

This heading is the general heading for operations involving separating solid and liquid particles (*including* dust, fog and germs) from air, steam and other gases. In particular, the heading includes filtering, impingement or inertial separating operations and associations of impingement and/or inertial separating and/or filtering operations with other operations not merely serving to facilitate such separating or filtering operations

The heading includes certain unit functions and means therefor occurring in the separating of solid and liquid particles from gases and servicing arrangements for such separating operations

The heading is divided into four parts. PART A relates to certain special subjects (*viz* the selection of filter aids, coagulants &c; filter media and filter elements and their assemblies), disclosures in which would be undesirably fragmented as a search field if classified according to the type of filtering or separating apparatus or method in which they occur. PART B relates to filter apparatus, and operation thereof. PART C relates to separation other than by filtering, in particular impingement and inertial separators and includes combinations of such separation with filtering or coalescing. PART D relates to subjects not elsewhere provided for, *eg* other combinations

The heading includes only those disclosures of filters and filtering elements specifically directed to the filtering of gases. Other disclosures of fluid filters and filtering elements are to be found in heading B1D, Filtering and settling and consideration should be given when searching for a subject applicable to treatment of fluids generally (*eg* a filter element construction) to extension of search to that heading

Note: Similar subjects in this heading and in heading B1D have been assigned corresponding classifying codes to facilitate such searches

Definitions

In this heading the following terms are used with the following meanings:

- . filter medium: porous material or porous arrangement of material used to filter solids from gases or to coalesce particles of liquid dispersed in gas
- . filter element: a section of filter medium plus parts to which the medium is demountably or permanently fixed, *including* other sections of medium, end caps, peripheral frames and edge strips, but *excluding* housings
- . shape of filter element: refers to the shape(s) of the inlet and/or outlet surface(s) of the element, *ie* the surface on which the particle content of gas being filtered tends to accumulate and the surface, from which filtered gas emerges. The shape is termed "hollow" if it is possible to produce two lines perpendicular to and out of the inlet or outlet surface, or out of each surface, which two lines intersect to include an angle of 90 to 180 degrees
- . filter elements or sections of filter medium in parallel and series: covers the relative arrangement in the fluid flow path of all distinguishable sections of filter medium, including wound and other multi-layer constructions of filter elements wherein the layers act in series but excluding edge-type filters in which layers act in parallel. Apart from the case of edge-type filters, elements or sections are in parallel if their respective inlet surfaces are in fluid communication with a common supply of fluid to be filtered, even if valves prevent simultaneous flow to each surface. Elements or sections are in series if the outlet surface of one is in fluid communication with the inlet surface of another
- . filter apparatus or filter: filter element(s) together with such parts as housings, integral or otherwise, cleaning arrangements, motors &c as characterise the particular type of apparatus. Ancillary devices such as pumps and valves are considered part of a filter apparatus when inside the apparatus but not devices performing similar or different unit operation such as comminutors, mixers and non-filtering separators whether inside the apparatus or not. The term does not extend to apparatus, of which the filter forms only a part
- . filter housing: the gas-constraining impervious vessel, whether open or closed which contains or is adapted to contain one or more filter element(s)
- . filter chamber: the space(s) within a filter housing where filter element(s) are located. Partitions may divide a single housing into a plurality of chambers

Explanation of heading subject matter and relationships with other headings

Part A

Filter aids, coagulants &c: Classified here are disclosures concerned with the selection *per se* or in combination with selection of gas under treatment of filter aids, chemicals and non-chemical means used to facilitate filtering or other separating. Also classified here is associated apparatus not peculiar to the type of filtering or separating. The heading is, however, residual for such materials *per se*, which are classified here only when they cannot be adequately classified in another heading. Further, disclosures concerned with selection of filter aids &c in combination with filtering/separating features (*other than* the mere selection of gas under treatment) are to be found under the appropriate subdivision for the filtering or separating apparatus or process improved

Filter media: Classified here are disclosures concerned with filter media *per se*, their manufacture and filter elements, filters or filtering methods characterised solely by choice of filter media. The media may have purely mechanical filtering action or exhibit in addition other fluid treatment action. *NB* The heading is residual for filter media subject matter and materials for use as filter media are classified here only when they cannot be classified adequately elsewhere in such headings as, B2E, Coated products; C1A, Inorganic substances; C1M, Glass and vitreous enamels; C3P, Addition polymers &c; D1K, Fabrics &c; D1P, Treating textiles &c; D1R, Non-woven fibrous materials &c

- Notes:
- (i) filter elements, filter apparatus &c characterised by features in addition to choice of filter media are *not* classified here, but under the subdivision appropriate to the type of filter element, filter apparatus &c
 - (ii) multiple layers of media may be classified here but are instead classified under “filter elements” or “multiple filter element assemblies” *below* if characterised in addition by other features *eg* shape

Filter elements: Classified here are disclosures concerned with the construction details of filter elements *per se* other than or in addition to choice of filter media

- Notes:
- (i) Edge filter elements are classified under “filter media” *above*
 - (ii) Multiple element assemblies not specifically mentioned in the classifying terms of this section are classified instead under “Multiple filter element assemblies” *below*
 - (iii) Elements are classified by shape of inlet and outlet surfaces of filter media

Multiple filter element assemblies: Classified here are disclosures concerned with assemblies of filter elements wherein each element comprises more than just filter media, and *including* methods of joining elements to build larger elements

Excluded from Part A are:

- . dispersing atmospheric fog and/or producing atmospheric precipitation by nucleation and agglomeration of water droplets—A1X, Seaweed, marking animals &c
- . manufacture and constructions of filters solely for use in filtering tobacco smoke—A2C, Cigarettes, tobacco &c
- . tows for use in making filters formed by partial or complete coalescence of bundles of filaments—D1R, Non-woven fibrous materials &c
- . filter papers—D1R, Non-woven fibrous materials, &c

Part B

Filter apparatus; operation thereof: Classified here are disclosures concerned with the overall organisation of filtering apparatus and with single features (unit function or sub-systems) thereof not covered by Part A *above*. Arrangements for cleaning filter elements are also dealt with here

The situation regarding combinations of filter apparatus/methods with other filtering or non-filtering apparatus is that:

- (i) combinations with apparatus/methods appropriate to other headings are classified here (*See* “classifying and searching note” 3 *below*)
- (ii) combinations of filter apparatus/methods of the same general type are classified here under the most appropriate term having regard to the perceived inventive step
- (iii) combinations of filtering with other separating according to this heading are not classified here, but in Part C *below*
- (iv) combinations of filter apparatus/methods of differing general type are only classified here when specific provision is made for the particular combination, otherwise they are classified in Part D *below*

Part B—cont

Excluded are:

- . respirators—A5T, Respiratory apparatus
- . washing and similarly treating air and gases with liquids *other than* “oil bath” type filters—B1R, Treating gases with liquids &c
- . confining, expelling and removing dust, fluff, and like waste products in industrial processes—F4X, Gas distribution, liquid-heating vessels &c

It should be noted that there is some affinity with heading B1L, Separating and drying gases regarding filter type absorbent beds

- Notes:
- (i) The initial classification in this Part is according to the kinds and types of filter apparatus. Accordingly, when searching for a single feature (or unit function &c) of possibly general applicability, consideration should be given to extending the search beyond the term(s) for the particular type of filter apparatus with which it is disclosed to appropriate terms in respect of other kinds or types of filter apparatus
 - (ii) When searching for apparatus characterised by single features of general use, eg valves, heaters, seals &c, which *per se* are subject matter for other headings, consideration should be given as to whether search in the other heading(s) is appropriate instead of or in addition to search in this heading

Part C

Separation by other than filtering: Classified here are disclosures concerned with the overall organisation of such separating apparatus (in particular impingement and inertial apparatus) and with single features (unit functions or sub-systems) thereof not covered by Part A *above*

Combinations of non-filtering separation with each other and/or with filters and/or coalescers and/or with separation or other liquid treatment outside the scope of this heading are also classified here

Excluded are:

- . electrostatic and magnetic separation—B2J, Electrostatic and magnetic separation &c
- . centrifugal and cyclone separators with change of direction of more than 360°—B2P, Centrifuges
- . steam traps and like apparatus for releasing liquid from gas or vapour systems—F2V, Fluid pressure control valves &c

Part D

Other combinations: Classified here are combinations of different kinds of filter *not elsewhere provided for, including* such combinations which also include matter outside the scope of this heading. Combinations including separation other than filters are classified in Part C *above*

Other subject matter: Classified here are disclosures which it is considered are correctly classified in this heading but which are not covered by any other specific term

The exclusion references in this heading are not exhaustive. Reference should be made to the appropriate general heading/s for processes, materials, elements or devices which may be more widely applicable than can appropriately be classified in this heading

Relationship with the Universal Indexing Schedules (heading U1S)

In addition to recording the nature of broader processes or apparatus with or in which inventions classified here may be used, U1S is used, subject to its indexing rules, to index materials operated on and useful products obtained, except that where it is clearly intended to produce only a single useful product from a mixture of starting materials the latter are not indexed. U1S is also used to record the nature of operations or apparatus with which subject-matter classified here is associated

Operative dates for Key entries

The operative date of the terms in this heading are:

1. For terms annotated by a marginal code, that of the Edition corresponding to that code
2. For all other terms, that of Edition I

Classifying and searching notes

1. In general classification terms are designed to cover both apparatus and method aspects, so specifically “method” terms are residual
2. Inventions defined in terms of combination of matter within B1T with outside matter appropriate to other headings are classified here without taking account of the outside matter, except when classification terms make specific provision for such combination, *eg* combinations of filters with magnetic separators or filters for specific purposes such as vacuum cleaner filters
3. Coalescing media and elements of filter-like construction are classified as filter media and elements
4. Terms having codes marked with the symbol † are of modified scope compared with the corresponding Edition I terms with the same codes

Guide to the Classifying Schedule

Main subjects

Part A: Special Subjects

- . selection of filter aids and chemical or non-chemical means to facilitate filtering or separating (TAAA-TACA)
- . filter media (TBAA-TCFA)
- . filter elements (TDAA-TDXB)
- . filter element assemblies (TEAA-TEXB)

Part B: Filter apparatus; operation thereof

- . large scale filter beds (TFAA-TFXA)
- . other moving filters (TMAC-TMQA)
- . other filters (TNAA-TNUD)

Part C: Separation other than by filtering

- . single separators (TPAA-TPJX, TPQA)
- . multiple separators; combinations with filtering or certain other devices (TPLA-TPPE)

Part D: Other subjects

- . other combinations of filters (TQAX)
- . other subject matter (TXAA)

Classifying SchedulePART A: Special Subjects

- (i) Selection of filter aids, coagulants &c, including selection thereof *per se* or in combination with selection of gas under treatment; *also* associated apparatus not peculiar to the type of filter
- . NB for related subject matter—*See* terms TMGH, TNFA *below*

TAAA
TABA
TACA

- . filter aids
- . coagulants, flocculants, precipitants and other chemicals, used to facilitate filtering or separating
- . non-chemical means, used to facilitate filtering or separating, *eg* sound waves used to coagulate particles
- . . combinations of coalescing using filter media with separating—*See* terms TPLA-TPNB *below*
- . . separation by sound waves *per se*—*See* term TXAA *below*

Classifying Schedule—*cont*Part A:—*cont*

(ii) Filter media, (*including* manufacture thereof, filter elements, filters or filtering methods characterised solely thereby)—

. the media having purely mechanical filtering action

. *Note*: Multiple layers of media may be classified here or under terms TDAA-TEXA *below* depending on the characterising feature(s)

TBAA . . brush-like construction, *including* axial flow bundles and pile fabrics
 . . edge filters—

. . . perforated sheets and similar moulded structures—*See* term TBEB *below*

. . . gratings comprising bars; wedge-wire, weldmesh, woven wire—*See* term TBEC *below*

TBCA . . . stacked or wound impervious sheet or ribbon

TBCB . . . stacked or wound pervious sheet or ribbon, *including* toilet rolls

TBCC . . . stacked or wound impervious non-sheet material, *eg* wire springs

TBCD . . . stacked or wound pervious non-sheet material, *eg* reels of string

TBCX . . . other edge filter construction

. . foam structures—

TBDA . . . ceramic

TBDX . . . other

TBEB . . perforated sheets and similar moulded structures

TBEC . . gratings comprising bars; wedge-wire, weldmesh, woven wire

TBFA . . loose media, *including* granules and/or fibres

TBGA . . self-supporting, three-dimensional structures, *not otherwise provided for*

. . sheet filter media, *not otherwise provided for*—

TBHA . . . felt, paper and similar structures

TBHX . . . other sheet media

TBXA . . multiple media, *not provided for* by a single one of terms TBAA to TBHX *above*

. the media having *other than* purely mechanical filtering action, the media being characterised by—

. *Note*: Multiple stage separating wherein different layers perform mechanical and non-mechanical separation are *not* classified here but in Part B *below*

TCAA . . absorption or adsorption action

TCBA . . adhesive action

. . . oil-bath filters—*See* term TNWA *below*

TCCA . . electrostatic action, *other than* on molecular scale involving zeta potential

TCDA . . magnetic action

TCEA . . other separating action, *including* ion exchange and zeta potential

TCFA . . non-separating chemical action, *including* bactericide or fungicide

(iii) Filter elements characterised by constructional details *other than* or *additional to* choice of filter media—

. *Note*: Elements are classified by shape of inlet and outlet surfaces of filter media when in use

. edge filter elements—*See* terms TBCA to TBCX *above*

. filter belts—*See* term TMBA *below*

. multiple element assemblies *not specifically provided for* in this section—*See* terms TEAA to TEXA *below*

TDAA . . non-hollow, non-extended, *including* flat

TDBA . . flat hollow bags or plates, *other than* discs or sectors thereof

TDCA . . flat hollow discs or sectors of discs

TDEA . . bags for vacuum cleaners, *including* self-sealing closure valves therein

TDFA . . other bags or baskets, *not covered by* terms TDBA or TDEA *above* and *not extended*

TDGA . . extended by parallel pleats or grooves, arranged for axial flow

TDHA . . extended to resemble a row of flat bags

TDJA . . extended by radial pleats or grooves, arranged for axial flow

TDKA . . extended by concentric pleats or grooves, arranged for axial flow

TDLA . . extended by spiral pleats or grooves, arranged for axial flow

TDMA . . extended by dimples and arranged for axial flow, or presenting a chess-board array of inlet/outlet cavities

TDNA . . re-entrant shapes not covered by terms TDGA to TDMA *above*

TDPA . . tubular with straight axes and no pleats or dimples

TDQA . . tubular with axial pleats only

TDRA . . tubular with concentric non-pleated and axially pleated filtering layers

TDTA . . other tubular shapes, *eg* non-straight or helically pleated tubes

TDXB . . other shapes *including* parallel hollow tubes or fibres acting in parallel

(iv) Multiple filter element assemblies, wherein each element comprises more than just filter media, *including* methods of joining elements to build larger elements, the assemblies comprising—

. parallel hollow tubes or fibres acting in parallel—*See* term TDXB *above*

TEAA . . stacked circular discs acting in parallel

TEBA . . stacked rectangular plates or sheets acting in parallel

. parallel hollow tubes or fibres acting in parallel

TEXA . . other arrangements

Classifying Schedule—*cont*PART B: Filter apparatus; operation thereof(i) Large scale filter beds

- TFAA . combined with other separators for acting on the gas being filtered, *eg* absorption beds or layers, outside the scope of this heading
. combined with inertial or impingement separators &c—*See* terms TPLA, TPMA *below*
. single features
. . choice of filter media—*See* Part A (ii) *above*
- TFBA . . arrangements for cleaning of filter media and removing solid impurities from bed housings (*other than* nozzles and conduits for cleaning fluid)
- TFBB . . supports for filter beds, *including* nozzles and conduits for filtrand, filtrate or cleaning fluids
- TFBX . . other single features, *eg* housings, heaters, signals
. overall organisation of single beds—
- TFCA . . moving beds, *including* beds intermittently recirculated for cleaning *but not* those merely agitated by reverse flow
. . non-moving beds, for filtering by—
- TFDA . . . upward flow
- TFDX . . . other flow
- TFEA . overall organisation of multiple beds
- TFXA . methods of operation of filter bed apparatus *not otherwise provided for*

(ii) Other moving filters including moving belts, rotary drums &c—

- . filter elements stationary in use but capable of limited movement for cleaning, bypassing &c—*See* term TNCC &c *below*
. filter beds supported by drums or belts—*See* term TFCA *above*
- TMAC . combined with non-filtering centrifugal separation
- TMAX . combined with other separation treatments, *not facilitating filtration*
. . moving filters combined with inertial or impingement separators &c—*See* terms TPLA, TPMA *below*
. single features—
. . constructions of filter drums, discs or plates—*See* Part A (iii) *above*
- TMBA . . belt constructions, *other than* mere choice of filter media or edge guiding means
- † TMBB . . belt guiding, mounting, supporting lubricating or driving *including* brakes and controls
- † TMBD . . mounting, guiding, supporting, lubricating or driving (*including* brakes and controls) of filter drums, discs or plates
. . removal and handling of separated solids (*other than* solely removal by centrifugal force) using—
- † . . scrapers or brushes
- † TMFX . . . other means, *including* nozzles
- TMGC . . heaters and coolers
- TMGD . . housing constructions and mounting *including* doors *and* latches therefor
- TMGE . . indicators and signals
- † TMGH . . use of filter aid, or other additive, *including* recycling of filtrate to use filter cake as filter aid
. . . characterised by mere choice of aid or other additive—*See* terms TAAA and TABA *above*
- TMGX . . other single features
. overall organisation—
. . rotary filters without belts, with—
. . . hollow filter discs or plates
- TMJA . . . non-hollow filter discs
- TMJB . . . single filter drums with inward filtration
- TMJC . . . single filter drums with outward filtration
- TMJD . . . multiple filter drums
- TMJE . . . other filter means
- TMJX . . moving belt filters, the belt being—
. . . endless
. . . non-endless
- TMLC . . . endless
- TMLD . . . non-endless
- TMQA . methods of operation *not otherwise provided for*

Classifying Schedule—*cont*Part B—*cont*

(iii) Other filters, *including* coalescers without distinct separating stages—
 . combined with other separators, namely—

- TNAI . . . inertial or impingement separators—*See* terms TPLA, TPMA *below*
- TNAJ . . . absorption, adsorption, ion-exchange apparatus or the like
- TNAB . . . *NB* for related subject matter—*See* terms TCAA, TCEA *above* and TPPB *below*
- TNAC . . . cyclones and other non-filtering centrifuges, *including* filters with tangential inlets
- † j TNAG . . . *NB* for related subject matter—*See* term TPPA *below*
- TNAD . . . distilling, evaporating, condensing or drying apparatus
- . . . electrostatic separators
- . . . *NB* for related subject matter—*See* terms TCCA *above* and TPPC *below*
- . . . gas-washing means—
- . . . oil-bath filters—*See* term TNWA *below*
- TNAE . . . other, *eg* scrubbers, cooling towers, humidifiers
- . . . *NB* for related subject matter—*See* term TPPD *below*
- TNAF . . . magnetic separators
- . . . *NB* for related subject matter—*See* terms TCDG *above* and TPPE *below*
- . . . varying temperature of I.C. engine filter intake air—*See* term TNRG *below*
- TNBA . . . combined with certain other fluid treatments, *not facilitating filtration*—
- . . . chemical or biological fluid treatments
- . . . *NB* for related subject matter—*See* term TPPB *below*
- TNBB . . . comminutors, macerators &c for reducing particle sizes
- TNBC . . . heating or cooling means
- . . . *NB* for related subject matter—*See* terms TNAG *above* and TNCM *below*
- . . . varying temperature of I.C. engine filter intake air—*See* term TNRG *below*
- TNBD . . . irradiation treatment, *including* ultra-violet
- . . . single features—
- . . . cleaning of filter elements—
- . . . ex-situ—*See* term TXAA *below*
- . . . in-situ by—
- beating, shaking, inverting, tilting or deforming, by—
- direct fluid action—*See* terms TNCE to TNCL *below*
- TNCE other means
- brushing or scraping, of—
- TNCC edge filters
- TNCD other filter elements
- centrifugal force—*See* term TMJC *above*
- fluid flow, *including* shaking by direct fluid action, wherein—
- filtrand flow across filtering surface removes debris—
- continuously—*See* term TNPX *below*
- intermittently
- TNCF fixed nozzles direct fluid jets at or away from fixed filter elements
- relatively moving nozzles deliver or remove fluid or debris, and—
- † TNCG nozzles rotate unidirectionally to align with successive filter elements
- TNCH nozzles rotate unidirectionally relative to filtering surfaces
- TNCJ nozzles describe other movements relative to filter elements *including* helical movements
- other reverse flow cleaning—
- in duplex &c filters—*See* term TNHA *below*
- combined with opening of filtering gaps—*See* term TNCN *below*
- TNCK other
- TNCL other fluid cleaning, *including* combinations of methods defined by terms TNCE to TNCK *above*
- heating, melting, burning, use of solvents or other chemical action—
- in I.C. engine exhaust filters—*See* term TNRH *below*
- in other filters
- TNCM *NB* for related subject matter—*See* term TNBC *above*
- TNCN combined fluid flow and opening of filtering gaps
- TNCX other cleaning means, *including* combinations of methods defined by terms TNCB to TNCN *above*
not provided for by term TNCL *above*
- . . . arrangements for removing separated matter from filter housings—
- . . . combined with arrangements for cleaning filter elements—*See* terms TNCB to TNCX *above*
- TNDA . . . removable dust drawers or sumps
- TNDB . . . scrapers *other than* screw pumps
- TNDC . . . valves or pumps, *including* screw pumps
- TNDX . . . other means
- . . . control of fluid flow, *other than* for cleaning—
- TNEA . . . by-passing filtrand, *including* associated signals
- . . . when changing filter elements or filters—*See* term TNED *below*
- TNEC . . . maintaining unidirectional flow through filters in circuits subject to flow reversals
- TNED . . . preventing fluid leakage, permitting or preventing by-passing (i) during changing of filter elements
 or filters or (ii) if filter elements are omitted; also *including* indicating if filter elements or filters
 are omitted

Classifying Schedule—*cont*Part B—*cont*

- TNEE . . . varying distribution of fluid between elements or parts of an element
 in duplex &c filters—*See* terms TNHA to TNH_X *below*
- TNEF . . . varying fluid flow, *including* stopping flow, in response to element bursting, clogging or other accumulation of matter
 **NB** for related subject matter—*See* term TPBF *below*
- TNFA . . . filter aids, coagulants &c, apparatus and methods for adding, using or recovering, *including* recycling of filtrate to use filter cake as filter aid
 **NB** for related subject matter—*See* terms TAAA, TABA *above*
- TNFB . . . housing constructions and mounting, *not otherwise provided for*
- TNFC . . . indicators and signals
 . . . associated directly with by-passing or changing filters or filter elements—*See* terms TNEA and TNED *above*
 . . . mounting of filter elements and associated seals—
 . . . combined with arrangements for removing filter elements—*See* terms TNQA to TNQX *below*
 . . . to facilitate shaking—*See* term TNCB *above*
- TNFD . . . securing mouths of hollow elements to tube plate apertures, spigots or housing mouths
- TNFE . . . other mounting
- TNFF . . . marking parts, *eg* by colour codes
- TNFG . . . preventing or extinguishing fires, preventing electrostatic charging
- TNFH . . . sampling fluids or filter media, testing filters
 . . . filters used in gas analysers and samplers—*See* term TNRJ *below*
- TNFJ . . . tools for manipulating filters, methods of modifying filter
 . . . exchanging dirty elements for clean—*See* terms TNQA to TNQX *below*
- TNFX . . . other single features
 . . . heaters or coolers—*See* term TNBC *above*
 . . . overall organisation, characterised by construction—
 . . . duplex, triplex &c filters—
 . . . with reverse flow cleaning
- TNHA . . . with reverse flow cleaning
- TNHX . . . other
- TNJA . . . filter elements mounted directly in pipes, pumps or valves, without particular provision for cleaning or exchange of elements
- TNMA . . . integral constructions of filter elements and enclosing housings
- TNNA . . . modular filters, built to desired size by adding units
- TNPN . . . cross-flow filters, wherein continuous filtrand flow across the filtering surface(s) removes debris or prevents its deposition
 . . . filters characterised by arrangements for inserting and removing filter elements, *other than* mere provision of removable covers—
 . . . for radioactive and other toxic materials—*See* term TNRM *below*
- † TNQA . . . with single filter elements integral with or mounted on removable plugs or covers to facilitate removal
- TNQB . . . wherein filtration is maintained while one element replaces another in a single duct or housing
- TNQC . . . other
- TNQA . . . oil-bath filters
 . . . overall organisation, characterised by application; filters for—
 . . . **NB** terms TNHA to TNWA *above* take priority
- TNRB . . . compressed air, gas and steam lines
- TNRG . . . internal combustion engine air intake, crank-case breather or engine-cooling air
- TNRH . . . internal combustion engine exhaust gas or other smoke
 . . . **NB** for related subject matter—*See* terms TNRU, TNRW *below*
- TNRJ . . . laboratory, medical, surgical and dental applications
 . . . anaesthetics or breathing masks—*See* term TNRP *below*
- TNRM . . . radioactive and other toxic or explosive materials
- TNRP . . . respirators, anaesthetics and other personal breathing apparatus
- TNRT . . . vacuum cleaners, *including* mobile suction drain cleaners but *not* fixed systems
- TNRU . . . ventilation and air conditioning, *other than* waste removal but *including* cooker hoods
- TNRW . . . waste removal from working environments, *including* fixed suction cleaning systems and pneumatic conveyors generally but *not* mobile vacuum cleaners
- TNTA . . . methods of operation *not otherwise provided for*
 . . . construction *not otherwise provided for*—
 . . . **NB** term TNTA *above* takes priority
- TNUA . . . single element filters with single housings
 . . . multiple element filters with single housings—
 . . . elements in parallel only
- TNUB . . . elements in series or series and parallel
- TNUC . . . multiple housing filters
- TNUD . . . duplex &c filters—*See* terms TNHA, TNH_X *above*

PART C: Separation by other than filtering, including combination of such separation with filtering or coalescing—

- . combinations with other separators—*See* terms TPLA to TPNA *below*
- . separation by sound waves *per se*—*See* term TXAA *below*
- . single features—
- . . use of chemical and other means to assist separation by modifying particle characteristics—*See* terms TABA, TACA *above*

- TPAA . . construction, mounting and spacing of baffles or tube bundles
- TPAB . . construction, mounting and spacing of absorbing or impingement elements, *other than* baffles or tube bundles
- TPAC . . construction and mounting of separator vessels
 - . . . *NB* terms TPAD, TPAE *below* take priority
- TPAD . . feeding of gas to be separated
 - . . . tangential feeding to assist separation by centrifugal force—*See* term TPPA *below*
- TPAE . . heating and cooling
- TPAF . . auxiliary fluid jets used to assist separation or removal of separated matter
- TPBF . . removal of separated gas from separators
 - . . . removal of separated liquid(s) and/or solid(s) from separators, using—
 - moving scrapers, or brushes *not combined with* suction nozzles
 - suction nozzles, with or without associated scrapers or brushes, valves or pumps
 - valves or pumps
 - associated with suction nozzles—*See* term TPDE *above*
- TPDA . . . moving scrapers, or brushes *not combined with* suction nozzles
- TPDE . . . suction nozzles, with or without associated scrapers or brushes, valves or pumps
- TPDF . . . valves or pumps
 - associated with suction nozzles—*See* term TPDE *above*
- TPDG . . . removable sumps or dust drawers
- TPDX . . . other means, *including* combinations of means defined by terms TPDA to TPDG *above*
- TPEB . . arrangements for removal of separated matter *not covered by* terms TPBF to TPDX *above*, *eg* cleaning solids from baffles or impingement elements
- TPEC . . signals and indicators
- TPEX . . other single features
 - . overall organisation—
 - . . single gas separators, for removing solids or liquids from gases, without filters, coalescers or other separators—
 - . . . simple, expansion chambers
 - . . . impingement separators, wherein particles are captured by rough or sticky surfaces
 - . . . inertial separators, wherein particles are concentrated in a fraction of the gas stream which is separately treated or discharged
 - inertial separation in filters—*See* term TNPX *above*
 - baffle separators *other than above*, baffles being—
 - bent, curved, corrugated or staggered to define winding paths
 - parallel with staggered perforations defining winding paths
 - other
 - . . . other separators
 - . . . gas separators as covered by terms TPFB to TPJX *above* combined with filters and/or coalescers, for separating—
 - . . . solid particles from gases
 - . . . liquid or solid and liquid particles from gases—
 - small scale devices with minimal settling action—*See* term TNRB *above*
 - other
- TPMA . . . multiple arrangements of gas separators, with or without filters and/or coalescers
- TPNB . . gas separators covered by terms TPFB to TPNB *above* combined with certain other devices, namely—
- TPPA . . centrifugal separators, *other than* filters, but *including* cyclones and tangential delivery of gas to create vortices in separators
- TPPB . . chemical or biochemical plant, absorption and adsorption plant
- TPPC . . electrostatic separators
- TPPD . . gas washers, *including* scrubbers, cooling towers, humidifiers
- TPPE . . magnetic separators
- TPQA . . methods of operation of separating apparatus, *not otherwise provided for*

PART D: Other Subjects

- TQAX Other combinations of different kinds of filter *not otherwise provided for*, *including* such combinations which also include matter outside the scope of this heading
- TXAA Other subject matter not covered by any of above terms