21/25 . . . Colour; Spectral properties, i.e. comparison of effect of material on the light at two or more different wavelengths or wavelength bands
 - G01N21/25B [N: Colorimeters; Construction thereof]
 - G01N21/25B2 [N: for batch operation, i.e. multisample apparatus (analytical automats [G01N35/00](#))]
 - G01N21/25C [N: Details, e.g. use of specially adapted sources, lighting or optical systems]
 - G01N21/25D [N: Arrangements using two alternating lights and one detector]
 - G01N21/27 using photo-electric detection ([G01N21/31](#) takes precedence) [N: circuits for computing concentration (logarithmic circuits [G06G7/24](#); photometric circuits in general [G01J](#))]
 - G01N21/27C [N: for following a reaction, e.g. for determining photometrically a reaction rate (photometric cinetic analysis)]
 - G01N21/27E [N: Calibration, base line adjustment, drift correction]
 - G01N21/27E2 [N: with alternation of sample and standard in optical path]
 - G01N21/27E3 [N: Constitution of standards]
 - G01N21/29 using visual detection ([G01N21/31](#) takes precedence)
 - G01N21/29B [N: with colour charts, graduated scales or turrets]
 - G01N21/31 Investigating relative effect of material at wavelengths characteristic of specific elements or molecules, e.g. atomic absorption spectrometry [N: ([G01N21/72](#) takes precedence)]
 - G01N21/31A [N: Atomic absorption analysis]
 - G01N21/31D [N: with comparison of measurements at specific and non-specific wavelengths (dual wavelength spectrometry [G01J3/427](#))]
 - G01N21/31D4 [N: using two sources of radiation of different wavelengths ([G01N21/33](#) to [G01N21/39](#) take precedence)]
 - G01N21/33 using ultra-violet light ([G01N21/39](#) takes precedence)
 - G01N21/35 using infra-red light ([G01N21/39](#) takes precedence)
 - G01N21/35B [N: for analysing gases, e.g. multigases analysis]
 - G01N21/35B3 [N: Devices using the gas filter correlation method including the radiometric type, i.e. without instrumental source; Devices using gas pressure modulation method]
 - G01N21/35C [N: for determining moisture] [C1207]
 - G01N21/35C2 [N: in sheets, e.g. in paper][N: WARNINGNot complete, see also [G01N21/35C](#)] [N1204]
 - G01N21/35D [N: for analysing solids; preparation of samples therefor (sampling or preparing specimen for investigation in general [G01N1/00](#))] [M1208]
 - G01N21/35E [N: for analysing liquids, e.g. polluted water] [N1204]
- [N: **WARNING**
Not complete, see also [G01N21/35](#) [N1205]
]

- G01N21/35F [N: using far infrared; using Terahertz radiation] [N0502] [C1208]
- G01N21/35F2 [N: by Terahertz time domain spectroscopy [THz-TDS]] [N1204]
- [N: **WARNING**
Not complete, see also [G01N21/35F](#) [N1205]
]
- G01N21/35G [N: using near infra-red light]
- G01N21/37 using pneumatic detection [N: (opto-acoustic detection [G01N21/17B](#))]
- G01N21/39 using tunable lasers
- G01N21/41 Refractivity; Phase-affecting properties, e.g. optical path length ([G01N21/21](#) takes precedence)
- G01N21/41B [N: Index profiling of optical fibres]
- G01N21/41D [N: Refractometers, e.g. differential]
- G01N21/43 by measuring critical angle
- G01N21/43B [N: Dip refractometers, e.g. using optical fibres]
- G01N21/45 using interferometric methods; using Schlieren methods
- G01N21/45B [N: Holographic interferometry (for dimensional measurements [G01B9/021](#) to [G01B9/029](#))]
- G01N21/45C [N: Schlieren methods, e.g. for gradient index determination; Shadowgraph]
- G01N21/47 Scattering, i.e. diffuse reflection ([G01N21/25](#), [G01N21/41](#) take precedence) [N: [G01N21/55](#) takes precedence]
- G01N21/47F [N: Diffuse reflection (precedence is given to [G01N21/55](#)-[G01N21/57](#) if specular component is taken into consideration), e.g. also for testing fluids, fibrous materials]
- G01N21/47F2 [N: Details of optical heads therefor, e.g. using optical fibres]
- G01N21/47G [N: Standardising light scatter apparatus; Standards therefor]
- G01N21/47H [N: Diffraction (for sizing particles [G01N15/02B](#))]
- G01N21/47S [N: spatially resolved investigating of object in scattering medium (in vivo [A61B](#))]
- G01N21/49 within a body or fluid
- G01N21/51 inside a container, e.g. in an ampoule ([G01N21/53](#) takes precedence; checking containers for cleanliness [B08B9/46](#)) [C9502]
- G01N21/53 within a flowing fluid, e.g. smoke (alarm devices actuated by smoke [G08B17/10](#))
- G01N21/53A [N: with measurement of scattering and transmission]
- G01N21/53B [N: by measuring transmission alone, i.e. determining opacity]
- G01N21/53C [N: for determining atmospheric attenuation and visibility]
- G01N21/55 Specular reflectivity
- G01N21/55B [N: Attenuated total reflection]
- G01N21/55B2 [N: and using surface plasmons (fluorescence excitation [G01N21/64P8](#); enhanced Raman [G01N21/65D](#))] [C1208]
- G01N21/55B2N [N: detecting the surface plasmon resonance of nanostructured metals, e.g. localised surface plasmon resonance] [N1007] [C1208]
- G01N21/57 Measuring gloss
- G01N21/59 Transmissivity ([G01N21/25](#) takes precedence)
- G01N21/59B [N: Densitometers]
- G01N21/59B2 [N: of the scanning type (scanning per se [G02B](#))]

- G01N21/61 . . . Non-dispersive gas analysers [N: (G01N21/35B takes precedence)] [C0708]
- G01N21/62 . Systems in which the material investigated is excited whereby it emits light or causes a change in wavelength of the incident light
- G01N21/63 . . optically excited
- G01N21/63C . . . [N: using photolysis and investigating photolysed fragments]
- G01N21/63H . . . [N: using an arrangement of pump beam and probe beam; using the measurement of optical non-linear properties; (non-linear optics per se [G02F1/35](#))]
- G01N21/64 . . . Fluorescence; Phosphorescence
- G01N21/64A [N: Atomic fluorescence; Laser induced fluorescence]
- G01N21/64A2 [N: Atomic fluorescence]
- G01N21/64F [N: with measurement of decay time, time resolved fluorescence]
- G01N21/64H [N: Measuring fluorescence of fluorescent products of reactions or of fluorochrome labelled reactive substances, e.g. measuring quenching effects, using measuring "optrodes" (in vivo [A61B5/00](#); immunoassay [G01N33/53](#))]
- G01N21/64H2 [N: non-biological material] [N0708] [C1208]
- [N: **WARNING**
Not complete, see [G01N21/64H](#)
]
- G01N21/64L [N: Measuring fluorescence polarisation]
- G01N21/64M [N: by visual observation]
- G01N21/64P [N: Specially adapted constructive features of fluorimeters] [C1208]
- [N: **WARNING**
Not complete, see also [G01N21/64H](#) to [G01N21/64M](#)
]
- G01N21/64P2 [N: Individual samples arranged in a regular 2D-array, e.g. multiwell plates] [C1208]
- [N: **WARNING**
Not complete, see also [G01N21/64H](#) to [G01N21/64P](#) and [G01N21/25B2](#)
]
- G01N21/64P2D [N: using an integrated detector array] [N0708]
- [N: **Notes**
Not complete, see [G01N21/64P](#)
]
- G01N21/64P4 [N: Spatial resolved fluorescence measurements; Imaging] [N0601]
- [N: **WARNING**
Not complete, see also [G01N21/64H](#) to [G01N21/64M](#)
]
- G01N21/64P4C [N: Fluorescence microscopy (fluorescence microscopes per se [G02B21/00M4A7U](#) and [G02B21/16](#))] [N0708]
- [N: **WARNING**
Not complete, see also [G01N21/64H](#) to [G01N21/64M](#)
]

- G01N21/64P8 [N: using evanescent coupling or surface plasmon coupling for the excitation of fluorescence] [N0708]
- [N: **WARNING**
Not complete, see also [G01N21/55B2](#) and [G01N21/64H](#)
]
- G01N21/64R [N: Measuring fluorescence of biological material, e.g. DNA, RNA, cells ([G01N21/64H](#) takes precedence)] [C1208]
- [N: **WARNING**
Not complete, see also [G01N21/64H](#) to [G01N21/64M](#)
]
- G01N21/64S [N: Photoluminescence of semiconductors]
- G01N21/65 Raman scattering
- G01N21/65D [N: enhancement Raman, e.g. surface plasmons] [N0708]
- [N: **WARNING**
Not complete, see [G01N21/65](#)
]
- G01N21/66 electrically excited, e.g. electroluminescence
- G01N21/67 using electric arcs or discharges ([spark gaps per se H01T](#))
- G01N21/68 using high frequency electric fields
- G01N21/69 specially adapted for fluids [N: e.g. molten metal]
- G01N21/70 mechanically excited, e.g. triboluminescence
- G01N21/71 thermally excited
- G01N21/71C [N: Sample nebulisers for flame burners or plasma burners ([nebulizers per se B05B](#))]
- G01N21/71D [N: by measuring the radiation emitted by a test object treated by combustion gases for investigating the composition of gas mixtures]
- G01N21/71F [N: Laser microanalysis, i.e. with formation of sample plasma]
- G01N21/72 using flame burners
- G01N21/73 using plasma burners or torches
- G01N21/74 using flameless atomising, e.g. graphite furnaces
- G01N21/75 Systems in which material is subjected to a chemical reaction, the progress or the result of the reaction being investigated ([systems in which material is burnt in a flame or plasma G01N21/72, G01N21/73](#))
- G01N21/76 Chemiluminescence; Bioluminescence
- G01N21/76B [N: Bioluminescence]
- G01N21/76G [N: of gases]
- G01N21/77 by observing the effect on a chemical indicator
- G01N21/77B [N: using reagent-clad optical fibres or optical waveguides ([using measurement of total internal reflection or attenuated total reflection G01N21/55B](#); [optical fibres or waveguides per se G02B](#))]
- G01N21/77B3 [N: the reagent being on a grating or periodic structure] [N1007]
- G01N21/77B3A [N: the reagent-coated grating coupling light in or out of the waveguide] [N1007]
- G01N21/77B5 [N: the waveguide coupled to a cavity resonator] [N1007]

- G01N21/78 . . . producing a change of colour
- G01N21/78B [N: for analysing gases]
- G01N21/79 Photometric titration
- G01N21/80 Indicating pH value
- G01N21/81 Indicating humidity
- G01N21/82 . . . producing a precipitate or turbidity
- G01N21/83 Turbidimetric titration

- G01N21/84 . Systems specially adapted for particular applications
- G01N21/84F . . [N: Investigating thin films, e.g. matrix isolation method]
- G01N21/84R . . [N: Investigating reagent band (test-element handling not specific to a test method [G01N33/487E](#); analytical elements specific to chemical analysis of biological material [G01N33/52](#); autometer with reagent band [G01N35/04](#))] [N1201]

- G01N21/85 . . Investigating moving fluids or granular solids
- G01N21/85B . . . [N: Probe photometers, i.e. with optical measuring part dipped into fluid sample]
- G01N21/86 . . Investigating moving sheets ([G01N21/89](#) takes precedence)
- G01N21/87 . . Investigating jewels ([G01N21/88](#) takes precedence)
- G01N21/88 . . Investigating the presence of flaws or contamination
- G01N21/88B . . . [N: Visual inspection (measuring projectors [G01B9/08](#))]
- G01N21/88K . . . [N: Specially adapted optical and illumination features] [N0009]
- G01N21/88P . . . [N: Scan or image signal processing specially adapted therefor, e.g. for scan signal adjustment, for detecting different kinds of defects, for compensating for structures, markings, edges ([G01N21/88K](#) and [G01N21/93](#) to [G01N21/956S](#) take precedence; optical measurement of dimensions [G01B11/00](#); optical scanning [G02B26/10](#); image transformation [G06T3/00](#); computerised image enhancement [G06T5/00](#); image processing per se for flaw detection [G06T7/00B](#))] [M1201]

- G01N21/89 . . . in moving material, e.g. running paper or textiles ([G01N21/90](#), [G01N21/91](#), [G01N21/94](#) take precedence) [M1201]
- G01N21/89B [N: Optical details; Scanning details (per se [G02B](#))]
- G01N21/89B2 [N: using a multiple detector array]
- G01N21/89K [N: characterised by the material examined]
- G01N21/89K2 [N: non-woven textile material] [C0007]
- G01N21/89K4 [N: for testing photographic material]
- G01N21/892 characterised by the flaw, defect or object feature examined [N0007]
- G01N21/892A [N: Streaks] [N0007]
- G01N21/892B [N: Periodic flaws] [N0007]
- G01N21/894 Pinholes [N0007]
- G01N21/896 Optical defects in or on transparent materials, e.g. distortion, surface flaws [N: in conveyed flat sheet or rod (for other objects [G01N21/958](#))] [N0007] [C0708]

- G01N21/898 irregularities in textured or patterned surfaces, e.g. textiles, wood [N0007]
- G01N21/898A [N: for testing textile webs, i.e. woven material] [N0007]
- G01N21/898B [N: Wood] [N0007]
- G01N21/90 . . . in a container or its contents ([G01N21/91](#) takes precedence)
- G01N21/90A [N: Non-optical constructional details affecting optical inspection, e.g.

- cleaning mechanisms for optical parts, vibration reduction] [N1201]
- G01N21/90B [N: Dirt detection in containers]
- G01N21/90B1 [N: in containers after filling] [N1105]
- [N: **WARNING** Not complete, see also [G01N21/90](#), [G01N21/90B](#),
[G01N21/90C](#)
[N1105]
]
- G01N21/90C [N: using arrays of emitters or receivers] [M1201]
- G01N21/90E [N: Inspection of ornamented or stippled container walls] [N1105]
- [N: **WARNING** Not complete, see also [G01N21/90](#), [G01N21/90B](#),
[G01N21/90C](#)
[N1105]
]
- G01N21/90F [N: Inspection of sealing surface and container finish] [N1201]
- G01N21/90N [N: with illumination or detection from inside the container] [N1201]
- G01N21/90P [N: Inspection especially designed for plastic containers, e.g. preforms] [N1201]
- G01N21/90Q [N: in opaque containers or opaque container parts, e.g. cans, tins, caps, labels] [N1204]
- G01N21/91 using penetration of dyes, e.g. fluorescent ink
- G01N21/93 Detection standards; Calibrating [N: baseline adjustment, drift correction] [N0007] [C1201]
- G01N21/94 Investigating contamination, e.g. dust ([G01N21/85](#) takes precedence) [N0007]
- G01N21/95 characterised by the material or shape of the object to be examined ([G01N21/89](#) to [G01N21/91](#), [G01N21/94](#) take precedence) [N0007]
- G01N21/95A [N: Semiconductor wafers (manufacturing processes per se of semiconductor devices implementing a measuring step [H01L22/10](#))] [N0007] [M1205]
- G01N21/95A2 [N: Wafer edge inspection] [N1204]
- G01N21/95A4 [N: Wafer internal defects, e.g. microcracks] [N1204]
- G01N21/95B [N: Optical discs] [N0007]
- G01N21/95C [N: Capsules; Tablets] [N0007]
- G01N21/95D [N: Balls] [N0007]
- G01N21/95K [N: Objects of complex shape, e.g. examined with use of a surface follower device (measuring contours and curvatures [G01B11/24](#))] [N0007]
- G01N21/952 Inspecting the exterior surface of cylindrical bodies or wires ([G01N21/956](#) takes precedence) [N0007]
- G01N21/954 Inspecting the inner surface of hollow bodies, e.g. bores [N0007]
- G01N21/956 Inspecting patterns on the surface of objects (contactless testing of electronic circuits [G01R31/308](#); testing currency [G07D](#) [N: manufacturing processes per se of semiconductor devices implementing a measuring step [H01L22/10](#)]) [N0007] [M1205]
- G01N21/956A [N: using a comparative method] [N0007]
- G01N21/956B [N: using a spatial filtering method (per se [G02B](#))] [N0007]
- G01N21/956R [N: Patterns showing highly reflecting parts, e.g. metallic elements] [N0007] [C1201]

- G01N21/956S [N: Patterns showing hole parts, e.g. honeycomb filtering structures] [N0007] [C1201]
- G01N21/958 Inspecting transparent materials [N: or objects, e.g. windscreens (for conveyed flat sheet or rod G01N21/896)] [N0007] [C0708]
- G01N22/00** **Investigating or analysing materials by the use of microwaves** ([G01N3/00](#) to [G01N17/00](#), [G01N24/00](#) take precedence)
- G01N22/00S . [N: and using Stark effect modulation]
- G01N22/02 . Investigating the presence of flaws
- G01N22/04 . Investigating moisture content
- G01N23/00** **Investigating or analysing materials by the use of wave or particle radiation not covered by [G01N21/00](#) or [G01N22/00](#), e.g. X-rays or neutrons** ([G01N3/00](#) to [G01N17/00](#) take precedence; measuring stress in general [G01L1/00](#); measurement of nuclear or X-radiation [G01T](#); introducing objects or materials into nuclear reactors, or removing them therefrom, or storing them after treatment therein [G21C](#); construction or operation of X-ray apparatus or circuits therefor [H05G](#))
- G01N23/00B . [N: by using neutrons ([G01N23/02](#) to [G01N23/227](#) take precedence)]
- G01N23/02 . by transmitting the radiation through the material
- G01N23/02B . . [N: using neutrons]
- G01N23/04 . . and forming a picture (electron microscope per se [H01J](#))
- G01N23/04C . . . [N: using fluoroscopic examination, with visual observation or video transmission of fluoroscopic images]
- G01N23/04D . . . [N: using tomography, e.g. computer tomography (radiation tomography used in diagnosis [A61B6/02](#))]
- G01N23/05 . . . using neutrons
- G01N23/06 . . and measuring the absorption
- G01N23/06C . . . [N: X-ray absorption fine structure, i.e. EXAFS ([G01N23/207D](#) takes precedence)]
- G01N23/06M . . . [N: Gamma-ray resonance absorption, e.g. Mössbauer effect (resonant absorbers or driving arrangements therefor, e.g. for Mössbauer effect devices [G21K1/12](#))]
- G01N23/08 . . . using electric detection means
- G01N23/083 the radiation being X-rays ([G01N23/10](#) to [G01N23/18](#) take precedence) [N0410]
- [N: **WARNING**
[N0410] Not complete, see also [G01N23/08](#)
]
- G01N23/087 using polyenergetic X-rays [N0410]
- [N: **WARNING**
[N0410] Not complete, see also [G01N23/08](#)
]
- G01N23/09 the radiation being neutrons

- G01N23/10 the material being confined in a container ([G01N23/09](#) takes precedence)
- G01N23/12 the material being a flowing fluid or a flowing granular solid ([G01N23/09](#) takes precedence)
- G01N23/12B [N: with immersed detecting head]
- G01N23/14 specially adapted for controlling or monitoring operations or for signalling
- G01N23/16 the material being a moving sheet [N: or a sheet or tube examined by a scanning probe] ([G01N23/09](#), [G01N23/18](#) take precedence)
- G01N23/18 Investigating the presence of flaws ([G01N23/09](#) takes precedence)
- G01N23/18T [N: in tyres (testing tyre performance [G01M17/02](#))]

- G01N23/20 . . by using diffraction of the radiation, e.g. for investigating crystal structure; by using reflection of the radiation
- G01N23/20C . . [N: Constructional details; Accessories (monochromators for XRays using crystals [G21K1/06](#); using gratings [G01J3/18G](#))]
- G01N23/20C1 [N: Goniometers]
- G01N23/20C2 [N: Sample holders or supports]
- G01N23/20C2B [N: provided with temperature control or heating devices]
- G01N23/20C2C [N: for high pressure testing, e.g. anvil cells]
- G01N23/20C3 [N: Details concerning the preparation of powder samples]
- G01N23/20F . . [N: by measuring diffraction of electrons, e.g. LEED method]
- G01N23/20G . . [N: by measuring inelastic scatter of gamma rays, e.g. Compton effect]
- G01N23/20J . . [N: by measuring interferences of X-rays, e.g. Borrmann effect]
- G01N23/20K . . [N: by using a combination of at least two measurements at least one being a transmission measurement and one a scatter measurement]
- G01N23/20L . . [N: by measuring the energy-dispersion spectrum of diffracted radiation, i.e. EDS ([G01T1/36](#) takes precedence)]
- G01N23/201 . . by measuring small-angle scattering [N: [G01N23/202](#) takes precedence]
- G01N23/202 using neutrons
- G01N23/203 . . by measuring back scattering
- G01N23/204 using neutrons
- G01N23/205 . . by means of diffraction cameras ([G01N23/201](#) takes precedence)
- G01N23/205C [N: Analysing diffraction patterns (optical densitometers [G01N21/59B](#))]
- G01N23/206 the radiation being neutrons [N: ([G01N23/205C](#) takes precedence)]
- G01N23/207 . . by means of diffractometry using detectors, e.g. using an analysing crystal or a crystal to be analysed in a central position and one or more displaceable detectors in circumferential positions ([G01N23/201](#) [N: [G01N23/207B](#)] take precedence; spectrometry of detected or measured radiation intensity [G01T1/36](#))
- G01N23/207B [N: using neutron detectors ([G01N23/202](#) takes precedence; neutron spectrometry [G01T3/00](#))]
- G01N23/207D [N: for spectrometry, i.e. using an analysing crystal, e.g. for measuring X-ray fluorescence spectrum of a sample with wavelength-dispersion, i.e. WDXFS (analysis by X-ray fluorescence in general [G01N23/223](#); Spectrometry of X-rays or gamma-ray beams per se [G01T1/36](#))]

- G01N23/22 . . by measuring secondary emission

[N: **Note**

- Devices per se are classified in the relevant places, e.g. [H01J37/00](#), [H01J49/00](#)]
- G01N23/22C . . [N: Preparing specimens (in general [G01N1/28](#))]
 - G01N23/22D . . [N: Specimen supports; Sample conveying means (as parts of specific apparatus, see the relevant groups, e.g. [H01J37/20](#) and [H01J49/00](#))]
 - G01N23/22K . . [N: using a combination of at least two kinds of measurements, with at least one measurement of secondary emission]
 - G01N23/22K2 . . . [N: using a combination of at least two kinds of measurements, each one being of a secondary emission kind]
 - G01N23/221 . . by activation analysis
 - G01N23/222 . . . using neutrons
 - G01N23/223 . . by irradiating the sample with X-rays [N: or gamma-rays] and by measuring X-ray fluorescence [N: ([G01N23/207D](#) takes precedence)]
 - G01N23/225 . . using electron or ion microprobe [N: or incident electron or ion beam] (electron or ion beam tubes for microprobe analysis [H01J37/00](#))
 - G01N23/225B . . . [N: with incident electron beam]
 - G01N23/225B2 [N: and measuring excited X-rays]
 - G01N23/225B3 [N: and measuring cathodoluminescence]
 - G01N23/225C . . . [N: with incident ion beam, e.g. proton beam]
 - G01N23/225C2 [N: and measuring X-rays excited from incident proton beam, i.e. PIXE]
 - G01N23/225C3 [N: and measuring secondary ion beam, i.e. SIMS]
 - G01N23/227 . . by measuring photoelectric effect, e.g. Auger electrons
 - G01N23/227B . . . [N: by measuring photoelectron spectrum, i.e. ESCA, XPS]
 - G01N23/227C . . . [N: by measuring Auger electrons, i.e. AES]

G01N24/00 Investigating or analyzing materials by the use of nuclear magnetic resonance, electron paramagnetic resonance or other spin effects (arrangements or instruments for measuring magnetic resonance effects [G01R33/20](#))

- G01N24/00B . [N: Using resonance on molecular beams (atomic clocks [G04F5/14](#); beam masers [H01S1/06](#))]
- G01N24/00C . [N: Using acoustical resonance, i.e. phonon interactions]
- G01N24/00D . [N: using optical pumping (magnetometers using optical pumping [G01R33/26](#), optical pumping of lasers [H01S3/091](#))]
- G01N24/00T . [N: by using resonance effects in zero field, e.g. in microwave, submillimetric region (by measuring absorption of microwaves by the material [G01N22/00](#))]
- G01N24/08 . by using nuclear magnetic resonance ([G01N24/12](#) takes precedence)
- G01N24/08A . . [N: Making measurements of geologic samples, e.g. measurements of moisture, pH, porosity, permeability, tortuosity or viscosity] [N1112]
- G01N24/08B . . [N: Measurement of solid, liquid or gas content] [N1112]
- G01N24/08C . . [N: Detection of potentially hazardous samples, e.g. toxic samples, explosives, drugs, firearms, weapons] [N1112]

- G01N24/08D . . [N: Analysis of materials for the purpose of controlling industrial production systems] [N1112]
- G01N24/08Q . . [N: Structure determination of a chemical compound, e.g. of a biomolecule such as a protein] [N1112]
- G01N24/08S . . [N: Assessment or manipulation of a chemical or biochemical reaction, e.g. verification whether a chemical reaction occurred or whether a ligand binds to a receptor in drug screening or assessing reaction kinetics] [N1112]
- G01N24/10 . by using electron paramagnetic resonance ([G01N24/12](#) takes precedence)
- G01N24/12 . by using double resonance
- G01N24/14 . by using cyclotron resonance
- G01N25/00** **Investigating or analyzing materials by the use of thermal means** ([G01N3/00](#) to [G01N23/00](#) take precedence)
- G01N25/00B . [N: by investigating specific heat]
- G01N25/02 . by investigating changes of state or changes of phase; by investigating sintering [N: (investigating or analysing oils or hydrocarbon fluids by measuring cloud point or pour point [G01N33/28C](#))] [C9801]
- G01N25/04 . . of melting point; of freezing point; of softening point
- G01N25/06 . . . Analysis by measuring change of freezing point
- G01N25/08 . . of boiling point
- G01N25/08B . . . [N: Investigating nucleation]
- G01N25/10 . . . Analysis by measuring change of boiling point
- G01N25/12 . . of critical point; of other phase change
- G01N25/14 . by using distillation, extraction, sublimation, condensation, freezing, or crystallisation ([G01N25/02](#) takes precedence)
- G01N25/14B . . [N: by condensation]
- G01N25/14C . . [N: Accessories, e.g. cooling devices (in general [B01L](#), [F25D](#))]
- G01N25/14D . . [N: by cristallisation]
- G01N25/16 . by investigating thermal coefficient of expansion
- G01N25/18 . by investigating thermal conductivity (by calorimetry [G01N25/20](#); by measuring change of resistance of an electrically-heated body [G01N27/18](#))
- G01N25/20 . by investigating the development of heat, i.e. calorimetry, e.g. by measuring specific heat, by measuring thermal conductivity (calorimeters per se [G01K](#))

- G01N25/22 . . on combustion or catalytic oxidation, e.g. of components of gas mixtures
- G01N25/24 . . . using combustion tubes, e.g. for microanalysis
- G01N25/26 . . . using combustion with oxygen under pressure, e.g. in bomb calorimeter
- G01N25/28 . . . the rise in temperature of the gases resulting from combustion being measured directly
- G01N25/30 using electric temperature-responsive elements
- G01N25/32 using thermoelectric elements
- G01N25/34 using mechanical temperature-responsive elements, e.g. bimetallic (bimetallic elements per se [G12B1/02](#))
- G01N25/36 for investigating the composition of gas mixtures
- G01N25/38 using the melting or combustion of a solid
- G01N25/38B [N: for investigating the composition of gas mixtures]
- G01N25/40 . . . the heat developed being transferred to a flowing fluid
- G01N25/42 continuously
- G01N25/44 . . . the heat developed being transferred to a fixed quantity of fluid
- G01N25/46 for investigating the composition of gas mixtures
- G01N25/48 . . on solution, sorption, or a chemical reaction not involving combustion or catalytic oxidation
- G01N25/48A . . . [N: Details not adapted to a particular type of sample]
- G01N25/48A2 [N: concerning the measuring means]
- G01N25/48A2B [N: concerning the temperature responsive elements (measuring temperature or quantity of heat, thermally-sensitive elements [G01K](#); thermoelectric devices [H01L35/00](#), [H01L37/00](#))]
- G01N25/48A4 [N: concerning the heating or cooling arrangements (heating apparatus for chemical or physical laboratory apparatus in general [B01L7/00](#))]
- G01N25/48A4B [N: specially adapted for temperature scanning]
- G01N25/48A6 [N: Heat insulation]
- G01N25/48B [N: for a motionless, e.g. solid sample]
- G01N25/48B1 [N: Details]
- G01N25/48B1B [N: Sample holders]
- G01N25/48B2 [N: by using a differential method]
- G01N25/48C [N: for a flowing e.g. gas sample]
- G01N25/48C1 [N: Details]
- G01N25/48C1B [N: concerning the circulation of the sample]
- G01N25/48C2 [N: by using a differential method]
- G01N25/50 . . by investigating flash-point; by investigating explosibility
- G01N25/52 . . . by determining flash-point of liquids
- G01N25/54 . . . by determining explosibility
- G01N25/56 . . by investigating moisture content
- G01N25/58 . . . by measuring changes of properties of the material due to heat, cold or expansion
- G01N25/60 for determining the wetness of steam
- G01N25/62 . . . by psychrometric means, e.g. wet-and-dry bulb thermometers
- G01N25/64 using electric temperature-responsive elements

- G01N25/66 . . . by investigating dew-point
- G01N25/68 by varying the temperature of a condensing surface
- G01N25/70 by varying the temperature of the material, e.g. by compression, by expansion
- G01N25/72 . Investigating presence of flaws ([by investigating thermal conductivity G01N25/18](#))
- G01N27/00** **Investigating or analysing materials by the use of electric, electro-chemical, or magnetic means** ([G01N3/00](#) to [G01N25/00](#) take precedence; measurement or testing electric or magnetic variables or of electric or magnetic properties of materials [G01R](#))
- G01N27/00C . [N: by investigating the work function voltage]
- G01N27/00C1 . . [N: by determining the work function in vacuum]
- G01N27/00E . [N: by investigating the electric dipolar moment ([measuring piezo-electric properties G01R29/22](#))]
- G01N27/02 . by investigating the impedance of the material
- G01N27/02B . . [N: before and after chemical transformation of the material]
- G01N27/02C . . [N: where the material is placed in the field of a coil]
- G01N27/02C1 . . . [N: a current being generated within the material by induction]
- G01N27/02D . . [N: Dielectric impedance spectroscopy ([electrochemical impedance spectroscopy for measuring corrosion G01N17/02](#))] [N1109]
- G01N27/02E . . [N: Circuits therefor ([measuring impedance per se G01R27/02](#))] [N1109]
- G01N27/04 . . by investigating resistance [N: ([for measuring the amount of particles G01N15/06D](#))] [M1109]
- G01N27/04B . . . [N: of a solid body]
- G01N27/04C . . . [N: of a granular material]
- G01N27/04D . . . [N: Circuits ([measuring resistance per se G01R27/00](#), e.g. [G01R27/22](#))]
- G01N27/04D1 [N: provided with temperature compensation]
- G01N27/04E [N: for determining moisture content of the material] [M1109]
- G01N27/06 of a liquid ([involving electrolysis G01N27/26](#); [involving polarography G01N27/48](#); [measuring electric resistance of fluids G01R27/22](#))
- G01N27/07 Construction of measuring vessels; Electrodes therefor
- G01N27/08 which is flowing continuously
- G01N27/10 Investigation or analysis specially adapted for controlling or monitoring operations or for signalling ([regulating G05D](#))
- G01N27/12 of a solid body in dependence upon absorption of a fluid; of a solid body in dependence upon reaction with a fluid, [N: [for detecting components in the fluid](#)] [C1109]
- G01N27/12B [N: [for determining moisture content, e.g. humidity, of the fluid \(moisture content of the tested material G01N27/04E\)](#)] [M1109]
- G01N27/12C [N: Circuits particularly adapted therefor, e.g. linearising circuits]
- G01N27/12C1 [N: [for controlling the temperature \(temperature control per se G05D23/00\)](#)] [N1109]
- G01N27/12C1B [N: [varying the temperature, e.g. in a cyclic manner](#)] [N1109]
- G01N27/12E [N: [Composition of the body, e.g. the composition of its sensitive layer](#)] [N9704] [C1109]

- G01N27/12E2 [N: comprising organic polymers] [N1109]
- G01N27/12E3 [N: comprising nanoparticles] [N1109]
- G01N27/12F [N: Micro-apparatus] [N0005]
- G01N27/12G [N: Diode type sensors, e.g. gas sensitive Schottky diodes (capacitor type sensors [G01N27/22E](#); field-effect transistor type sensors [G01N27/414](#))] [N1109]
- G01N27/14 of an electrically-heated body in dependence upon change of temperature
- G01N27/16 caused by burning or catalytic oxidation of a surrounding material to be tested, e.g. of gas
- G01N27/18 caused by changes in the thermal conductivity of a surrounding material to be tested ([G01N27/20](#) takes precedence)
- G01N27/18B [N: using a catharometer]
- G01N27/20 Investigating the presence of flaws
- G01N27/20B [N: in insulating materials]
- G01N27/22 by investigating capacitance
- G01N27/22B [N: by investigating the dielectric properties (using microwaves [G01N22/00](#); measuring loss factors or dielectric constants per se [G01R27/26](#))] [M1109]
- G01N27/22C [N: for determining moisture content, e.g. humidity (rain detectors on vehicle windows [B60S1/08F2B](#))] [M1109]
- G01N27/22C2 [N: by using hygroscopic materials]
- G01N27/22D [N: Construction of measuring vessels; Electrodes therefor]
- G01N27/22E [N: Sensors changing capacitance upon adsorption or absorption of fluid components, e.g. electrolyte-insulator-semiconductor sensors, MOS capacitors ([G01N27/22C2](#) takes precedence)] [N1109]
- G01N27/22F [N: Circuits therefor (measuring capacitance per se [G01R27/26](#))] [N1109]
- G01N27/24 Investigating the presence of flaws
- G01N27/26 by investigating electrochemical variables; by using electrolysis or electrophoresis (investigating resistance to corrosion [G01N17/00](#); investigating or analysing materials by separation into components using adsorption, absorption or similar phenomena or using ion-exchange, e.g. chromatography, [G01N30/00](#); immunoelectrophoresis [G01N33/561](#); electrochemical processes or apparatus in general B01J; standard cells [H01M6/28](#)) [M1109]
- G01N27/27 Association of two or more measuring systems or cells, each measuring a different parameter, where the measurement results may be either used independently, the systems or cells being physically associated, or combined to produce a value for a further parameter [N: e.g. electrochemical electrode arrays (gas sensor arrays [G01N33/00D2D2](#))] [N1109]
- G01N27/28 Electrolytic cell components
- G01N27/28B [N: Means for supporting or introducing electrochemical probes] [N1109]
- G01N27/28B1 [N: Power or signal connectors associated therewith] [M1201]
- G01N27/30 Electrodes, e.g. test electrodes; Half-cells ([G01N27/414](#) takes precedence) [M1109]
- G01N27/30A [N: Reference electrodes] [N1109] [M1201]
- G01N27/30C [N: pH sensitive, e.g. quinhydrone, antimony or hydrogen electrodes (ion selective electrodes [G01N27/333](#), glass electrodes [G01N27/36](#))] [C1109]
- G01N27/30E [N: Gas permeable electrodes] [M1201]
- G01N27/30F [N: optically transparent or photoresponsive electrodes]

G01N27/30G	. . . .	[N: Disposable laminated or multilayered electrodes (G01N27/327B1 takes precedence)] [M1109]
G01N27/30H	. . . .	[N: at least partially made of carbon] [N9905]
G01N27/31	. . . .	Half-cells with permeable membranes, e.g. semi-porous or perm-selective membranes [N1109]
G01N27/32	. . . .	Calomel electrodes
G01N27/327	. . . .	Biochemical electrodes [N: electrical and mechanical details of in vitro measurements (chemical and biological details C12Q1, G01N33/543 ; in vivo A61B5)] [N1109]
G01N27/327B	. . . . .	[N: Amperometric enzyme electrodes for analytes in body fluids, e.g. glucose in blood (amperometry per se G01N27/49 ; aspects concerning the enzyme reagent C12Q1/00B)] [N1109]
G01N27/327B1	. . . . .	[N: Test elements therefor, i.e. disposable laminated substrates with electrodes, reagent and channels (optical biosensors G01N33/52)]
G01N27/327B2	. . . . .	[N: Devices therefor, e.g. test element readers, circuitry (details not specific to biochemical electrodes G01N33/487E)] [N1109]
G01N27/327B3	. . . . .	[N: Corrective measures, e.g. error detection, compensation for temperature or hematocrit, calibration (coding of calibration information G01N33/487E3)] [N1109]
G01N27/327C	. . . . .	[N: Sensing specific biomolecules, e.g. nucleic acid strands, based on an electrode surface reaction] [N1109]
G01N27/327C1	. . . . .	[N: being a hybridisation with immobilised receptors (using a FET type sensor G01N27/414C ; concerning the hybridisation C12Q1/68)] [N1109]
G01N27/327C2	. . . . .	[N: being a redox reaction, e.g. detection by cyclic voltammetry (voltammetry per se G01N27/42 , G01N27/48)] [N1109]
G01N27/327C3	. . . . .	[N: involving nanosized elements, e.g. nanogaps or nanoparticles (nanopores G01N33/487B5 ; magnetic beads G01N27/74B)] [M1109]
G01N27/333	. . . .	Ion-selective electrodes or membranes (glass electrodes G01N27/36)
G01N27/333B	. . . . .	[N: the membrane containing at least one organic component (G01N27/327B takes precedence; aspects concerning the enzyme reagent in enzyme electrodes C12Q1/00B)] [M1109]
G01N27/34	. . . .	Dropping-mercury electrodes
G01N27/36	. . . .	Glass electrodes
G01N27/38	. . . .	Cleaning of electrodes
G01N27/40	. . . .	Semi-permeable membranes or partitions
G01N27/401	. . . .	Salt-bridge leaks; Liquid junctions [N9701]
G01N27/403	. . . .	Cells and electrode assemblies
G01N27/403B	. . . .	[N: Combination of a single ion-sensing electrode and a single reference electrode (G01N27/406 and G01N27/413 take precedence)] [N9602]
G01N27/404	. . . .	Cells with anode, cathode and cell electrolyte on the same side of a permeable membrane which separates them from the sample fluid [N: e.g. Clark-type oxygen sensors] [N1109]
G01N27/404B	. . . . .	[N: for gases other than oxygen] [N1109]
G01N27/406	. . . .	Cells and probes with solid electrolytes
G01N27/406B	. . . . .	[N: Electrical connectors associated therewith]
G01N27/406C	. . . . .	[N: Circuit arrangements specially adapted therefor]
G01N27/406D	. . . . .	[N: Means for heating or controlling the temperature of the solid electrolyte]

- G01N27/407 for investigating or analysing gases [N: ([G01N27/411](#) takes precedence)]
- G01N27/407B [N: using sensor elements of laminated structure]
- G01N27/407B1 [N: characterized by the diffusion barrier] [N1109]
- G01N27/407C [N: Composition or fabrication of the solid electrolyte]
- G01N27/407C2 [N: for detection of gases other than oxygen]
- G01N27/407D [N: Composition or fabrication of the electrodes and coatings thereon, e.g. catalysts]
- G01N27/407D2 [N: Reference electrodes or reference mixtures]
- G01N27/407E [N: Means for protecting the electrolyte or the electrodes]
- G01N27/407F [N: Means for sealing the sensor element in a housing] [N1109]
- G01N27/409 Oxygen concentration cells [N1109]
- G01N27/41 Oxygen pumping cells [N1109]
- G01N27/411 for investigating liquid metals
- G01N27/411B [N: using sensor elements of laminated structure]
- G01N27/411C [N: Composition or fabrication of the solid electrolyte]
- G01N27/411C2 [N: for detection of gases other than oxygen]
- G01N27/411D [N: Composition or fabrication of the electrodes and coatings thereon, e.g. catalysts]
- G01N27/411D2 [N: Reference electrodes or reference mixtures]
- G01N27/411E [N: Means for protecting the electrolyte or the electrodes]
- G01N27/413 Concentration cells using liquid electrolytes [N: measuring currents or voltages in voltaic cells]
- G01N27/414 Ion-sensitive or chemical field-effect transistors, i.e. ISFETS or CHEMFETS
- G01N27/414B [N: specially adapted for gases] [N1109]
- G01N27/414B1 [N: Air gap between gate and channel, i.e. suspended gate [SG] FETs ([work function measurement per se G01N27/00C](#))]
- G01N27/414C [N: specially adapted for biomolecules, e.g. gate electrode with immobilised receptors] [N1109]
- G01N27/414D [N: involving nanosized elements, e.g. nanotubes, nanowires] [N1109] [M1201]
- G01N27/414E [N: Integrated circuits therefor, e.g. fabricated by CMOS processing ([CMOS processing per se H01L21/82](#))] [N1109]
- G01N27/416 Systems ([G01N27/27](#) takes precedence [N: ; for testing batteries [G01R31/36](#)]) [C1109]
- G01N27/416B [N: measuring the voltage and using a constant current supply, e.g. chronopotentiometry] [M1109]
- G01N27/416C [N: investigating the composition of gases, by the influence exerted on ionic conductivity in a liquid ([conductometry in general G01N27/06](#); [amperometric gas sensors G01N27/404](#))] [M1109]
- G01N27/416D [N: checking the operation of, or calibrating, the measuring apparatus ([G01N27/327B3](#), [G01N27/417C](#) and [G01N33/00D1](#) take precedence)] [C1109]
- G01N27/416D1 [N: for pH meters]
- G01N27/416E [N: measuring a particular property of an electrolyte] [M1109]
- G01N27/416E1 [N: pH ([electrodes therefor G01N27/30C](#), [G01N27/36](#))] [N1109]
- G01N27/416E2 [N: Oxidation-reduction potential, e.g. for chlorination of water ([water analysis G01N33/18](#))] [N1109]

- G01N27/417 . . . using cells [N: i.e. more than one cell] and probes with solid electrolytes
- G01N27/417C [N: Calibrating or checking the analyser]
- G01N27/419 Measuring voltages or currents of oxygen pumping cells and oxygen concentration cells
- G01N27/42 Measuring disposition or liberation of materials from an electrolyte; Coulometry, i.e. measuring coulomb-equivalent of material in an electrolyte
- G01N27/42B [N: Coulometry]
- G01N27/42C [N: by weighing]
- G01N27/44 using electrolysis to regenerate a reagent, e.g. for titration
- G01N27/447 using electrophoresis [N: (aspects concerning peptides or proteins [C07K1/26](#); for non-analytical purposes [B01D57/02](#); separating particles by dielectrophoresis [B03C5](#))] [M1109]
- G01N27/447B [N: Details; Accessories]
- G01N27/447B1 [N: Cooling]
- G01N27/447B2 [N: Particularly adapted electric power supply]
- G01N27/447B3 [N: Arrangements for investigating the separated zones, e.g. localising zones]
- G01N27/447B3A [N: by optical means]
- G01N27/447B3A2 {7 dots} [N: using specific dyes, markers or binding molecules] [N9812]
- G01N27/447B3B [N: by electric means]
- G01N27/447B3C [N: by thermal means]
- G01N27/447B3D [N: Collecting the separated zones, e.g. blotting to a membrane or punching of gel spots] [N1109]
- G01N27/447B4 [N: Introducing samples]
- G01N27/447B5 [N: Composition of gel or of carrier mixture]
- G01N27/447B6 [N: Controlling the zeta potential, e.g. by wall coatings] [N9507] [M1109]
- G01N27/447C [N: Apparatus specially adapted therefor]
- G01N27/447C1 [N: of the density gradient type]
- G01N27/447C2 [N: of the counter-flow type]
- G01N27/447C3 [N: Continuous electrophoresis, i.e. the sample being continuously introduced, e.g. free flow electrophoresis [FFE]] [M1109]
- G01N27/447C4 [N: Multi-stage electrophoresis, e.g. two-dimensional electrophoresis]
- G01N27/447C4B [N: on a common gel carrier, i.e. 2D gel electrophoresis] [N1109]
- G01N27/447C5 [N: of a plurality of samples]
- G01N27/447C6 [N: of the magneto-electrophoresis type]
- G01N27/447C7 [N: Micro-apparatus (sample containers with integrated microfluidic structures [B01L3/00C6M](#))] [N9605] [M1109]
- G01N27/447C8 [N: Isoelectric focusing] [N1109]
- G01N27/453 Cells therefor
- G01N27/48 Polarography, i.e. measuring changes in current under a slowly-varying voltage
- G01N27/49 Systems involving the determination of the current at a single specific value, or small range of values, of applied voltage for producing selective measurement of one or more particular ionic species
- G01N27/60 by investigating electrostatic variables, e.g. electrographic flaw testing ([N: [G01N27/00E](#) takes precedence]; by investigating capacitance [G01N27/22](#))

- G01N27/60B . . [N: for determining moisture content, e.g. humidity]
- G01N27/61 . . Investigating the presence of flaws
- G01N27/62 . by investigating the ionisation of gases; by investigating electric discharges, e.g. emission of cathode ([particle spectrometers per se H01J49/00](#))
- G01N27/62A . . [N: separating and identifying ionized molecules based on their mobility in a carrier gas, i.e. ion mobility spectrometry ([mass spectrometry H01J49/26](#))] [N1109]
- G01N27/62A1 . . . [N: using a non-uniform electric field, i.e. differential mobility spectrometry [DMS] or high-field asymmetric-waveform ion-mobility spectrometry [FAIMS]]
- G01N27/62B . . [N: using heat to ionise a gas]
- G01N27/62B2 . . . [N: and a beam of energy, e.g. laser enhanced ionisation]
- G01N27/64 . . using wave or particle radiation to ionise a gas, e.g. in an ionisation chamber [N: ([discharge tubes for measuring pressure of introduced gas or for detecting presence of gas H01J41/02](#))]
- G01N27/66 . . . and measuring current or voltage
- G01N27/68 . . using electric discharge to ionise a gas
- G01N27/70 . . . and measuring current or voltage
- G01N27/72 . by investigating magnetic variables
- G01N27/72B . . [N: by using magneto-acoustical effects or the Barkhausen effect]
- G01N27/74 . . of fluids ([G01N24/00](#) takes precedence)
- G01N27/74B . . . [N: for detecting magnetic beads used in biochemical assays ([concerning the assays G01N33/543D4](#); [sensors therefor G01R33/12M](#); [automatic analysers therefor G01N35/00M](#))] [N1109]
- G01N27/76 . . . by investigating susceptibility [N: [measuring susceptibility G01R33/16](#)]
- G01N27/80 . . for investigating mechanical hardness, e.g. by investigating saturation or remanence of ferromagnetic material
- G01N27/82 . . for investigating the presence of flaws
- G01N27/82B . . . [N: by using magnetic attraction force ([G01N27/84](#) takes precedence)]
- G01N27/83 . . . by investigating stray magnetic fields
- G01N27/84 by applying magnetic powder or magnetic ink
- G01N27/85 using magnetographic methods
- G01N27/87 using probes
- G01N27/90 . . . using eddy currents [N: ([for measuring thickness G01B7/06](#))] [M1109]
- G01N27/90A [N: Details]
- G01N27/90A1 [N: specially adapted for scanning]
- G01N27/90A1B [N: by moving the sensors]
- G01N27/90A1C [N: by moving the material]
- G01N27/90A2 [N: Sensors]
- G01N27/90B [N: and more than one sensor]
- G01N27/90C [N: by analysing electrical signals]
- G01N27/90C2 [N: Compensating for probe to workpiece spacing]
- G01N27/90C3 [N: Compensating for velocity]
- G01N27/90C4 [N: by measuring the propagation time, or delaying the signals]
- G01N27/90E [N: Recording measured data ([in general G01D](#))]

- G01N27/90E2 [N: synchronously with scanning]
- G01N27/90E3 [N: Calibrating of recording device]
- G01N27/90F [N: arrangements for supporting or marking or rejecting, e.g. machines (sorting individual articles or bulk material fit to be sorted piece-meal, controlled indirectly by devices which detect or measure some feature of the article or material to be sorted [B07C5/00](#))]
- G01N27/92 by investigating breakdown voltage ([G01N27/60](#), [G01N27/62](#) take precedence; testing of articles or specimens of solids or fluids for dielectric strength or breakdown voltage [G01R31/12](#))
- G01N29/00** **Investigating or analysing materials by the use of ultrasonic, sonic or infrasonic waves; Visualisation of the interior of objects by transmitting ultrasonic or sonic waves through the object** ([G01N3/00](#) to [G01N27/00](#) take precedence; measuring or indicating of ultrasonic, sonic or infrasonic waves in general [G01H](#); systems using the reflection or reradiation of acoustic waves, e.g. acoustic imaging, [G01S15/00](#); obtaining records by techniques analogous to photography using ultrasonic, sonic or infrasonic waves [G03B42/06](#); [N: medical diagnosis by ultrasounds [A61B8/00](#); generating or transmitting mechanical or acoustic waves [B06B](#), [G10K](#); seismic or acoustic prospecting or detecting [G01V1/00](#)])
- G01N29/02 Analysing fluids (using acoustic emission techniques [G01N29/14](#); [N: constructional or flow details for analysing fluids [G01N29/22F](#); optoacoustic fluid cells [G01N29/24C1](#)]) [[C0805](#)]
- G01N29/02F [N: Fluid sensors based on micro-sensors, e.g. quartz crystal-microbalance (QCM), surface acoustic wave (SAW) devices, tuning forks, cantilevers, flexural plate wave (FPW) devices (micro-devices per se [B81B](#))] [[C0805](#)]
- G01N29/024 by measuring propagation velocity or propagation time of acoustic waves [[N0410](#)]
- G01N29/028 by measuring mechanical or acoustic impedance [[N0410](#)]
- G01N29/032 by measuring attenuation of acoustic waves [[N0410](#)]
- G01N29/036 by measuring frequency or resonance of acoustic waves [[N0410](#)]
- G01N29/04 Analysing solids (using acoustic emission techniques [G01N29/14](#)) [[C0502](#)]
- G01N29/04E [N: on the surface of the material, e.g. using Lamb, Rayleigh or shear waves] [[C0502](#)]
- G01N29/04F [N: in the interior, e.g. by shear waves]
- G01N29/04H [N: by imparting shocks to the workpiece and detecting the vibrations or the acoustic waves caused by the shocks (measuring resonant frequency [G01H13/00](#); measuring strength properties by application of mechanical stress [G01N3/00](#))]
- G01N29/04H2 [N: using the echo of particles imparting on a surface; using acoustic emission of particles (investigating concentration of particle suspensions [G01N15/06](#); devices for measuring flow of solids in suspension [G01F1/74](#))] [[N9809](#)]
- G01N29/04M [N: Marking the faulty objects]
- G01N29/06 Visualisation of the interior, e.g. acoustic microscopy [N: (medical or veterinary diagnosis using sonic waves [A61B8/00](#); representation of acoustic wave distribution [G01H3/12B](#), [G01H9/00B](#); short-range imaging systems using reflection of acoustic waves [G01S15/89D](#))] [[C0805](#)]
- G01N29/06C [N: Display arrangements, e.g. colour displays (indicating or recording in connection with measuring in general [G01D](#))] [[C0805](#)]
- G01N29/06C2 [N: synchronised with scanning, e.g. in real-time] [[C0805](#)]
- G01N29/06C2B [N: Cathode-ray tube displays (in general [G01R13/20](#))]

- G01N29/06C2C [N: with permanent recording]
- G01N29/06C4 [N: Display representation or displayed parameters, e.g. A-, B- or C-Scan] [N0805]
- G01N29/06D [N: Imaging] [N0805]
- G01N29/06D1 [N: by acoustic holography (acoustical holography per se [G03H3/00](#))] [N0805]
- G01N29/06D2 [N: by acoustic tomography (medical tomography [A61B8/13](#))] [N0805]
- G01N29/06D3 [N: by acoustic microscopy, e.g. scanning acoustic microscopy] [N0805]
- G01N29/06D4 [N: Defect imaging, localisation and sizing using, e.g. time of flight diffraction (TOFD), synthetic aperture focusing technique (SAFT), Amplituden-Laufzeit-Ortskurven (ALOK) technique] [N0805]
- G01N29/07 by measuring propagation velocity or propagation time of acoustic waves [N0502]
- G01N29/07B [N: by measuring or comparing phase angle (measuring frequencies or phase angles per se [G01R23/00](#), [G01R25/00](#))] [N0502]
- G01N29/09 by measuring mechanical or acoustic impedance [N0502]
- G01N29/11 by measuring attenuation of acoustic waves [N0502]
- G01N29/12 by measuring frequency or resonance of acoustic waves [N: (measuring frequency or resonant frequency of mechanical vibrations or acoustic waves in general [G01H1/06](#), [G01H3/04](#), [G01H13/00](#); acoustic resonators [G10K11/04](#); vibration or shock testing of structures [G01M7/00](#))] [C0502]
- G01N29/14 using acoustic emission techniques [N: (echo of particles [G01N29/04H2](#); measuring mechanical vibrations or acoustic waves in solids in general [G01H1/00](#))] [N0502]
- G01N29/22 Details, [N: e.g. general constructional or apparatus details] [C0409]
- G01N29/22C [N: Arrangements for directing or focusing the acoustical waves (electronic orientation or focusing [G01N29/26E](#); sound directing or focusing [G10K11/26](#); mechanical steering of sound transducers or their beams [G10K11/35](#))] [C0502]
- G01N29/22F [N: Constructional or flow details for analysing fluids (optoacoustic fluid cells [G01N29/24C1](#))] [N0502] [C0805]
- G01N29/22L [N: Supports, positioning or alignment in fixed situation (mounting transducers per se [G10K11/00G](#))] [N0502]
- G01N29/22M [N: Supports, positioning or alignment in moving situation] [N0502]
- G01N29/22M2 [N: Handheld or portable devices] [N1111]
- G01N29/22P [N: related to high pressure, tension or stress conditions] [N0502]
- G01N29/22T [N: related to high temperature conditions] [N0502]
- G01N29/24 Probes [N: (transducers for acoustic waves [B06B](#), [G10K](#); for measuring [G01H](#))]
- G01N29/24A [N: Electrostatic or capacitive probes, e.g. electret or cMUT-probes] [N1111]
- G01N29/24B [N: using the magnetostrictive properties of the material to be examined, e.g. electromagnetic acoustic transducers (EMAT); (investigating the presence of flaws using eddy currents [G01N27/90](#), magnetostrictive transducers [B06B1/08](#), measuring magnetostrictive properties [G01R33/18](#))] [C0805]
- G01N29/24C [N: using optoacoustic interaction with the material, e.g. laser radiation, photoacoustics (photoacoustic cells [G01N21/17B](#); measuring characteristics of vibrations by using radiation-sensitive means [G01H9/00](#); acousto-optical conversion techniques for short-range imaging [G01S15/89D5](#); sound-producing devices using laser bundle [G10K15/04C](#))] [C0805]
- G01N29/24C1 [N: optoacoustic fluid cells therefor] [N0805]
- G01N29/24D [N: using other means for acoustic excitation, e.g. heat, microwaves, electron

- beams (sound producing devices not otherwise provided for [G10K15/04](#)) [C0805]
- G01N29/24E . . . [N: Piezoelectric probes] [N0805]
- G01N29/24E1 [N: Quartz crystal probes] [N0805]
- G01N29/24E2 [N: Ceramic probes, e.g. lead zirconate titanate (PZT) probes] [N0805]
- G01N29/24F . . . [N: Focusing probes (focusing arrangements [G01N29/22C](#))] [N0502]
- G01N29/24G . . . [N: Probes with waveguides, e.g. SAW devices] [N0502] [C0805]
- G01N29/24L . . . [N: Probes with delay lines] [N0502] [C0805]
- G01N29/24M . . . [N: Embedded probes, i.e. probes incorporated in objects to be inspected] [N0910]
- G01N29/24R . . . [N: Wireless probes, e.g. with transponders or radio links] [N0805]
- G01N29/24T . . . [N: Directing probes, e.g. angle probes (directing arrangements [G01N29/22C](#))] [N0805]
- G01N29/24W . . . [N: Wheel shaped probes] [N0502]
- G01N29/26 . . Arrangements for orientation or scanning [N: by relative movement of the head and the sensor (mechanical steering of sound transducers or their beams [G10K11/35](#))]
- G01N29/26E . . . [N: by electronic orientation or focusing, e.g. with phased arrays (phased arrays per se [G10K11/34](#))] [C0805]
- G01N29/26S . . . by moving the sensor relative to a stationary material [N0410] [C0610]
- G01N29/27 . . . by moving the material relative to a stationary sensor [N0410] [C0610]
- G01N29/27S . . . by moving both the sensor and the material [N0410] [C0610]
- G01N29/28 . . providing acoustic coupling [N: e.g. water (impedance matching [G10K11/02](#))]
- G01N29/30 . . Arrangements for calibrating or comparing, e.g. with standard objects [N0409]
- G01N29/32 . . Arrangements for suppressing undesired influences, e.g. temperature or pressure variations, [N: compensating for signal noise] [N0409] [C0805]
- G01N29/32P . . . [N: compensating for pressure or tension variations] [N0409]
- G01N29/32T . . . [N: compensating for temperature variations] [N0409]
- G01N29/34 . . Generating the ultrasonic, sonic or infrasonic waves, [N: e.g. electronic circuits specially adapted therefor] [N0409] [C0502]
- G01N29/34B . . [N: with time characteristics] [N0409] [C0805]
- G01N29/34B1 . . . [N: pulse waves, e.g. particular sequence of pulses, bursts] [N0805]
- G01N29/34B2 . . . [N: continuous waves] [N0805]
- G01N29/34D . . [N: with amplitude characteristics, e.g. modulated signal] [N0409]
- G01N29/34F . . [N: with frequency characteristics, e.g. single frequency signals, chirp signals (measuring frequency of mechanical vibrations or acoustic waves in general [G01H1/06](#), [G01H3/04](#); measuring frequency or analysing frequency spectra [G01R23/00](#))] [N0409] [C0805]
- G01N29/36 . . Detecting the response signal, [N: e.g. electronic circuits specially adapted therefor] [N0409] [C0502]
- G01N29/38 . . by time filtering, e.g. using time gates [N0409]
- G01N29/40 . . by amplitude filtering, e.g. by applying a threshold [N: or by gain control] [N0409] [C0502]
- G01N29/42 . . by frequency filtering [N: or by tuning to resonant frequency] [N0409] [C0502]
- G01N29/44 . . Processing the detected response signal, [N: e.g. electronic circuits specially adapted therefor (digital signal processing per se [G06F17/00](#))] [N0409] [C0805]

- G01N29/44B . . [N: by comparison] [N0409] [C0805]
- G01N29/44B1 . . . [N: with a model, e.g. best-fit, regression analysis] [N0805]
- G01N29/44B2 . . . [N: with stored values, e.g. threshold values] [N0805]
- G01N29/44B4 . . . [N: with a reference signal (amplitude comparison [G01N29/48](#))] [N0805]
- G01N29/44D . . [N: Classification of defects] [N0409]
- G01N29/44F . . [N: Signal recognition, e.g. specific values or portions, signal events, signatures] [N0805]
- G01N29/44G . . [N: Signal correction, e.g. distance amplitude correction (DAC), distance gain size (DGS), noise filtering] [N0805]
- G01N29/44M . . [N: Mathematical theories or simulation] [N0409] [C0805]
- G01N29/44N . . [N: Neural networks] [N0409]
- G01N29/44S . . [N: Statistical methods not provided for in [G01N29/44B](#), e.g. averaging, smoothing and interpolation] [N0805]
- G01N29/46 . . by spectral analysis, e.g. Fourier analysis [N: or wavelet analysis (spectral signal processing per se [G06F17/14](#))] [N0409] [C0805]
- G01N29/48 . . by amplitude comparison [N0409]
- G01N29/50 . . using auto-correlation techniques or cross-correlation techniques [N0409]
- G01N29/52 . . using inversion methods other than spectral analysis, e.g. conjugated gradient inversion [N0409]

G01N30/00

Investigating or analysing materials by separation into components using adsorption, absorption or similar phenomena or using ion-exchange, e.g. chromatography ([G01N3/00](#) to [G01N29/00](#) take precedence; separation for the preparation or production of components [B01D15/00](#), [B01D53/02](#), [B01D53/14](#); solid sorbent compositions in general [B01J20/00](#); ion-exchange in general [B01J39/00](#) to [B01J49/00](#)) [N: or field flow fractionation (for preparation or production of components [B01D21/00](#), [B01D43/00](#), [B01D45/00](#) or [B03C](#))]

Note

In this group, the following term is used with the meaning indicated:

- "conditioning" refers to the adjustment or control of environmental parameters, e.g. temperature or pressure.

- G01N30/00A . [N: Field flow fractionation]
- G01N30/02 . Column chromatography
- G01N30/04 . . Preparation or injection of sample to be analysed
- G01N30/06 . . . Preparation
- G01N30/08 using an enricher
- G01N30/10 using a splitter
- G01N30/12 by evaporation
- G01N30/14 by elimination of some components
- G01N30/16 . . . Injection ([G01N30/24](#) takes precedence)
- G01N30/18 using a septum or microsyringe
- G01N30/20 using a sampling valve
- G01N30/22 in high pressure liquid systems
- G01N30/24 . . . Automatic injection systems

- G01N30/26 . . . Conditioning of the fluid carrier; Flow patterns
- G01N30/28 Control of physical parameters of the fluid carrier
- G01N30/30 of temperature
- G01N30/32 of pressure or speed ([G01N30/36](#) takes precedence)
- G01N30/34 of fluid composition, e.g. gradient ([G01N30/36](#) takes precedence)
- G01N30/36 in high pressure liquid systems
- G01N30/38 Flow patterns
- G01N30/40 using back flushing
- G01N30/42 using counter-current
- G01N30/44 using recycling of the fraction to be distributed
- G01N30/46 using more than one column [N: ([G01N30/44](#) takes precedence)] [C0509]
- G01N30/46A [N: with serial coupling of separation columns] [N0509]
- G01N30/46A2 [N: with different eluents or with eluents in different states
([G01N30/46A4](#) takes precedence)] [N0509]
- G01N30/46A4 [N: for multidimensional chromatography] [N0509]
- G01N30/46A6 [N: with specially adapted interfaces between the columns] [N0509]
- G01N30/46E [N: with separation columns in parallel] [N0509]
- G01N30/46E2 [N: all columns being identical] [N0509]
- G01N30/46S [N: involving switching between different column configurations] [N0509]
- G01N30/48 . . . [N: IPC7] Sorbent materials therefor

[N: **WARNING** [N0901]

Groups [G01N30/48](#) and [G01N30/48A](#) are no longer used for the classification of new documents as from September 1st, 2004. The backlog of these groups is being continuously reclassified to [B01J20/281](#) and subgroups]

- G01N30/48A [N: Solid sorbents] [C0901]
- G01N30/50 . . . Conditioning of the sorbent material or stationary liquid
- G01N30/52 Physical parameters
- G01N30/54 Temperature
- G01N30/56 Packing methods or coating methods
- G01N30/58 the sorbent moving as a whole
- G01N30/60 . . . Construction of the column
- G01N30/60A [N: end pieces] [N0408]
- G01N30/60A3 [N: Fluid distributors] [N0408]
- G01N30/60A5 [N: Adjustable pistons] [N0408]
- G01N30/60A7 [N: Fluid seals] [N0408]
- G01N30/60A9 [N: retaining the stationary phase, e.g. Frits] [N0408]
- G01N30/60B [N: joining multiple columns] [N0408]
- G01N30/60B2 [N: in series] [N0408]
- G01N30/60B4 [N: in parallel] [N0408]
- G01N30/60C [N: with supporting means; Holders] [N0408]
- G01N30/60D [N: body] [N0408]
- G01N30/60D2 [N: with fluid access or exit ports] [N0408]

- G01N30/60D4 [N: with varying cross section] [N0408]
 - G01N30/60D6 [N: with compartments or bed substructure] [N0408]
 - G01N30/60D8 [N: in open tubular form] [N0408]
 - G01N30/60D8B [N: Capillaries] [N0408]
 - G01N30/60D10 [N: transparent to radiation] [N0408]
 - G01N30/60D12 [N: form designed to optimise dispersion] [N0408]
 - G01N30/60E [N: Cartridges] [N0408]
 - G01N30/60M [N: Micro-machined or nano-machined, e.g. micro- or nano-size] [N0408]
- [N: **Note**
 [N0408] Attention is drawn to the Notes following the titles of class [B81](#) and subclass [B81B](#) relating to "micro-structural devices" and "micro-structural systems" and the Notes following the title of subclass [B82B](#) relating to "nano-structures"
]
- G01N30/62 . . . Detectors specially adapted therefor
 - G01N30/64 Electrical detectors
 - G01N30/66 Thermal conductivity detectors
 - G01N30/68 Flame ionisation detectors
 - G01N30/70 Electron capture detectors
 - G01N30/72 Mass spectrometers [N: (mass spectrometers per se [H01J49/00](#))]
 - G01N30/72G [N: interfaced to gas chromatograph (interfaces in general for introducing or extracting samples to be analysed with specially adapted mass spectrometer, see [H01J49/04](#))]
 - G01N30/72G2 [N: splitting of the gaseous effluent]
 - G01N30/72G4 [N: through a gas permeable barrier (membranes, porous layers)]
 - G01N30/72L [N: interfaced to liquid or superfluid chromatograph (interfaces in general for introducing or extracting samples to be analysed with specially adapted mass spectrometer, see [H01J49/04](#))]
 - G01N30/72L2 [N: Nebulising, aerosol formation or ionisation (spraying or atomising in general [B05B](#))]
 - G01N30/72L2A [N: by pneumatic means]
 - G01N30/72L2B [N: by thermal means, e.g. thermospray]
 - G01N30/72L2C [N: by electrical or glow discharge]
 - G01N30/72L2D [N: by electric field, e.g. electrospray]
 - G01N30/72L4 [N: Desolvation chambers]
 - G01N30/72S [N: Intermediate storage of effluent, including condensation on surface]
 - G01N30/72S2 [N: the store moving as a whole, e.g. moving wire]
 - G01N30/72V [N: Velocity or momentum separators]
 - G01N30/74 Optical detectors [N: measurement of intensity, velocity, spectral content, polarisation, or phase of infra-red, visible or ultra-violet light [G01J](#)]
 - G01N30/76 Acoustical detectors [N: measurement of mechanical vibrations or ultrasonic, sonic or infrasonic waves [G01H](#)]
 - G01N30/78 using more than one detector
 - G01N30/80 Fraction collectors
 - G01N30/82 Automatic means therefor

- G01N30/84 . . Preparation of the fraction to be distributed
- G01N30/86 . . Signal analysis
 - G01N30/86A . . . [N: with integration or differentiation]
 - G01N30/86A1 [N: Integration] [N1002]
 - G01N30/86A2 [N: Differentiation] [N1002]
 - G01N30/86A4 [N: Dividing or multiplying by a constant] [N1002]
 - G01N30/86A8 [N: Filtering, e.g. Fourier filtering] [N1002]
 - G01N30/86B [N: Detection of slopes or peaks; baseline correction]
 - G01N30/86B1 [N: Slopes] [N1002]
 - G01N30/86B2 [N: Peaks] [N1002]
 - G01N30/86B2A [N: Peak quality criteria] [N1002]
 - G01N30/86B2B [N: Peak shape] [N1002]
 - G01N30/86B3 [N: Baseline] [N1002]
 - G01N30/86B4 [N: Data segmentation, e.g. time windows] [N1002]
 - G01N30/86C [N: Recording, data acquisition, archiving and storage] [C0607]
 - G01N30/86C2 [N: Details of data formats] [N1002]
 - G01N30/86D [N: Optimising operation parameters] [N1002]
 - G01N30/86D1 [N: Expert systems; optimising a large number of parameters] [N1002]
 - G01N30/86F [N: for calibrating the measuring apparatus] [N0607]
 - G01N30/86F1 [N: using retention times] [N1002]
 - G01N30/86F2 [N: not depending on an individual instrument, e.g. retention time indexes or calibration transfer] [N1002]
 - G01N30/86G [N: Evaluation, i.e. decoding of the signal into analytical information (for analysis of specific compounds see also G01N30/88 and subgroups of G01N33; chemical libraries per se C40B)] [N0607]
 - G01N30/86G2 [N: Target compound analysis, i.e. whereby a limited number of peaks is analysed] [N1002]
 - G01N30/86G4 [N: Group type analysis, e.g. of components having structural properties in common] [N1002]
 - G01N30/86G6 [N: Fingerprinting, e.g. without prior knowledge of the sample components] [N1002]
 - G01N30/86G8 [N: Peak purity of co-eluting compounds] [N1002]
 - G01N30/86M [N: Models, e.g. prediction of retention times, method development and validation] [N0607]
 - G01N30/86S [N: Details of Software] [N1002]
- G01N30/88 . . Integrated analysis systems specially adapted therefor, not covered by a single one of the groups G01N30/04 to G01N30/86 (signal analysis systems per se G06F, G06G) [C0707]
- G01N30/89 . . Inverse chromatography [N0408]
- G01N30/90 . . Plate chromatography, e.g. thin layer or paper chromatography
- G01N30/91 . . Application of the sample
- G01N30/92 . . Construction of the plate
- G01N30/93 . . . Application of the sorbent layer
- G01N30/94 . . Development

- G01N30/95 . . Detectors specially adapted therefor; Signal analysis
- G01N30/96 . using ion-exchange ([G01N30/02](#), [G01N30/90](#) take precedence)
- G01N31/00** **Investigating or analysing non-biological materials by the use of the chemical methods specified in the subgroup (testing the effectiveness or completeness of sterilisation procedures without using enzymes or microorganisms [A61L2/28](#); measuring or testing processes involving enzymes or micro-organisms [C12Q1/00](#)); Apparatus specially adapted for such methods [C0203]**
- G01N31/00B . [N: Determining nitrogen by transformation into ammonia, e.g. KJELDAHL method]
- G01N31/00C . [N: investigating the presence of an element by oxidation ([G01N31/12](#) takes precedence)]
- G01N31/00C1 . . [N: by measuring the quantity of water resulting therefrom ([G01N31/12](#) takes precedence)]
- Note**
The observation of the progress of the reaction specified below by any of the methods specified in groups [G01N3/00](#) to [G01N3/00](#) to [G01N29/00](#), if this is of major importance, is dealt with in the group concerned.
- G01N31/02 . using precipitation [N: measuring deposition or liberation of materials from an electrolyte [G01N27/42](#)]
- G01N31/10 . using catalysis
- G01N31/12 . using combustion ([G01N25/20](#) takes precedence)
- G01N31/16 . using titration
- G01N31/16B . . [N: Determining the equivalent point by means of a discontinuity]
- G01N31/16B1 . . . [N: by electrical or electrochemical means]
- G01N31/16C . . [N: Continuous titration of flowing liquids]
- G01N31/16D . . [N: Determining water content by using Karl Fischer reagent]
- G01N31/18 . . Burettes specially adapted for titration (burettes in general [B01L3/02](#))
- G01N31/20 . using micro-analysis, e.g. drop reaction
- G01N31/22 . using chemical indicators ([G01N31/02](#) takes precedence)
- G01N31/22B . . [N: for investigating pH value]
- G01N31/22C . . [N: for investigating moisture content]
- G01N31/22D . . [N: for investigating presence of specific gases or aerosols ([G01N31/22B](#), [G01N31/22C](#) take precedence; actuation of fire alarm by presence of smoke or gases [G08B17/10](#))]
- G01N31/22D2 . . . [N: for investigating presence of dangerous gases]
- G01N31/22D4 . . . [N: for oxygen, e.g. including dissolved oxygen]
- G01N31/22F . . [N: for investigating the degree of sterilisation]
- G01N31/22H . . [N: for nitrates or nitrites]
- G01N31/22J . . [N: for peroxides]

G01N31/22L . . . [N: for investigating time/temperature history]

G01N33/00 Investigating or analysing materials by specific methods not covered by the preceding groups

G01N33/00B . [N: by organoleptic means]

G01N33/00D . [N: Gaseous mixtures, e.g. polluted air (gaseous biological material [G01N33/497](#); exhaust gas of internal combustion engines [G01M15/00D4](#))]

G01N33/00D1 . . [N: Calibrating gas analysers]

G01N33/00D1M . . . [N: Details concerning storage of calibration data, e.g. in EEPROM] [N9910]

G01N33/00D2 . . [N: General constructional details of gas analysers, e.g. portable test equipment ([G01N1/22](#) takes precedence)]

G01N33/00D2A . . . [N: Sample conditioning (in general [G01N1/28](#))]

G01N33/00D2A1 [N: by a chemical reaction ([G01N33/00D2B1](#) takes precedence)]

G01N33/00D2A2 [N: by eliminating a gas ([G01N33/00D2A1](#) and [G01N33/00D2B1](#) take precedence)]

G01N33/00D2A3 [N: by regulating a physical variable, e.g. pressure, temperature]

G01N33/00D2A4 [N: by diluting a gas] [N9701]

G01N33/00D2A6 [N: involving the use of a carrier gas for transport to the sensor] [N1201]

G01N33/00D2B . . . [N: using a number of analysing channels]

G01N33/00D2B1 [N: a chemical reaction taking place or a gas being eliminated in one or more channels]

G01N33/00D2C . . . [N: use of an alternating circulation of another gas (calibrating gas analysers [G01N33/00D1](#))]

G01N33/00D2D . . . [N: concerning the detector]

G01N33/00D2D1 [N: cleaning]

G01N33/00D2D2 [N: comprising two or more sensors, e.g. a sensor array (electrochemical electrode arrays [G01N27/27](#))] [M1201]

G01N33/00D2D2A [N: using two or more different physical functioning modes]

G01N33/00D2D2N [N: comprising neural networks or related mathematical techniques] [N9712]

G01N33/00D2D4 [N: Specially adapted to detect a particular component (all the other sub-groups of [G01N33/00D](#) take precedence)]

G01N33/00D2D4A [N: for NO_x]

G01N33/00D2D4B [N: for O₃]

G01N33/00D2D4C [N: for CO, CO₂]

G01N33/00D2D4D [N: for SO₂, SO₃]

G01N33/00D2D4E [N: for H₂S, sulfides]

G01N33/00D2D4F [N: for Hg]

G01N33/00D2D4G [N: for organic compounds]

G01N33/00D2D4G1 [N: for halogenated organic compounds]

G01N33/00D2D4H [N: for H₂]

G01N33/00D2D4I [N: for gaseous halogens]

G01N33/00D2D4K [N: for ammonia]

- G01N33/00D2D4L [N: for radionuclides]
- G01N33/00D2D4M [N: for warfare agents or explosives (properties of explosives [G01N33/22D](#))] [N1201]
- G01N33/00D2D4Z [N: avoiding interference of a gas with the gas to be measured] [N0204]
- G01N33/00D2D4Z1 [N: avoiding interference of water vapour with the gas to be measured] [N0204]
- G01N33/00D2E [N: concerning the measuring method, e.g. intermittent, or the display, e.g. digital]
- G01N33/00D2E1 [N: using a threshold to release an alarm or displaying means (alarm arrangements [G08B](#), e.g. fire alarm actuated by the presence of smoke or gases [G08B17/10](#), for other abnormal conditions [G08B21/00](#))]
- G01N33/00D2E1A [N: using more than one threshold]
- G01N33/00D2E2 [N: by measuring the rate of variation of the concentration]
- G01N33/00D2F [N: Arrangements to check the analyser (calibrating [G01N33/00D1](#))]
- G01N33/00D2G [N: Control unit therefor] [N1201]
- G01N33/00D2G1 [N: for multiple spatially distributed sensors, e.g. for environmental monitoring (transmission systems for measured values [G08C](#))] [N1207]

- G01N33/00V [N: Plants or trees (wood [G01N33/46](#))] [N1201]

- G01N33/02 food
- G01N33/02F [N: Fruits or vegetables] [N1201]
- G01N33/03 edible oils or edible fats
- G01N33/04 dairy products
- G01N33/06 Determining fat content, e.g. by butyrometer
- G01N33/08 eggs, e.g. by candling
- G01N33/08B [N: by candling]
- G01N33/10 starch-containing substances, e.g. dough
- G01N33/12 meat; fish
- G01N33/14 beverages
- G01N33/14B [N: containing sugar]
- G01N33/14C [N: containing alcohol]

- G01N33/15 Medicinal preparations; [N: Physical properties thereof, e.g. dissolubility (drug screening with animal cells [G01N33/50D2](#), drug screening with microorganisms [C12Q1/02B](#))] [M1201]

- G01N33/18 Water [N: (treatment of water [C02F](#))] [M1201]
- G01N33/18A [N: biological or chemical oxygen demand (BOD or COD)]
- G01N33/18B [N: specific cations in water, e.g. heavy metals (electrochemical analysis [27/26](#); detection of ions by colorimetry [G01N31/22](#))]
- G01N33/18C [N: specific anions in water (electrochemical analysis [G01N27/26](#); detection of ions by colorimetry [G01N31/22](#))]
- G01N33/18D [N: organic contamination in water]
- G01N33/18D1 [N: Oil in water (water in oil [G01N33/28G2](#))] [M1201]
- G01N33/18D3 [N: Total carbon analysis] [N1201]
- G01N33/18E [N: hardness of water]

- G01N33/18F . . [N: using one or more living organisms, e.g. a fish]
- G01N33/18F1 . . . [N: using micro-organisms ([G01N33/18A](#) takes precedence)]
- G01N33/18N . . [N: Determining the state of nitrification ([biological treatment of water by aerobic or anaerobic processes for denitrification of water C02F3/30A](#))] [N9911]
- G01N33/18P . . [N: using probes, e.g. submersible probes, buoys] [N1201]
- G01N33/18Q . . [N: using flow cells] [N1201]

- G01N33/20 . metals
- G01N33/20B . . [N: for the presence of a volatilizable e.g. gaseous component]
- G01N33/20C . . [N: in molten state, e.g. after local fusion]

- G01N33/22 . Fuels, explosives [N: ([liquid hydrocarbons G01N33/28](#))] [M1201]
- G01N33/22B . . [N: Solid fuels, e.g. coal] [N1201]
- G01N33/22C . . [N: Gaseous fuels, e.g. natural gas] [N1201]
- G01N33/22D . . [N: Explosives, e.g. combustive properties thereof ([detecting explosives in air G01N33/00D2D4M](#))] [N1201]

- G01N33/24 . earth materials ([G01N33/42](#) takes precedence; [N: testing the nature of borehole walls, formation testing [E21B49/00](#); investigation of foundation soil in situ [E02D1/00](#); geophysics, e.g. prospecting [G01V](#)])
- G01N33/24A . . [N: for hydrocarbon content ([drilling mud G01N33/28E](#); [drilling per se E21B](#); [prospecting G01V](#))]
- G01N33/24H . . [N: for water content ([for control of watering A01G25/16D](#))] [N1201]

- G01N33/26 . oils; viscous liquids; paints; inks ([G01N33/22](#) takes precedence)
- G01N33/28 . . Oils, [N: i.e. hydrocarbon liquids ([gaseous fuels G01N33/22C](#))] ([edible oils or edible fats G01N33/03](#)) [M1201]
- G01N33/28B . . . [N: investigating the resistance to heat or oxidation ([to the weather, to corrosion, or to light G01N17/00](#))]
- G01N33/28C . . . [N: by measuring cloud point or pour point of oils]
- G01N33/28D . . . [N: using a test engine ([testing of engines G01M15/00](#))]
- G01N33/28E . . . [N: raw oil, drilling fluid or polyphasic mixtures ([hydrocarbon content of earth materials G01N33/24A](#); [prospecting G01V](#); [drilling per se E21B](#))]
- G01N33/28F . . . [N: mixtures of fuels, e.g. determining the RON-number]
- G01N33/28G . . . [N: specific substances contained in the oil or fuel]
- G01N33/28G1 [N: gas in oil, e.g. hydrogen in insulating oil]
- G01N33/28G2 [N: Water in oil ([basic sediment and water G01N33/28E](#); [oil in water G01N33/18D1](#))] [M1201]
- G01N33/28G3 [N: alcohol/fuel mixtures]
- G01N33/28G4 [N: metal particles]
- G01N33/28G5 [N: lead content]
- G01N33/28G6 [N: Sulfur content] [N1201]
- G01N33/28G7 [N: Total acid number] [N1201]
- G01N33/28G8 [N: Markers ([marking of fuels C10L1/00C](#))] [N1201]
- G01N33/28H . . . [N: Lubricating oil characteristics, e.g. deterioration ([lubricating properties G01N33/30](#))] [M1201]
- G01N33/28M . . . [N: for metal working or machining] [N0001]

- G01N33/30 . . . for lubricating properties
- G01N33/32 . . paints; inks [N: investigating resistance to the weather, to corrosion, to light [G01N17/00](#)]
- G01N33/34 . paper
- G01N33/34A . . [N: paper pulp]
- G01N33/34B . . [N: paper sheets]
- G01N33/36 . textiles
- G01N33/36A . . [N: material before processing, e.g. bulk cotton or wool]
- G01N33/36B . . [N: filiform textiles, e.g. yarns (for measuring diameter [G01B](#))]
- G01N33/36C . . [N: Fabric or woven textiles (optical analysis of moving sheets [G01N21/86](#))]
- G01N33/38 . concrete; ceramics; glass; bricks
- G01N33/38B . . [N: precious stones; pearls]
- G01N33/38C . . [N: Concrete, cement] [N1201]
- G01N33/38D . . [N: Crystals] [N1201]
- G01N33/38F . . [N: Glass] [N1201]
- G01N33/38L . . [N: Ceramics] [N1201]
- G01N33/40 . grinding-materials
- G01N33/42 . road-making materials ([G01N33/38](#) takes precedence)
- G01N33/44 . resins; rubber; leather
- G01N33/44A . . [N: Resins, plastics] [N1201]
- G01N33/44B . . [N: Rubber] [N1201]
- G01N33/44C . . [N: Leather] [N1201]
- G01N33/46 . wood
- G01N33/48 . biological material, e.g. blood, urine ([G01N33/02](#) to [G01N33/14](#), [G01N33/26](#), [G01N33/44](#), [G01N33/46](#) take precedence; determining the germinating capacity of seeds [A01C1/02](#)); Haemocytometers (counting blood corpuscles distributed over a surface by scanning the surface [G06M11/02](#))
- G01N33/483 . . Physical analysis of biological material
- G01N33/483C . . . [N: of solid biological material, e.g. tissue samples, cell cultures (tissue in vivo [A61B5](#); cell suspensions [G01N33/487B7](#))] [N1201]
- G01N33/483C1 [N: using multielectrode arrays] [N1201]
- G01N33/487 . . . of liquid biological material
- G01N33/487B [N: by electrical means ([G01N33/49](#), [G01N33/493](#) take precedence)]
- G01N33/487B1 [N: for determining substances foreign to the organism, e.g. drugs or heavy metals (drugs by chemical analysis [G01N33/94](#))] [N9706] [M1201]
- G01N33/487B5 [N: Investigating individual macromolecules, e.g. by translocation through nanopores (Coulter counters in general [G01N15/12](#); fabrication methods for nano-scale apertures [B81B1/00](#); sequencing of nucleic acids [C12Q1/68](#))] [N0903] [M1201]

G01N33/487B6	. . . . .	[N: Investigating individual cells, e.g. by patch clamp, voltage clamp (investigating individual particles in general G01N15/10)] [N1201]
G01N33/487B7	. . . . .	[N: Investigating suspensions of cells, e.g. measuring microbe concentration (by chemical means C12Q1/04 ; colony counters C12M1/34 ; concentration of particle suspensions in general G01N15/06)] [N1201]
G01N33/487D	. . . . .	[N: Determining urea by measuring the volume of a gas (in general G01N7/14 to G01N7/18)]
G01N33/487E	. . . . .	[N: Details of handling test elements, e.g. dispensing or storage, not specific to a particular test method (test-elements per se B01L , automatic analysers G01N35/00 , in-vivo analysis on the human body for medical diagnosis A61B)] [N0403] [C1201]
G01N33/487E1	. . . . .	[N: Test elements dispensed from a stack] [N1201]
G01N33/487E2	. . . . .	[N: Test tape taken off a spool] [N1201]
G01N33/487E3	. . . . .	[N: Coding of information, e.g. calibration data, lot number] [N1201]
G01N33/487E4	. . . . .	[N: Containers specially adapted therefor, e.g. for dry storage] [N1201]
G01N33/487F	. . . . .	[N: Electrical and electronic details of measuring devices for physical analysis of liquid biological material not specific to a particular test method, e.g. user interface or power supply] [N1201]
G01N33/487F1	. . . . .	[N: Data management, e.g. communication with processing unit (for in vivo diagnostics A61B5/64 ; medical informatics G06F19/00M ; transmission systems for measured values G08C)] [N1201]
G01N33/49	. . . . .	Blood [N: (taking blood samples A61B5/15 ; chemical methods for determining blood cell populations G01N33/50D6 ; chemical analysis of blood groups or blood types G01N33/80)] [M1201]
G01N33/49B	. . . . .	[N: Determining clotting time of blood (by chemical methods G01N33/86 , C12Q1/54)] [C9903]
G01N33/49C	. . . . .	[N: by separating the blood components (G01N15/05 takes precedence; test tubes per se B01L3/14)] [M1201]
G01N33/49D	. . . . .	[N: using flow cells (flow cytometry G01N15/14)] [N1201]
G01N33/49F	. . . . .	[N: Determining multiple analytes] [N1201]
G01N33/49G	. . . . .	[N: measuring blood gas content, e.g. O ₂ , CO₂ , HCO₃] [N9607]
G01N33/493	. . . . .	urine
G01N33/497	. . . . .	of gaseous biological material, e.g. breath [N: (for evaluating respiratory organs A61B5/08)] [M1201]
G01N33/497A	. . . . .	[N: Determining alcohol content (for vehicle safety devices B60K28/06)] [N9511] [M1201]
G01N33/50	. . . . .	Chemical analysis of biological material, e.g. blood, urine; Testing involving biospecific ligand binding methods; Immunological testing (measuring or testing processes involving enzymes or micro-organisms, compositions or test papers therefor; processes for forming such compositions, condition responsive control in microbiological or enzymological processes C12Q)

Notes

1. The expression "involving", when used in relation to a material includes the testing for the material as well as employing the material as a determinant or reactant in a test for a different material.
2. In groups [G01N33/52](#) to [G01N33/96](#), in the absence of an indication to the contrary, an invention is also classified in the last appropriate place.

[N: Note

Documents relating to new peptides or new DNA or its corresponding mRNA, encoding for the peptides, and their use in measuring or testing processes are classified in subclass [C07K](#) or in group [C12N9/00](#) according to the peptides, with the appropriate indexing codes relating to their use in diagnostics. However, if the investigating or analysing aspects are of interest, the documents are classified in this group

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G01N33/50B	. . .	[N: Partitioning blood components]
G01N33/50D	. . .	[N: involving human or animal cells (immunoassay G01N33/569H ; immunoassays of protozoa G01N33/569B ; protozoa in screening assays C12Q1/02B)] [C0104]
G01N33/50D2	. . . .	[N: for testing or evaluating the effect of chemical or biological compounds, e.g. drugs, cosmetics]
G01N33/50D2B	. . . . .	[N: for testing antineoplastic activity]
G01N33/50D2D	. . . . .	[N: for testing toxicity]
G01N33/50D2D2	. . . . .	[N: for testing neoplastic activity]
G01N33/50D2E	. . . . .	[N: for testing non-proliferative effects] [N0601]
G01N33/50D2E2	. . . . .	[N: on expression patterns] [N0601]
G01N33/50D2E4	. . . . .	[N: on cell morphology] [N0601]
G01N33/50D2E6	. . . . .	[N: on cell motility] [N0601]
G01N33/50D2E8	. . . . .	[N: on intercellular interactions] [N0601]
G01N33/50D2E10	. . . . .	[N: on sub-cellular localization] [N0601]
G01N33/50D2E12	. . . . .	[N: involving detection of metabolites per se] [N0601]
G01N33/50D2E14	. . . . .	[N: involving analysis of members of signalling pathways] [N0601]
G01N33/50D2F	. . . . .	[N: involving specific cell types] [N0104] [C0605]
G01N33/50D2F2	. . . . .	[N: Cells of the immune system] [N0104]
G01N33/50D2F2B	. . . . .	{7 dots} [N: involving T-cells] [N0601]
G01N33/50D2F2D	. . . . .	{7 dots} [N: involving B-cells] [N0601]
G01N33/50D2F2F	. . . . .	{7 dots} [N: involving macrophages] [N0601]
G01N33/50D2F4	. . . . .	[N: Neurological cells] [N0104] [N0605]
G01N33/50D2F6	. . . . .	[N: Muscle cells] [N0104] [N0601]
G01N33/50D2F8	. . . . .	[N: Endothelial cells] [N0601]
G01N33/50D2F10	. . . . .	[N:Liver cells] [N0601]
G01N33/50D2F12	. . . . .	[N: Pancreatic cells] [N0601]
G01N33/50D2F14	. . . . .	[N: Stem cells] [N0601]
G01N33/50D2H	. . . . .	[N: involving cell organelles, e.g. Golgi complex, endoplasmic reticulum] [N0104]
G01N33/50D2H2	. . . . .	[N: Mitochondria] [N0104]
G01N33/50D2J	. . . . .	[N: Supracellular entities, e.g. tissue, organisms] [N0104]
G01N33/50D2J2	. . . . .	[N: of invertebrates] [N0104]
G01N33/50D2J4	. . . . .	[N: of vertebrates] [N0104]
G01N33/50D4	. . . . .	[N: for testing the pathological state of an organism]
G01N33/50D6	. . . . .	[N: for blood cell populations (red blood cells G01N33/80)]

- G01N33/50F . . . [N: involving plant cells (immunoassays of plant cells [G01N33/569F](#); unicellular algae, photoplankton and photosynthetic bacteria in screening assays [C12Q1/02B](#))] [N0104]
- G01N33/52 . . . Use of compounds or compositions for colorimetric, spectrophotometric or fluorometric investigation, e.g. use of reagent paper [N: and including single- and multilayer analytical elements (immunological elements [G01N33/543K4](#); involving labelled immunochemicals [G01N33/58](#); for haemoglobin or occult blood [G01N33/72](#))] [C9510]
- G01N33/52B [N: Single-layer analytical elements]
- G01N33/52B2 [N: the element being adapted for a specific analyte]
- G01N33/52C [N: Multi-layer analytical elements]
- G01N33/52C2 [N: the element being adapted for a specific analyte]
- G01N33/52D [N: Atypical element structures, e.g. gloves, rods, tampons, toilet paper]
- G01N33/53 Immunoassay; Biospecific binding assay (preparations containing antigens or antibodies for therapeutic purposes [A61K39/00](#); haptens in general, see the relevant places in class [C07](#); proteins in general [C07K](#))
- G01N33/53B [N: Apparatus specially adapted for immunological test procedures]
- G01N33/53B2 [N: Reaction vessels, e.g. agglutination plates (for solid-phase systems [G01N33/543](#))]
- G01N33/53D [N: Improving reaction conditions, e.g. reduction of non-specific binding, promotion of specific binding]
- G01N33/53F [N: for analytes not provided for elsewhere, e.g. nucleic acids, uric acid, worms, mites]
- G01N33/531 Production of immunochemical test materials
- G01N33/532 Production of labelled immunochemicals
- G01N33/533 with fluorescent label
- G01N33/534 with radioactive label
- G01N33/535 with enzyme label [N: or co-enzymes, co-factors, enzyme inhibitors or enzyme substrates]
- G01N33/536 with immune complex formed in liquid phase
- G01N33/537 with separation of immune complex from unbound antigen or antibody
- G01N33/537B [N: by changing the physical or chemical properties of the medium or immunochemicals, e.g. temperature, density, pH, partitioning]
- G01N33/538 by sorbent column, particles or resin strip [N: i.e. sorbent materials]
- G01N33/539 involving precipitating reagent [N: e.g. ammonium sulfate]
- G01N33/541 {7 dots} Double or second antibody [N: i.e. precipitating antibody]
- G01N33/542 with steric inhibition or signal modification, e.g. fluorescent quenching
- G01N33/543 with an insoluble carrier for immobilising immunochemicals
- G01N33/543B [N: Solid-phase reaction mechanisms]
- G01N33/543D [N: the carrier being characterised by its particulate form]
- G01N33/543D2 [N: Liposomes or microcapsules]
- G01N33/543D4 [N: Magnetic particles]
- G01N33/543D4B {7 dots} [N: Modification of conditions of immunological binding reaction, e.g. use of more than one type of particle, use of chemical agents to improve binding, choice of incubation time or application of magnetic field during binding reaction] [N0012]
- G01N33/543D4D {7 dots} [N: using magnetic particle immunoreagent carriers which

		constitute new materials per se] [N0012]
G01N33/543D6	. . . . .	[N: Nanoparticles] [N0810]
G01N33/543F	. . . . .	[N: with ligand attached to the carrier via a chemical coupling agent (coatings G01N33/543M)]
G01N33/543H	. . . . .	[N: with ligand physically entrapped within the solid phase (liposomes G01N33/543D2 ; immunological test elements G01N33/543K4)]
G01N33/543K	. . . . .	[N: Apparatus specially adapted for solid-phase testing]
G01N33/543K2	. . . . .	[N: involving physiochemical end-point determination, e.g. wave-guides, FETS, gratings]
G01N33/543K2B	. . . . .	{7 dots} [N: Electrodes]
G01N33/543K4	. . . . .	[N: Analytical elements]
G01N33/543M	. . . . .	[N: Improving reaction conditions or stability, e.g. by coating or irradiation of surface, by reduction of non-specific binding, by promotion of specific binding]
G01N33/544	. . . . .	the carrier being organic
G01N33/545	. . . . .	Synthetic resin
G01N33/546	. . . . .	{7 dots} as water suspendable particles [N: not used, see G01N33/543D]
G01N33/547	. . . . .	{7 dots} with antigen or antibody attached to the carrier via a bridging agent [N: not used, see G01N33/543F]
G01N33/548	. . . . .	Carbohydrates, e.g. dextran
G01N33/549	. . . . .	with antigen or antibody entrapped within the carrier [N: not used, see G01N33/543H]
G01N33/551	. . . . .	the carrier being inorganic
G01N33/552	. . . . .	Glass or silica
G01N33/553	. . . . .	Metal or metal coated
G01N33/554	. . . . .	the carrier being a biological cell or cell fragment, e.g. bacteria, yeast cells
G01N33/555	. . . . .	Red blood cell
G01N33/556	. . . . .	{7 dots} Fixed or stabilised red blood cell
G01N33/557	. . . . .	using kinetic measurement, i.e. time rate of progress of an antigen-antibody interaction
G01N33/558	. . . . .	using diffusion or migration of antigen or antibody
G01N33/559	. . . . .	through a gel, e.g. Ouchterlony technique
G01N33/561	. . . . .	Immunoelectrophoresis
G01N33/563	. . . . .	involving antibody fragments [N: not used, see G01N33/68B2]
G01N33/564	. . . . .	for pre-existing immune complex or autoimmune disease [N: i.e. systemic lupus erythematosus, rheumatoid arthritis, multiple sclerosis, rheumatoid factors or complement components C1-C9]
G01N33/566	. . . . .	using specific carrier or receptor proteins as ligand binding reagents [N: where possible specific carrier or receptor proteins are classified with their target compounds]
G01N33/567	. . . . .	utilising isolate of tissue or organ as binding agent
G01N33/569	. . . . .	for micro-organisms, e.g. protozoa, bacteria, viruses
G01N33/569B	. . . . .	[N: Protozoa]
G01N33/569D	. . . . .	[N: Bacteria]

G01N33/569D2	. . . . .	[N: Enterobacteria; e.g. shigella, salmonella, klebsiella, serratia] [N9606]
G01N33/569D4	. . . . .	[N: Campylobacter] [N9606]
G01N33/569D6	. . . . .	[N: Chlamydia] [N9606]
G01N33/569D8	. . . . .	[N: Mycoplasma]
G01N33/569D10	. . . . .	[N: Staphylococcus] [N9606]
G01N33/569D12	. . . . .	[N: Streptococcus] [N9606]
G01N33/569D14	. . . . .	[N: Mycobacteria] [N9606]
G01N33/569D16	. . . . .	[N: involved in periodontal diseases] [N9606]
G01N33/569F	. . . . .	[N: Plant cells or fungi]
G01N33/569H	. . . . .	[N: Animal cells]
G01N33/569H2	. . . . .	[N: White blood cells]
G01N33/569H4	. . . . .	[N: HLA or MHC typing]
G01N33/569K	. . . . .	[N: Viruses]
G01N33/569K2	. . . . .	[N: AIDS or HTLV]
G01N33/569K4	. . . . .	[N: Herpetoviridae, e.g. cytomegalovirus, Epstein-Barr virus] [N9510] [C9603]
G01N33/571	. . . . .	for venereal disease, e.g. syphilis, gonorrhoea [N: (herpes G01N33/569K4 ; chlamydia G01N33/569D6)] [C9510] [C9606]
G01N33/573	. . . . .	for enzymes or isoenzymes
G01N33/573B	. . . . .	[N: co-enzymes or co-factors, e.g. NAD, ATP]
G01N33/574	. . . . .	for cancer

[N: **Note**

In this group:

- relevant features relating to a specifically defined cancer are only classified in groups [G01N33/574C](#) to [G01N33/574C22](#)
- relevant features describing cancer markers related to multiple forms of cancer are classified in groups [G01N33/574V](#) to [G01N33/574V6](#)

G01N33/574C	. . . . .	[N: Specifically defined cancers] [N9610]
G01N33/574C2	. . . . .	[N: of cervix] [N9610]
G01N33/574C4	. . . . .	[N: of breast] [N9610]
G01N33/574C6	. . . . .	[N: of colon] [N9610]
G01N33/574C8	. . . . .	[N: of lung] [N9610]
G01N33/574C10	. . . . .	[N: leukemia] [N9610]
G01N33/574C12	. . . . .	[N: of skin, melanoma] [N9610]
G01N33/574C14	. . . . .	[N: of prostate] [N9610]
G01N33/574C16	. . . . .	[N: of liver, pancreas or kidney] [N9610]
G01N33/574C18	. . . . .	[N: of the uterus and endometrial] [N9610]
G01N33/574C20	. . . . .	[N: of stomach or intestine] [N9610]
G01N33/574C22	. . . . .	[N: of ovaries] [N9610]
G01N33/574M	. . . . .	[N: involving tumor associated glycolinkage, i.e. TAG]

G01N33/574P	. . . . .	[N: involving carcinoembryonic antigen, i.e. CEA]
G01N33/574R	. . . . .	[N: involving oncofetal proteins]
G01N33/574T	. . . . .	[N: involving oncogenic proteins]
G01N33/574V	. . . . .	[N: involving compounds serving as markers for tumor, cancer, neoplasia, e.g. cellular determinants, receptors, heat shock/stress proteins, A-protein, oligosaccharides, metabolites] [N9610]
G01N33/574V2	. . . . .	[N: involving compounds identifiable in body fluids] [N9610]
G01N33/574V4	. . . . .	[N: involving compounds localized on the membrane of tumor or cancer cells] [N9610]
G01N33/574V6	. . . . .	[N: involving intracellular compounds] [N9610]
G01N33/576	. . . . .	for hepatitis
G01N33/576B	. . . . .	[N: Hepatitis B]
G01N33/576B2	. . . . .	[N: Hepatitis B core antigen]
G01N33/576B4	. . . . .	[N: Hepatitis B surface antigen]
G01N33/576D	. . . . .	[N: Hepatitis delta antigen]
G01N33/576F	. . . . .	[N: non-A, non-B hepatitis]
G01N33/576H	. . . . .	[N: Hepatitis A]
G01N33/577	. . . . .	involving monoclonal antibodies [N: binding reaction mechanisms characterised by the use of monoclonal antibodies; monoclonal antibodies per se are classified with their corresponding antigens; G01N33/53 to G01N33/576 take precedence]
G01N33/579	. . . . .	involving limulus lysate
		[N: Note Groups G01N33/53 to G01N33/576 take precedence over groups G01N33/58 to G01N33/98]
G01N33/58	. . . . .	involving labelled substances (G01N33/53 takes precedence; for testing in vivo A61K49/00)
G01N33/58B	. . . . .	[N: with enzyme label (including co-enzymes, co-factors, enzyme inhibitors or substrates)]
G01N33/58D	. . . . .	[N: with fluorescent label]
G01N33/58F	. . . . .	[N: with non-fluorescent dye label]
G01N33/58H	. . . . .	[N: with a particulate label, e.g. coloured latex]
G01N33/58H2	. . . . .	[N: Liposomes, microcapsules or cells]
G01N33/58H4	. . . . .	[N: Nanoparticles] [N0810]
G01N33/58J	. . . . .	[N: with semiconductor nanocrystal label, e.g. quantum dots] [N0009]
G01N33/60	. . . . .	involving radioactive labelled substances (tracers G21H5/02)
G01N33/62	. . . . .	involving urea
G01N33/64	. . . . .	involving ketones
G01N33/66	. . . . .	involving blood sugars, e.g. galactose
G01N33/68	. . . . .	involving proteins, peptides or amino acids [N: involving lipoproteins G01N33/92]
G01N33/68A	. . . . .	[N: General methods of protein analysis not limited to specific proteins or families of proteins] [N0008]
G01N33/68A2	. . . . .	[N: Determination of free amino acids] [N0008]

G01N33/68A2B	. . . . .	[N: involving fluorescent derivatizing reagents reacting non-specifically with all amino acids] [N0008]
G01N33/68A2D	. . . . .	[N: Assays for specific amino acids] [N0008]
G01N33/68A2D2	. . . . .	{7 dots} [N: containing sulfur, e.g. cysteine, cystine, methionine, homocysteine] [N0008]
G01N33/68A4	. . . . .	[N: Sequencing of polypeptides] [N0008] [C0706]
G01N33/68A4B	. . . . .	[N: involving C-terminal degradation] [N0008]
G01N33/68A4D	. . . . .	[N: involving N-terminal degradation, e.g. Edman degradation] [N0008]
G01N33/68A6	. . . . .	[N: Total protein determination, e.g. albumin in urine] [N0008]
G01N33/68A6B	. . . . .	[N: involving metal ions] [N0008]
G01N33/68A6B2	. . . . .	{7 dots} [N: Copper, e.g. Folin-, Lowry-, biuret methods] [N0008]
G01N33/68A6B4	. . . . .	{7 dots} [N: Silver staining] [N0008]
G01N33/68A6D	. . . . .	[N: involving dyes, e.g. Coomassie blue, bromcresol green] [N0008]
G01N33/68A8	. . . . .	[N: Proteomic analysis of subsets of protein mixtures with reduced complexity, e.g. membrane proteins, phosphoproteins, organelle proteins] [N0706]
G01N33/68A10	. . . . .	[N: Methods of identifying protein-protein interactions in protein mixtures] [N0008] [C0706]
G01N33/68A12	. . . . .	[N: Methods of protein analysis involving mass spectrometry] [N0706]
G01N33/68A12A	. . . . .	[N: Methods of protein analysis involving laser desorption ionisation mass spectrometry] [N0706]
G01N33/68B	. . . . .	[N: Immunoglobulins]
G01N33/68B2	. . . . .	[N: Antibody fragments]
G01N33/68B4	. . . . .	[N: Anti-idiotypic]
G01N33/68D	. . . . .	[N: Cytokines, i.e. immune system proteins modifying a biological response such as cell growth proliferation or differentiation, e.g. TNF, CNF, GM-CSF, lymphotoxin, MIF or their receptors] [C0104]
G01N33/68D2	. . . . .	[N: Interferon]
G01N33/68D4	. . . . .	[N: Interleukin]
G01N33/68F	. . . . .	[N: Intracellular protein regulatory factors and their receptors, e.g. including ion channels] [C0104]
G01N33/68H	. . . . .	[N: Nucleoproteins]
G01N33/68K	. . . . .	[N: in epitope analysis]
G01N33/68M	. . . . .	[N: from skin]
G01N33/68P	. . . . .	[N: from lung]
G01N33/68R	. . . . .	[N: from muscle, cartilage or connective tissue]
G01N33/68T	. . . . .	[N: related to pregnancy or the gonads]
G01N33/68V	. . . . .	[N: related to diseases not provided for elsewhere]
G01N33/68V2	. . . . .	[N: Neurological disorders, e.g. Alzheimer's disease]
G01N33/70	. . . . .	involving creatine or creatinine
G01N33/72	. . . . .	involving blood pigments, e.g. haemoglobin, bilirubin [N: or other porphyrins; involving occult blood] [C9510]
G01N33/72B	. . . . .	[N: Haemoglobin] [N9510]
G01N33/72B2	. . . . .	[N: Glycosylated haemoglobin] [N9510]
G01N33/72B4	. . . . .	[N: using peroxidative activity] [N9510]

- G01N33/72B6 [N: Devices] [N9510]
- G01N33/72D [N: Bilirubin; including biliverdin] [N9510]
- G01N33/74 involving hormones [N: or other non-cytokine intercellular protein regulatory factors such as growth factors, including receptors to hormones and growth factors] [C0104]
- G01N33/74B [N: Steroid hormones]
- G01N33/74D [N: Erythropoetin]
- G01N33/76 Human chorionic gonadotropin [N: including luteinising hormone, follicle stimulating hormone, thyroid stimulating hormone or their receptors] [C0104]
- G01N33/78 Thyroid gland hormones, [N: e.g. T3, T4, TBH, TBG or their receptors] [C0104]
- G01N33/80 involving blood groups or blood types [N: or red blood cells (**white blood cells** [G01N33/569H2](#))]
- G01N33/82 involving vitamins [N: or their receptors] [C0104]
- G01N33/84 involving inorganic compounds or pH
- G01N33/86 involving blood coagulating time [N: or factors, or their receptors] [C0104]
- G01N33/88 involving prostaglandins [N: or their receptors] [C0104]
- G01N33/90 involving iron binding capacity of blood
- G01N33/92 involving lipids, e.g. cholesterol, [N: lipoproteins, or their receptors (**steroid hormones** [G01N33/74B](#))] [C0104]
- G01N33/94 involving narcotics [N: or drugs or pharmaceuticals, neurotransmitters or associated receptors]
- G01N33/94B [N: Neurotransmitters] [N9605]
- G01N33/94B2 [N: Dopamine] [N0104]
- G01N33/94B4 [N: Serotonin, i.e. 5-hydroxy-tryptamine] [N0104]
- G01N33/94B6 [N: GABA, i.e. gamma-amino-butyrate] [N0104]
- G01N33/94B8 [N: (Nor)adrenaline] [N0104]
- G01N33/94B10 [N: Acetylcholine] [N0104]
- G01N33/94D [N: Antibacterials] [N9605]
- G01N33/94F [N: Cardioregulators, e.g. antihypotensives, antiarrhythmics] [N9605]
- G01N33/94H [N: CNS-stimulants, e.g. cocaine, amphetamines] [N9605]
- G01N33/94J [N: Antidepressants] [N9605]
- G01N33/94L [N: Anticonvulsants, e.g. phenobarbitol, phenytoin] [N9605]
- G01N33/94N [N: Sedatives, e.g. cannabinoids, barbiturates (**opiates** [G01N33/94P](#))] [N9605]
- G01N33/94P [N: Analgesics, e.g. opiates, aspirine] [N9605]
- G01N33/94R [N: Immunosuppressants] [N9605]
- G01N33/96 involving blood or serum control standard
- G01N33/98 involving alcohol, e.g. ethanol in breath

[N: **Note**

In groups [G01N35/00](#) to [G01N35/08E](#), the indexing codes of [S01N](#) are added]

G01N35/00

Automatic analysis not limited to methods or materials provided for in any single one of groups [G01N1/00](#) to [G01N33/00](#); Handling materials therefor

- G01N35/00B . [N: provided with a sample supporting tape, e.g. with absorbent zones]
- G01N35/00C . [N: provided with flat sample substrates, e.g. slides ([G01N35/02P](#) takes precedence)]
- G01N35/00C2 . . [N: whereby the sample substrate is of the bio-disk type, i.e. having the format of an optical disk] [N0305]
- G01N35/00G . [N: Control arrangements for automatic analysers] [N0609]
- G01N35/00G1 . . [N: Quality control, including calibration or testing of components of the analyser] [N0609] [C0802]
- G01N35/00G1C . . . [N: Reinspection of samples] [N0609] [C0801]
- G01N35/00G1D . . . [N: Quality control] [N0801]
- G01N35/00G1D1 [N: of instruments] [N0801]
- G01N35/00G1D3 [N: of consumables] [N0801]
- G01N35/00G1E . . . [N: Calibration] [N0609] [C0801]
- G01N35/00G1K . . . [N: Automatic status testing, e.g. at start-up or periodic] [N0609] [C0802]
- G01N35/00G3 . . [N: Communications; Identification] [N0609]
- G01N35/00G3C . . . [N: Identification of carriers, materials or components in automatic analysers] [N0609] [C0801]
- G01N35/00G3L . . . [N: Communications between instruments or with remote terminals] [N0609] [C0801]
- G01N35/00G5 . . [N: Scheduling] [N0609]
- G01N35/00G5F . . . [N: introducing urgent samples with priority, e.g. Short Turn Around Time Samples [STATS]] [N0609] [C1006]
- G01N35/00M . [N: involving analyte bound to insoluble magnetic carrier, e.g. using magnetic separation ([magnetic particles used in immunoassays G01N33/543D4](#); [magnetic separation in general B03C](#))]
- G01N35/00R . [comprising robots or similar manipulators ([robots per se B25J](#))] [N9411]
- G01N35/02 . using a plurality of sample containers moved by a conveyer system past one or more treatment or analysis stations [N: ([G01N35/00M](#) and [G01N35/00R](#) take precedence)] [C9411]
- G01N35/02B . . [N: having a flexible chain, e.g. "cartridge belt", conveyer for reaction cells or cuvettes]
- G01N35/02C . . [N: having a carousel or turntable for reaction cells or cuvettes]
- G01N35/02E . . [N: having blocks or racks of reaction cells or cuvettes]
- G01N35/02P . . [N: having reaction cells in the form of micro-titration plates]
- G01N35/04 . . Details of the conveyer system [N: ([G01N35/02B](#) to [G01N35/02P](#) take precedence)]
- G01N35/08 . using a stream of discrete samples flowing along a tube system, e.g. flow injection analysis [C9411]
- G01N35/08F . . [N: Flow Injection Analysis]
- G01N35/10 . Devices for transferring samples [N: or any liquids] to, in, or from, the analysis apparatus, e.g. suction devices, injection devices [N: ([G01N35/00R](#) takes precedence)] [N9411] [C0308]

- G01N35/10A . . [N: Reagent dispensers] [N0308]
- G01N35/10B . . [N: Cleaning sample transfer devices (**cleaning laboratory glassware [B01L11/00D](#)**)] [N9507]
- G01N35/10C . . [N: Characterised by arrangements for controlling the aspiration or dispense of liquids] [N0308]
- G01N35/10C1 . . . [N: Control of the position or alignment of the transfer device] [N0308]
- G01N35/10C3 . . . [N: Control of the volume dispensed or introduced] [N0308]
- G01N35/10M . . [N: Multiple transfer devices] [N0308]
- G01N35/10M1 . . . [N: for transfer to or from containers having different spacing] [N0308]
- G01N35/10M3 . . . [N: with provision for selective pipetting of individual channels] [N0308]
- G01N35/10M5 . . . [N: arranged in a two-dimensional array] [N0308]
- G01N35/10P . . [N: with means for piercing stoppers or septums] [N0605]
- G01N35/10T . . [N: characterised by the means for relatively moving the transfer device and the containers in an horizontal plane (**[G01N35/10C1](#) takes precedence**)] [N0308]
- G01N35/10T1 . . . [N: with one horizontal degree of freedom] [N0308]
- G01N35/10T2 . . . [N: with two horizontal degrees of freedom] [N0308]
- G01N35/10V . . [N: for supplying the samples to flow-through analysers (for a specific analyser see relevant groups, e.g. under G01N15/00, G01N21/00, G01N27/00, G01N30/00, H01J49/00)] [N0605]
- G01N35/10V1 . . . [N: characterised by the valves (valves in general F16K)] [N0605]

- G01N37/00** **Details not covered by any other group of this subclass**

- G01N37/00A . . [N: Measurement methods not based on established scientific theories] [N1201]