IPC/C 413/98 Rev.1
ORIGINAL: English/French
DATE: May 23, 2000

WORLD INTELLECTUAL PROPERTY ORGANIZATION
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GENEVA/GENÈVE

COMMITTEE OF EXPERTS OF THE IPC UNION
COMITÉ D' EXPERTS DE L' UNION DE L' IPC

IPC REVISION PROJECT FILE/DOSSIER DE PROJET DE RÉVISION DE LA CIB

PROPOSAL BY: **GB** **PROPOSITION DE :**	**REVISION OF IPC AREA:** **B 01 D** **RÉVISION DU DOMAINE DE LA CIB :**
KIND OF REVISION: **Creation of subgroups** **TYPE DE RÉVISION :** **Création de sous-groupes**	

ANNEX/ ANNEXE	CONTENT/CONTENU	SEE/VOIR C 413/98	ORIGIN/ ORIGINE	DATE
1	Revision request with detailed proposal / Demande de révision avec proposition détaillée			12.98
2	Comments / Observations		EP	05.99
3	Counterproposal / Contre-proposition		EP	05.99
4	Comments / Observations		SE	05.99
5	Comments / Observations		CA	05.99
6	Comments / Observations		RO	05.99
7	Comments / Observations		JP	07.99
8	Comments / Observations		DE	07.99
9	Rapporteur report / Rapport du rapporteur		GB	09.99
10	Rapporteur proposal / Proposition du rapporteur		GB	11.99
11	Decision of the Working Group / Décision du groupe de travail	Rev.1	WG	12.99
12	Proposal / Proposition	Rev.1	EP	03.00
13	Comments / Observations	Rev.1	EP	03.00
14	Comments / Observations	Rev.1	GB	03.00
15	Comments / Observations	Rev.1	DE	03.00

RAPPORTEUR : GB **TECHNICAL FIELD/DOMAINE TECHNIQUE : C**

ANNEX/ ANNEXE	CONTENT/CONTENU		SEE/VOIR C 413/98	ORIGIN/ ORIGINE	DATE
16	Comments	/ Observations	Rev.1	RO	03.00
17	Comments	/ Observations	Rev.1	CA	05.00
18	Comments	/ Observations	Rev.1	CA	05.00
19	Rapporteur report	/ Rapport du rapporteur	Rev.1	GB	05.00
20	Rapporteur proposal	/ Proposition du rapporteur	Rev.1	GB	05.00

ANNEX 11

EXCERPT FROM DOCUMENT IPC/WG/2/3/
EXTRAIT DU DOCUMENT IPC/WG/2/3

Project C 413 (chemical, e-forum) – The EPO was invited to submit a counter-proposal in respect of subject matter covered by groups B 01 D 15/10 to 15/22 in the Rapporteur' s proposal (see Annex10 to the project file).

Comments were invited on:

– whether the Rapporteur' s proposal or the proposal to be submitted should be followed in respect of those groups;

– whether "sorbent chromatography materials" should be classified under group B 01 D 15/00, B 01 J 20/00, G 01 N 30/48 or another group of the IPC, bearing in mind that it was decided to collect all those materials in one place of the classification;

– whether the proposed group G 01 N 30/89 (see the said Annex 10) should be created or whether its subject matter should be provided in another area of the IPC;

– whether "preparative chromatographic methods for specific materials" should be classified in main group B 01 D 15/00 as proposed in Annex 1 to the project file, or whether the solution proposed by the Rapporteur in the Note after group B 01 D 15/08 should be followed.

Projet C 413 (chimie, forum électronique) – L' OEB aété invité à présenter une contre-proposition concernant la matière couverte par les groupes B 01 D 15/10 à 15/22 dans la proposition du rapporteur (voir l' annexe10 du dossier de projet).

Des observations ont été demandées

– sur le point de déterminer s' ilfaut suivre la proposition du rapporteur ou celle qui doit être présentée en ce qui concerne ces groupes;

– sur le point de déterminer si les "matériaux absorbants ou adsorbants pour la chromatographie" doivent être classés dans le groupe B 01 D 15/00, dans le groupe B 01 J 20/00, dans le groupe G 01 N 30/48 ou dans un autre groupe de la CIB, étant donné qu' il aété décidé de les rassembler tous en un seul endroit de la classification;

– sur le point de savoir s' ilfaut créer, ainsi qu' ilest proposé, le groupe G 01 N 30/89 (voir la même annexe 10) ou si le classement de la matière correspondante doit être prévu ailleurs dans la CIB;

– sur le point de savoir si les "méthodes de chromatographie préparative applicables à des matériaux particuliers" doivent être classées dans le groupe principal B 01 D 15/00 comme il est proposé dans l' annexe1 du dossier de projet, ou s' ilconvient d' adopter la solutionproposée par le rapporteur dans la note destinée à figurer après le groupe B 01 D 15/08.

EUROPEAN PATENT OFFICE
Principal Directorate Documentation

Counterproposal
17 January 2000

Project: C413 **Subclass: B01D/G01N**

Ref.: Document IPC/WG/2/3, par. 16, p.10

1. The EPO was invited to submit a counter-proposal in respect of subject matter covered by groups B01D15/10 to 15/22 in the Rapporteur's proposal (see annex 10 to the project file).
The reason for proposing this counterproposal is that the construction of liquid-, affinity- and gel chromatographs is largely similar, which might make R's proposed apparatus subdivision unpractical. Therefor we suggest to replace groups B01D15/10 to B01D15/22 of the said annex 10 by the following sequence:

N 15/09 **..** characterised by constructional features

N 15/11 **...** relating to the preparation of the feed

N 15/13 **...** relating to the injection step

N 15/15 **...** relating to the conditioning of the fluid carrier

N 15/153 **....** Temperature conditioning

N 15/155 **....** Fluid pressure or speed conditioning

N 15/157 **....** Fluid composition conditioning, e.g. gradient

N 15/17 **...** relating to flow patterns

N 15/173 **....** using counter-current, e.g. fluidised beds

N 15/175 **....** with recycling of the fraction to be distributed, e.g. simulated moving beds

N 15/177 **....** using two ore more columns

N 15/179 **....** The sorbent material moving as a whole, e.g. continuous annular chromatography

N 15/19 **...** relating to the conditioning of the sorbent material

N 15/193 **....** Equilibration or regeneration

N 15/195 .... Packing or coating

N 15/21 ... relating to the construction of the column

N 15/23 ... relating to the treatment of the fractions to be distributed

N 15/233 .... Intermediate storage of effluents

N 15/235 .... Adding materials to the effluent

N 15/237 .... Fraction collectors

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2. Comments on the questions raised in the report of WG2 will follow later. Nevertheless, EP would like to use this opportunity already to suggest R. to slightly modify the wording for the new proposed note after B01D15/08 (see annex 10). EP would like to use the wording as proposed in annex 3, but incorporating all references as suggested by R (in the right order). B01 is a class for methods "in general" (see title of B01), so it seems to be more logic to state in the case of a specific preparation that classification is also made in the general place (and not the other way round). The reference to C02F should probably better be added as a reference out after the title of B01D15/00 with the wording of that group.

P. Daeleman

EUROPEAN PATENT OFFICE
Principal Directorate Documentation

Comments
7 March 2000

Project: C413 **Subclass(es): B01D/B01J/G01N**

Ref.: IPC/WG/2/3, par. 16, p.10
Annex 10 to the project file

I. Comments on the questions raised at WG2.

1.) New groups in B01D

EP support R's proposal (annex 10) as far as new proposed groups B01D15/24 to 15/70 are concerned, in combination with groups B01D15/09 to 15/237 of EP's counter proposal of January 2000. (In group 15/26 "of" should be "or".)

2) Sorbent chromatographic materials

* At WG2 it was agreed to collect all sorbent chromatographic materials in one place of the classification, candidates being: B01D15/00, B01J20/00 and G01N30/48.
Considering class B01, B01J20 would be the prime candidate as B01D15 relates to processes while B01J20 relates to materials.
In the actual situation however, in group B01J20/00 sorbent materials for chromatography are referred out to G01N30/48. So given the fact that existing G01N30/48 is thus already used for classification of stationary phases in analytical chromatographic methods and that stationary phases for preparative chromatographic methods are also suitable for analytical chromatography, it seems to be preferable to use G01N30/48 for creating further subgroups, rather than class B01. In this way search efficiency would be improved and double classification avoided as in many documents dealing with stationary phases, no mention is made whether the purpose is preparative or analytical chromatography.

*As separation for preparation or production by chromatography is referred out in the title of G01N30/00, users of the IPC should then have to be informed properly that sorbent phases for preparatory use would also be classified in this main group. This could be done by adding a second note after the title of G01N30/00:

Note : *Group 30/48 is used for the classification of sorbent materials for chromatography, irrespectively whether they are used for analytical or preparative purposes*

Alternative wording:

Note : *Group 30/48 is used for the classification of sorbent materials for chromatography, in general*

3) Proposed group G01N30/89

We agree that inverse chromatography relates to G01N rather than to B01D. The original idea for this group originated from EP, but at second thoughts we do not support this entry anymore, because not so many documents are involved and inverse chromatography is only one in a series of many different chromatographic processes.

4) As B01D is a general subclass (see subclass title) - as a principle - preparative chromatographic methods for specific materials should not be classified in B01D15/00. We therefore support the note after B01D15/08 proposed in annex 10, taking into account our comments in point 2 of our counter-proposal document of January 2000.

II. Other points relating to R's proposal of annex 10 to the project file.

1) References in Sections A and C groups to B01D15/08: we agree.
As C12N15 also seems to be involved (see ECLA group C12N15/10A2B), the reference in C12N9/00 could be upgraded to the subclass level, as it is already suggested for C07B, C, K and C12H.

2) Reference in B01D15/00 to B01J might better read: --- *processes*, *sorbent materials in general*--- (As in existing G01N30/48). In our view there is no need for a repetition of references to G01N in group B01D15/08.

3) We agree with the change in the title for the guide heading before B01J39/00 (new reference for ion-exchange chromatgraphy).

Paul Daeleman

UK Patent Office **Date: 9 March 2000**

Comments on Project C413/98, Subclass B 01 D

With regard to the questions raised by WG2

1) See comments below regarding Annex 12

2) Regarding where to classify sorbent materials for chromatography. GB maintains that sorbents are ›apparatus:, but recognises that others do not agree. GB notes the reluctance of others to have sorbents classified in B01D, and is equally reluctant to have all chromatographic sorbents placed in G01N 30/48 when G01N 30/-- is specifically dedicated to *investigative or analytical* chromatography only, therefore providing no home for sorbents used in *preparative* chromatography. It seems logical, therefore, to transfer **all** chromatographic sorbents (whether analytical or preparative) to B01J 20/--, and insert appropriate references.

3) GB believes that G01N 30/89 should be created, and asserts that G01N is the proper place for such a group.

4) GB proposed Annex 1, and was largely motivated to undertake this project because of the lack of a suitable ›home: for preparative chromatographic methods devoted to blood products and other biological media, hence groups 15/16 to 15/30. As Rapporteur GB must acknowledge the resistance of others to the inclusion of such material specific marks, hence the extensive Note suggested for inclusion at B01D 15/08 in Annex 10. Whilst this Note is sufficient for dealing with some materials, GB regards this note as inadequate for providing a›home: for preparative chromatographic methods devoted to blood products and other biological media. GB would prefer the Note of Annex 10 to remain (but deleting the references to A61K 35/14, A61M 1/36, C07K 14/745 & 14/805) and that the groups 15/16 to 15/26 as per Annex 1 be re-instated. If others regard such groups as intolerable within B01D, then such groups must be created elsewhere in the IPC.

With regard to the EPO counter-proposal of 17 January 2000 (Annex 12) GB are broadly in favour, with the following suggestion:

N 15/09 . . characterised by operational features

GB makes this suggestion because the subsequent groups (15/11 *et seq*) mainly relate to processing conditions (temperature control *etc*) rather than constructional features. This further guarantees that documents directed to column construction *per se* are properly dealt with at B01D 15/21, which should become a two dot entry *after* 15/237 (renumbering required therefore). Regarding item 2 of the EPO:s comments, GB are content to amend the Note at B01D 15/08 (Annex 10) as proposed.

Jeremy Philpott
U.K. Patent Office

DEUTSCHES PATENT- UND MARKENAMT German Patent and Trademark Office	Class/Subcl.: **B01D**
	Date : 10.03.2000
DE - Comments — C413	

Re: Comments on IPC/WG2/3 Project C413

1. –B01D 15/10 to 15/22: Rapporteur´s proposal versus counter-proposal of EPO –
We prefer to follow the counter-proposal of the EPO from 17.01.2000 (groups 15/09 to 15/237).

2. – Classification of “sorbent chromatography materials” -
The working group decided at the last session, that all sorbent chromatography materials should be classified in one place of the classification. The best possibility to achieve this target is to classify these materials under B01J 20/00 - the place for solid sorbent materials in general. It is not possible to classify all “sorbent chromatography materials” in G01N 30/48 as proposed by the Rapporteur, because this group is restricted to sorbent materials for the analytical column chromatography. The “sorbent chromatography materials” should form a subdivided one-dot-entry under B01J 20/00 and cover the chromatography materials in gel- and liquid form as well. The title of B01J 20/00 has to be extended to “sorbent chromatography materials” with the deletion of the reference to G01N 30/48. G01N 30/48 has to be transferred to B01J 20/00.

3. – Correctness of group G01N 30/89 proposed by the Rapporteur –
It is not necessary to create this new group for inverse chromatography. This subject matter is covered by group G01N 30/58. But the inverse chromatography should be mentioned as an example in 30/58: - - - as a whole, e.g. inverse chromatography. But an additional group for the inverse chromatography in B01D 15/08 is necessary.

4. – “Preparative chromatographic methods for specific materials” –
The solution proposed by the Rapporteur in the note after group B01D 15/08 (Annex 10) should be followed.

H. P. Gerster

OFICIUL DE STAT PENTRU INVENTII SI MARCI

Date : March 2000

RO COMMENTS

Project : C 413

Class/Subclass : **B 01 D**

- *Comments were invited on :*
- *wether the Rapporteur=s proposal or the proposal to be submitted should be followed in respect of those groups;*
- *whether Asorbent chromatography materials@ should be classified under group B 01 D 15/00, B 01 J 20/00, G 01 N 30/48 or another group of IPC, bearing in mind that it was decided to collect all those materials in one place of the classification;*
- *whether A preparative chromatographic methods for specific materals@ should be classified in main group B 01 D 15/00 as proposed in Annex 1 to the project file, or whether the solution proposed by the Raporteur in the Note after group B 01 D 15/08 should be followed;*

- The proposal to create subgroups for classifying constructive details and processing conditions is welcome. The problem is that the main group isread : **B 01 D 15/00 Separating processes involving the treatment...** It seems to us that the proposed entries for constructional features are inadequately placed as subdivisions in this existing wording referring to chromatography as a separating process by selective adsorption. Perhaps the title of the main group or at least of the group 15/08 should be reworded to refer to apparatus therefor.

- We are of the opinion that all adsorbent or absorbent materials, preparative and analytical, have to be classified in B 01 J 20/00 with the proper references. This will avoid overlap problems or spreading of the information.
- We support the creation of the group G 01 N 30/89.

- We agree the solution proposed by the Rapporteur in the note to be introduced after the group 15/00.

Mariela Haulica

CA COMMENTS	
IPC Project: C413/98	Date: 3 Mar. 2000
Class \ Subclass: B01D	Page 1 of 2

The Rapporteur (Annex 9) correctly points out that **CA**=s comments refer to adsorption in general (B01D 15/00) and not the narrower concept of chromatography (B01D 15/08). Generally, we prefer broad general lines for ease of understanding and for possible application to other sections of B01D. We pointed out a similar broad line in B01D 53/00. This is still our preferred approach. This approach should carry over to the note appended to B01D 15/08 (Annex 10) where we would prefer that the references be broadened to include adsorption in general and be appended to B01D 15/00.

CA notes that in Annex 10, the Rapporteur has proposed 12 notes from specific places to a general place - a practice which is not our current standard. Moreover, the encouragement of cross-references for subject matter of general interest (presumably, not claimed per se) would increase the number of documents in this area greatly. In our own experience, we have seen the patent practice move away from the old British/Canadian legal concept of Apith and marrow@ to a more literal reading of claims. Thus, there is little justification for this type of cross-reference in our opinion. In addition, for administrative reasons, larger offices are forced to interpret claims narrowly in order to distribute applications among thousands of examiners. For all of the reasons stated, we would not like to see the proposed notes in the revision project.

B01D 15/00

CA suggests a change of wording in the note from Aliquid adsorbents B01D 11/00@ to Ausing liquid sorbents B01D 11/00@.

B01D 15/08

(see paragraph 1 of this annex)

B01D 15/10 to 15/70

CA would have great difficulty in classifying our national collection of documents into the proposed elaboration. The terminology in our recent documents does not correspond to the terms used in the elaboration with the possible exceptions of Agel chromatography@ and Aaffinity or ligand chromatography@. We suspect that many terms are peculiar to analytical chemistry rather than separation. Even the term Achromatography@ sometimes presents difficulties when applicants use the term less precisely than in scientific dictionaries. An accurate definition of the term Aselective adsorption@ would also be most welcome.

CA regrets that we can offer no direction to the Revision Group on the type of break down that would be useful.

B01D 15/10, B01D 15/16, B01D 15/24

The broad divisions in this elaboration do not appear to be mutually exclusive; indeed, many of the titles appear to be identical, e.g., 15/20 and 15/38 for affinity chromatography.

B01D 15/18

CA is still of the opinion that liquid chromatography belongs in B01D 11/04.

B01D 15/26

There appears to be an error in the wording of this subgroup.

B01D 15/50 to 15/58

There appears to be an overlap between this area and B01D 15/04. A reference or a definition of Aselective adsorption@ would make this line clearer. The line between this area and the rest ofion-exchange is discussed below.

B01J 39/00

The line between B01J and B01D in this area should be based on the concept of using the ion-exchangers for exchanging ions (B01J) vs using ion-exchangers as adsorbents (B01D). This line is interwoven with those which we will eventually define in B01D 15/00+. As a minor point, **CA** finds the term Aliquid ion-exchangers@ to be rather unusual.

G01N 30/48+

CA approves of this finer breakdown of the subject matter in G01N 30/48 provided that the numbers justify such a fine breakdown.

Gerry Guzzo

CA COMMENTS	
IPC Project: C413/98	Date: 12 April 2000
Class \ Subclass: B01D	Page 1 of 1

CA would like to offer additional comments on this project specifically with regard to Annexes 11 and 12.

CA prefers the breakdown in Annex 12 since it eliminates the repetitive titles, e.g., affinity chromatography in 15/20 and 15/38.

B01D 15/13

The wording of this group strikes us as peculiar to analytical chromatography.

B01D 15/173

CA regards the concept of fluidized beds to be more closely allied with group 15/179 (moving sorbents) rather than counter-current flow in 15/173.

After reconsidering the question of Asorbent chromatography materials@ **CA** would like to express a preference for collecting all such material in B01J 20/00. Judging from the size of our national collection in G01N 30/48, we estimate that few documents will have to be transferred as a result.

G01N 30/89

CA has no opinion on this particular group.

Regarding the question of Apreparative chromatographic methods for specific materials@, **CA** would like to maintain the position taken in our previous comments.

Gerry Guzzo

Project C413/98 **B01D**

Rapporteur Report (GB) 15 May 2000

The counter proposal of 13 October 1999 (GB; Annex 10) raised several questions when the Working Group last met (Annex 11). The following states have since responded: EP (Annexes 12 & 13), GB (Annex 14), DE (Annex 15), RO (Annex 16) and CA (Annexes 17 & 18).

Turning first to the responses to Annex 11:

1. *Whether the EP counter proposal (Annex 12) replacing the scheme suggested for B01D 15/10 to 15/22 (Annex 10) should be adopted, or Annex 10 left as it is.* Those favouring the EP counter proposal: EP, GB, DE & CA. The proposals of Annex 12 have therefore been merged into the text of Annex 10 (see following revised proposal).

2. *Where should sorbent materials be classified? The choices being B01D 15/00, B01J 20/00 or G01N 30/48.* EP favours G01N 30/48 (where the sorbents for *analytical* chromatography already reside) with an explanatory note that sorbents for *preparative* chromatography are also to be classified therein. GB, DE, RO & CA all favour the notion of putting all chromatographic sorbents in new marks in B01J 20/00, which will result in wholesale transfer from G01N 30/48 *et seq*. This is the option pursued in the following proposal.

3. *Should group G01N 30/89 (Annex 10) be created*? GB & RO agree. EP no longer supports the creation of this mark. DE believes that ›inverse chromatography‹ is already covered by G01N 30/58 (*moving sorbent*). Rapporteur cannot agree with DE, and wonders if the DE technical expert has an understanding of ›inverse chromatography‹ different to that of the Rapporteur. For the sake of clarity, Rapporteur understands inverse chromatography to be a technique in which the analyte is in the stationary phase (ie: intimately mixed with the sorbent) rather than present in the mobile phase. In inverse chromatography the analyte and sorbent are static (see eg: GB 2342870 & US 4869093). For this reason Rapporteur is keen to see this mark created because inverse chromatography is contrary to all other analytical chromatographic techniques.

4. *Are the proposed extensive notes under B01D 15/08 for "preparative chromatographic methods for specific materials" acceptable?* In favour are EP (with a few changes), GB (with reservations), DE (unequivocal). RO support the Rapporteur in introducing the note "after group 15/00"; it assumed that this is approval for the note after 15/08. Only CA are explicitly opposed for well-argued reasons (Annex 17), most principally that the notes will encourage double indexing (once at B01D 15/08, and once in the analyte specific heading), by saying

> "Preparative chromatographic methods for specific materials (including purifying or refining), *should also be classified* in the relevant subclasses for those materials…"

Rapporteur sympathises with the opposition expressed by CA on this issue (who, presumably, would prefer to the see the above text read "…*should only be classified* in…"), but given the dislike expressed for Annex 1 and the absence of any alternative suggestion it seems that the

majority opinion should be followed.

Other matters

5. RO suggestion to amend the title of B01D 15/00 to encompass apparatus (as well as process) is sensible and has been used in the following proposal. CA proposal to refer to Ausing liquid sorbents B01D 11/00" rather than A liquid adsorbents B01D 11/00" in the notes has also been incorporated.

6. Rapporteur agrees with CA view that the wording of B01D 15/13 is peculiar to analytical chromatography. Given that in analytical chromatography sample injection is covered by marks G01N 30/16 to 30/24, Rapporteur has offered a more general form of wording which will encompass the introduction of any feedstream to a chromatography apparatus, including preparative devices.

7. CA fear overlap between B01D 15/04 (*..with ion exchange materials as adsorbents*) and B01D 15/50 to B01D 15/58 (*ion exchange chromatography et al*). Provided other states believe that ion exchange materials can perform as adsorbents in liquid separations other than chromatography, then Rapporteur sees no problem of overlap, with non-chromatographic applications relating to ion exchange remaining in the higher term (B01D 15/04).

8. CA have stated that they believe that fluidised beds are best dealt with under B01D 15/179 rather than 15/173 at present. Rapporteur is reluctant to exercise an opinion when only two states (EP and CA) have offered two differing views.

9. Rapporteur is concerned that there will be no clear classification for *gas* chromatography used for *preparative* applications. Such technology would seem to fall outside both B01D 15/00 (*liquid* separations) and G01N 30/00 (*analytical* chromatography). Perhaps B01D 53/04 would be suitable (*separation of gases or vapours...with stationary adsorbents*). Examples of documents classified in B01D 15/08 which refer to preparative gas chromatography are: EP 0330095*, DE 4317139, JP 6180308, JP 62130355, GB 1413921* (= DD 100159), GB 1123044, US 5006315*, US 4730480, SU 1221596, SU 1205011, SU 1154617, SU 766613, SU 657831. Only those marked * also bear a B01D 53/-- classification, and none bear the classification B01D 53/04. Many of the chromatography documents in B01D 53/04 are double classiifed in G01N 30/-- (analytical, rather than preparative chromatography).

Jeremy Philpott
UK Patent Office

UK Patent Office **Date: 17 May 2000**

Rapporteur Report on Project C413/98, Subclass B 01 D

IPC REVISION PROPOSAL FOR B01D 15/08

Reason: Further to the Counter Proposal of 13 October 1999 (Annex 10), and in light of comments from EP (Annexes 12 & 13) and others, GB presents a revised rapporteur proposal.

N	New Note after A23C 9/14	Note When classifying in this group, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.
N	New Note after A61K 35/00	Note When classifying in this group, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.
N	New Note after A61M	Note (3) When classifying in this group, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.
C	Change title and note after title B01D 15/00	Separating apparatus and processes involving the treatment of liquids with solid adsorbents (using liquid sorbents B01D 11/00; ion exchange processes, sorbent material in general B01J, sorbents specific to chromatography B01J 20/36; waste water treatment by selective adsorption C02F 1/28; for investigating or analysing materials by chromatography G01N 30/00.)
N	New Note after B01D 15/08	. Selective adsorption e.g. chromatography. Preparative chromatographic methods for specific materials (including purifying or refining), should also be classified in the relevant subclasses for those materials, eg: dairy products A23C 9/148; blood and

products derived therefrom: A61K 35/14 & A61M 1/36; optically-active organic compounds C07B 57/00; acyclic hydrocarbons C07C 7/12 & 7/135; peptides C07K 1/16, eg: derived from blood C07K 14/745 & 14/805 *etc.*; hydrocarbon oils C10G 25/00; animal or vegetable fats and oils C11B 3/10; alcoholic beverages C12H 1/04; micro-organisms & enzymes C12N; sugar juices C13D 3/12)

N	B01D 15/09	. . characterised by constructional or operational features
N	B01D 15/11	. . . relating to the preparation of the feed
N	B01D 15/13	. . . relating to the introduction of the feed to the apparatus
N	B01D 15/15	. . . relating to the conditioning of the fluid carrier
N	B01D 15/153	. . . . temperature conditioning
N	B01D 15/155	. . . . fluid pressure or speed conditioning
N	B01D 15/157	. . . . fluid composition conditioning, e.g. gradient
N	B01D 15/17	. . . relating to flow patterns
N	B01D 15/173	. . . . using counter-current, e.g. fluidised beds
N	B01D 15/175	. . . . with recycling of the fraction to be distributed, e.g. simulated moving beds
N	B01D 15/177	. . . . using two or more columns
N	B01D 15/179	. . . . the sorbent material moving as a whole, e.g. continuous annular chromatography
N	B01D 15/19	. . . relating to the conditioning of the sorbent material
N	B01D 15/193	. . . . equilibration or regeneration
N	B01D 15/195	. . . . Packing or coating
N	B01D 15/21	. . . relating to the construction of the column
N	B01D 15/23	. . . relating to the treatment of the fractions to be distributed
N	B01D 15/233	. . . . intermediate storage of effluents
N	B01D 15/235	. . . . adding materials to the effluent
N	B01D 15/237	. . . . fraction collectors

N	B01D 15/24	. . characterised by the type of separation mechanism
N	B01D 15/26	. . . Adsorption or partition chromatography
N	B01D 15/28	. . . Bonded phase chromatography
N	B01D 15/30	. . . . normal phase
N	B01D 15/32	. . . . reversed phase
N	B01D 15/34	. . . . with hydrophobic interaction
N	B01D 15/36	. . . . involving the formation of complexes
N	B01D 15/38	. . . . Affinity or ligand chromatography
N	B01D 15/40	. . . . using chiral phases
N	B01D 15/42	. . . . using imprinted phases
N	B01D 15/44	. . . Size-exclusion chromatography; gel filtration; permeation
N	B01D 15/46	. . . . perfusive chromatography
N	B01D 15/48	. . . Micellar chromatography
N	B01D 15/50	. . . involving ionic interaction
N	B01D 15/52	. . . . ion exchange
N	B01D 15/54	. . . . ion exclusion
N	B01D 15/56	. . . . ion suppression
N	B01D 15/58	. . . . ion pair
N	B01D 15/60	. . . supercritical fluid used as mobile phase or eluent
N	B01D 15/62	. . . using (ultra) sound
N	B01D 15/64	. . characterised by the development mode
N	B01D 15/66	. . . displacement mode
N	B01D 15/68	. . . frontal mode
N	B01D 15/70	. . . elution mode

C Change title and note after title

B01J 20/00 …**thereof; sorbents for chromatography** (use of sorbent… …gas separation B01D 53/02, 53/14) [8]

N B01J 20/36 . sorbents of specific applicability in preparative, analytical or investigative chromatography

N B01J 20/38 . . porous adsorbents (ion exchange B01J 39/00 - B01J 41/00)

N B01J 20/40 . . . based on silica

N B01J 20/42 . . . based on alumina

N B01J 20/44 . . . polymers

N B01J 20/46 . . phases chemically bonded to a substrate (eg: to silica or polymers)

N B01J 20/48 . . . non-polar phases; reversed phases

N B01J 20/50 . . . polar phases

N B01J 20/52 . . . *via* a spacer

N B01J 20/54 . . chiral phases

N B01J 20/56 . . gel sorbents

N B01J 20/58 . . liquid sorbents

N B01J 20/60 . . characteristics by the structure

N B01J 20/62 . . . by the pore-size distribution

N B01J 20/64 . . . . multi-modal

N B01J 20/66 . . . . perfusive

N B01J 20/68 . . . . monolithic

C Change note after title
B01J 39/00 …separation by liquid ion-exchangers B01D, e.g. B01D 11/00; ion exchange chromatography B01D 15/52;…

N New Note after
C02F Notes
(2) When classifying in this group, classification is also made in group B01D 15/08 insofar as subject matter of general interest

relating to chromatography is concerned.

N	New Note after C07B	Notes (5) When classifying in this group, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.
N	New Note after C07C	Notes (7) When classifying in this group, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.
N	New Note after C07K	Notes (7) When classifying in this group, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.
N	New Note after C10G 25/00	Note When classifying in this group, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.
N	New Note after C11B 3/10	Note When classifying in this group, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.
N	New Note after C12H	Note (2) When classifying in this group, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.
N	New Note after C12N	Note When classifying in this group, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.
N	New Note after C13D 3/00	Note When classifying in this group, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.

C Change at
G01N 30/48 (*transferred to B01J 20/36*)

N G01N 30/89 . Inverse chromatography, ie: analyte in stationary phase.

Comments

Comparison with Annex 10 should make it clear where changes have been effected. Groups B01D 15/10 to 15/22 of Annex 10 have been deleted and replaced with the groups suggested by EP in Annex 12.

The title of B01D 15/00 has been amended slightly in line with a suggestion from RO & CA (Annexes 16 & 17 respectively). The notes after B01D 15/08 have been retained, with some slight modifications. EP had called for the wording to be more closely tied to that of Annex 3, but most other states seemed content with the wording as it is.

The wording at B01D 15/13 has been modified in line with comments from CA (Annex 18).

All comments have been united in their wish to see all chromatographic sorbents classified in one place, irrespective of their preparative or analytical nature. The majority favour B01J 20/00 as the new home, so this proposal has moved the marks proposed in Annex 3 from G01N 30/48 *et seq*. to B01J 20/36 *et seq*. Rapporteur cannot be certain that all former references to G01N 30/48 and B01J 20/00 have been identified and amended, and will make all such necessary corrections as soon as they are brought to our attention.

Jeremy Philpott
UK Patent Office

U.K. Patent Office

IPC/C 422/00
ORIGINAL: English/French
DATE: May 30, 2000

WORLD INTELLECTUAL PROPERTY ORGANIZATION
ORGANISATION MONDIALE DE LA PROPRIÉTÉ INTELLECTUELLE

GENEVA/GENÈVE

COMMITTEE OF EXPERTS OF THE IPC UNION
COMITÉ D' EXPERTS DE L' UNION DE L' IPC

IPC REVISION PROJECT FILE/DOSSIER DE PROJET DE RÉVISION DE LA CIB

PROPOSAL BY: **GB, US** **PROPOSITION DE :**	**REVISION OF IPC AREA:** **C 15/40 B** **RÉVISION DU DOMAINE DE LA CIB :**
KIND OF REVISION: **Creation of subgroups** **TYPE DE RÉVISION :** **Création de sous-groupes**	

ANNEX/ ANNEXE	CONTENT/CONTENU	SEE/VOIR C 422/00	ORIGIN/ ORIGINE	DATE
1	Revision request with detailed proposal / Demande de révision avec proposition détaillée		GB	12.99
2	Proposal / Proposition		US	03.00
3	Comments / Observations		RU	05.00
4	Comments / Observations		GB	05.00
5	Comments / Observations		DE	05.00
6	Comments / Observations		JP	05.00
7	Comments / Observations		EP	05.00
8	Comments / Observations		SE	05.00

RAPPORTEUR : GB, US **TECHNICAL FIELD/DOMAINE TECHNIQUE : C**

ANNEX 1

REQUEST FOR REVISION OF THE IPC

Class(es) or subclass(es):C40B

Demarcation of the area to be revised:	Combinatorial Chemistry

2. Reasons for the request

			Comments explaining (b) and (c)
(a)	X-notation(s)		
	(Category A)		
(b)	Clarification of wordings		
	(Category B)		
(c)	Other reasons	X	High activity for subject matter that cannot be classified in present IPC
	(acceptance depending on file size and file growth of PCT minimum documentation; or on sufficiently persuasive reasons) (Category C)		

3. For reasons under 2(c):

(a)	File size (country of origin, number of documents)	N/A
(b)	Rate of growth (country of origin, number of documents)	N/A
(c)	Activity (Searches per year)	N/A

4. Detailed proposal:

Submitted herewith		We are prepared to elaborate a detailed proposal		We are not in a position to elaborate a detailed proposal	X

5. General outline, possible solutions, options etc.:

Originating Office: GB

Date: December 20th 1999 Name: Jim Calvert

C40B Combinatorial chemistry proposal

Please find attached detailed IPC revision proposal for C40B combinatorial chemistry. As discussed at the last meeting of the revision working group, the proposal only contains a very broad breakdown of main groups. I anticipate it will largely be necessary to classify elsewhere as well as in this subclass according to the actual chemical structures involved. I will attempt to define "line notes" (references to other areas of IPC) in due course.

Being a totally new subclass, I though it was a great opportunity to try our proposed new format for subclasses. I have therefore devised a very sparse subclass with allied classification definitions for the subclass and various main groups. It is my intention to hyperlink the various definitions to the relevant parts of the schedule to which they relate but I haven't actually made the links as I thought they would not translate to Word format.

I apologise that the details of this schedule have been submitted so long after the original notification of submission of a proposal. I'm sure you and all my colleagues in IPC will let me know what they think of a somewhat experimental project!

Best Regards

Jim Calvert
Senior Examiner - International Classifications
UK Patent Office

C40B Combinatorial chemistry

Classification subgroups

1/00	synthesis characterised by chemical nature of the compound library produced
3/00	apparatus specially adapted for use in the synthesis of chemical libraries
5/00	screening, methods specially adapted for use in screening of chemical libraries
7/00	identification of active compounds present in chemical libraries
9/00	combinatorial chemistry subjects not covered by 1/00 to 7/00

C40B Combinatorial chemistry

Subclass definitions

This subclass is primarily concerned with combinatorial chemistry, *ie* the creation of large populations of compounds *en masse* (known as a chemical or combinatorial library). Combinatorial synthesis may be followed by screening for desired activity and identification of individual compounds in the chemical library.

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

Combinatorial chemistry: the systematic and repetitive connection of a set of different `building blocks` of varying structures to each other to yield a large array of diverse molecular entities

Screening: the process of determining whether compounds in a chemical library have a desired chemical or biological activity, *without* necessarily identifying the precise chemical nature of the compound(s) being screened

Iterative deconvolution: a method of identifying compounds in a chemical library involving the successive comparison (eg for activity) of an unknown compound with each of a set of sub-libraries, each sub-library having a fixed, known sub-unit in one of the positions, the set covering all possible sub-units for each other position.
Example:
Consider a library of 100 different esters of formula R_1-CO_2-R_2, formed by the reaction of 10 different carboxylic acids of formula R_1-CO_2H with 10 different alcohols of formula R_2-OH, and where one ester of highest activity is detected.

Iterative deconvolution, is used to find the highest activity ester, as follows:

10 sub-libraries of formula R_1-CO_2-R_2 are formed, each being formed from **one** of the 10 acids R_1-CO_2H, and all 10 of the alcohols R_2-OH, thus each sub-library has 10 members and R_1 is known (R_1 is the fixed, known sub-unit). The most active sub-library tells us which R_1 is likely to be present in the most active ester in the 100 member library.

Then 10 further sub-libraries are formed, each being formed from **one** of the 10 alcohols R_2-OH, and all 10 of the acids R_1-CO_2H thus each sub-library has 10 members and R_2 is known. The most active sub-library tells which R_2 is likely to be present in the most active ester in the 100 member library.

Thus the identity of the highest activity ester is suggested by the result of the iterative deconvolution. (It should be noted that the most active ester need not be the ester corresponding to the R_1 and R_2 sub-libraries showing highest activity - iterative deconvolution is not necessarily definitive.)

C40B Combinatorial chemistry

Classification definitions for main group 1/00 - synthesis characterised by chemical nature of the compound library produced

Chemical natures including-

inorganic libraries

peptide libraries (*including* polypeptide and protein libraries)

amide-linked oligomeric libraries

nucleic acid libraries

oligomeric or polymeric libraries

synthesis characterised by chemical nature of the compound library produced non-oligomeric organic libraries

C40B Combinatorial chemistry

Classification definitions for subgroup 5/00 - screening, methods specially adapted for use in screening of chemical libraries

Screening is defined as the process of determining whether compounds in a chemical library have a desired chemical or biological activity, *without* necessarily identifying the precise chemical nature of the compound(s) being screened

C40B Combinatorial chemistry

Classification definitions for subgroup 7/00 - identification of active compounds present in chemical libraries

7/00 includes identification through means dependent on the particular synthetic methodology used, e.g :-

identification by position in space, *eg* by use of grids of phials

identification by tagging, ie association with an identifiable moiety (*eg* using nucleotides or radioactive markers)

identification by iterative deconvolution

7/00 also includes identification through means through means not dependent on particular synthetic methodology, e.g. :-

spectroscopy

ANNEX 2

IPC DETAILED PROPOSAL

Project: **Class title - C15 - COMBINATORIAL CHEMISTRY TECHNOLOGY**
Office:US
Class/Subclass:

Type of amendment: C = Change of scope D = Deletion of the entry N = Creation of the entry

Type	Place	Wording	Remarks/ Examples
N	C15	COMBINATORIAL CHEMISTRY TECHNOLOGY	
N	C15B	LIBRARIES; METHODS OF PREPARING AND SCREENING LIBRARIES; MISCELLANEOUS PROCESSES AND PRODUCTS SPECIALLY ADAPTED FOR THE TECHNOLOGY	*Note: All example documents are US patents*
N	1 / 00	**Method of Screening a Library, or a Product Related to Screening**	5,541,070
N	1 / 04	• Involving a specified biologically replicable entity, (e.g. genetic package or vector), which is a component of a library, or which displays, contains, or presents a library	5,270,170 5,491, 084 5, 498,538
N	1 / 06	• • The entity is a virus, e.g.bacteriophage	5,427,908 5,498,538 5,571,681 5,994,083
N	1 / 08	• • The entity is a prokaryotic or eukaryotic cell, e.g. arabidopsis cell	5,824,485 5,948,653
N	1 / 10	• • • Eukaryotic animal cell, e.g. COS, HeLa	5,824,485 5,948,653
N	1 / 12	• • • Yeast or single-cell fungus	5,789,184 5,824,485 5,989,814
N	1 / 14	• • • Bacterium	5,824,485 5,948,653
N	1 / 16	• Screening a specified library consisting of inorganic compounds or materials	----------
N	1 / 18	• • For catalytic activity	----------
N	1 / 20	• • The library contains a metal-containing compound or material	----------
N	1 / 22	• • • As an alloy	----------
N	1 / 24	• • • As a metal oxide	----------
N	1 / 26	• Screening a specified library consisting of organic compounds or materials	5,593,853 5,712,171

Type	Place	Wording	Remarks/ Examples
	1 / 28	• • The library contains a peptide, a polypeptide or derivative thereof, i.e. a substance containing an amide bond formed between the carboxyl group of one aminocarboxylic acid molecule and the amino group of another, same or different, aminocarboxylic acid molecule	5,438,191 5,491,084 5,510,240 5,532,167 5,556,762 5,593,853
N	1 / 30	• • • Peptide nucleic acid, i.e. PNA	----------
N	1 / 32	• • The library contains a nucleotide, polynucleotide or derivative thereof, i.e. a substance containing at least one nucleotide	5,539,082 5,582,981 5,712,375 5,866,363
N	1 / 34	• • The library contains a carbohydrate or derivative thereof, i.e. a compound containing at least one polyhydroxy mono-(aldehyde or ketone) of the formula $C_n(H_2O)_n$ (where n is 5 or 6) or the corresponding hemiacetals thereof; or the derivatives thereof in which the carbon skeleton and the aldehyde or ketone function or hemiacetal function of the saccharide unit are not destroyed	5,593,853
N	1 / 36	• • The library contains a polymer	5,698,685
N	3 / 00	**Library or Related Product**	5,340,474 5,751,629 5,840,485
N	3 / 04	• A biologically replicable entity (e.g., genetic package or vector) is a specified component of a library, or the entity displays, contains, or presents a library	5,270,170 5,491,084 5,824,485 5,866,363
N	3 / 06	• • The entity is a virus, e.g. bacteriophage	5,751,629
N	3 / 08	• • The entity is a prokaryotic or eukaryotic cell, e.g. arabidopsis cell	---------- -
N	3 / 10	• • • Eukaryotic animal cell, e.g. COS, HeLa	5,824,485
N	3 / 12	• • • Yeast or single-cell fungus	5,789,184
N	3 / 14	• • • Bacterium	5,795,752 5,969,108
N	3 / 16	• Specified library consisting of inorganic compounds or materials	5,525,735
N	3 / 18	• • The library contains a metal containing compound or material	---------- -
N	3 / 20	• • • As an alloy	---------- -
N	3 / 22	• • • As a metal oxide	---------- -
N	3 / 24	• Specified library consisting of organic compounds or materials	5,545,568 5,731,438 5,840,485

Type	Place	Wording	Remarks/ Examples
N	3 / 26	• • The library contains a peptide or a polypeptide or derivative thereof, i.e. a substance containing an amide bond formed between the carboxyl group of one aminocarboxylic acid molecule and the amino group of a another, same or different, aminocarboxylic acid molecule	5,340,474 5,571,681 5,582,997 5,751,629 5,840,485 5,866,363
N	3 / 28	• • • Peptide nucleic acid, i.e. PNA	----------
N	3 / 30	• • The library contains a nucleotide, polynucleotide or derivative thereof, i.e. a substance containing at least one nucleotide	5,866,363 5,948,653
N	3 / 32	• • The library contains a carbohydrate or derivative thereof, i.e. a compound containing at least one polyhydroxy mono-(aldehyde or ketone) of the formula $C_n(H_2O)_n$ (where n is 5 or 6) or the corresponding hemiacetals thereof; or the derivatives thereof in which the carbon skeleton and the aldehyde or ketone function or hemiacetal function of the saccharide unit are not destroyed	5,278,303 5,840,485 5,861,492
N	3 / 34	• • The library contains a polymer	5,506,337
N	3 / 36	• Process of preparing a library, e.g. employing solution phase and not utilizing a support	5,010,175 5,593,853 5,712,171 5,780,241
N	3 / 38	• • Utilizing biological means, e.g. enzyme or cellular component	5,759,817 5,824,485 5,866,363 5,871,907 5,942,907
N	3 / 40	• • Wherein library members are bonded to a soluble support during library preparation	5,877,214 5,886,186

Type	Place	Wording	Remarks/ Examples
N	3 / 42	• • Wherein library members are bonded to a solid support during library preparation	5,010,175 5,242,186 5,264,563 5,288,514 5,384,261 5,539,083 5,545,531 5,545,568 5,690,894 5,712,171 5,732,263 5,859,191 5,885,837 5,886,186 5,929,208
N	9 / 00	**Miscellaneous (e.g. optimization process, etc.)**	

GUIDE TO USE OF THE PROPOSED C15B SCHEDULE

The schedule is written in conformity with USPC-suggested new IPC practice, i.e.,

(1) a top-down placement rule is employed, allowing the following methodology of claim placement:

to determine the main group or subgroup that provides for a given claim or for one of plural embodiments within a given claim, start at the top of the subclass schedule and work down to the highest coordinate main group or subgroup in the deepest level of indentation that provides for the claim or for the embodiment.

(2) a process for preparation of a product is classified with the product, except if
(a) the process appears higher in the schedule than the product, or
(b) the process is classified in a different subclass.

The term "specified" is employed in a number of subgroups in this subclass to indicate that a claim must define a library in terms of its structure to be placed in these subgroups. Doing so allows claims to generic processes (i.e., those applicable to libraries in general)

(a) to bypass subgroups that define libraries by structure, and
(b) to be placed in the residual method of screening subgroup, or in the appropriate method of preparation subgroup.

CLASS C15 – COMBINATORIAL CHEMISTRY TECHNOLOGY

Subclass C15B - Libraries; Methods of Preparing and Screening Libraries; Miscellaneous Processes and Products Specially Adapted for the Technology

Within this subclass, the terms ' library' and ' combinatorial library' are used interchangeably.

This subclass provides for the following aspects of combinatorial chemistry technology:

(1) the libraries themselves, and subsets thereof (having at least two members),
(2) methods of creating and screening libraries,
(3) chemically or physically modified libraries, and
(4) miscellaneous processes and products specially adapted for combinatorial chemistry technology.

A library is an intentionally created unitary collection of a plurality of biologicals, compounds, or other materials. The collection is useful as a test vehicle for determining which of its members possess useful properties. A library may exist as

(1) a solution,
(2) a physical admixture,
(3) an ordered array,
(4) a plurality of members present on a support and affixed thereto by chemical bonding, by physical attractive forces, or by coating, or
(5) a ' virtual library' , i.e., one whose members exist only as representations within a computer or on a computer-readable medium.

A method of preparing a library is provided for in this subclass on the condition that the method, taken in its entirety, results in the library. A claim that recites a method of preparing a library **and** steps of separating the library into its individual components will be classified on the basis of the individual components, unless the claim recites said separating for the purpose of deconvoluting the library. Preparation and separation for the purpose of deconvolution is proper for this subclass.

A method of screening or testing a library is provided for in this subclass if the method involves screening or testing of the library as a whole. Simple iterative repetition of a screen or test on an ordered array of compounds in individual containers simultaneously or sequentially would not meet this test.

Types of screening or testing proper for this subclass include:

(1) direct screening of library members,
(2) structure activity analysis,
(3) quantitative structure activity relationship analysis,

This subclass also provides for a process or product that does not fall within the categories mentioned above, but is specially adapted for the area of combinatorial chemistry technology. An example of a process adapted for this area is optimization of a library (e.g., determination of which members of a library would be most likely to provide representative test data).

ANNEX 3

FEDERAL INSTITUTE OF INDUSTRIAL PROPERTY

RU comments	
Project: C 422	**Date: 23.05.00 4:48 PM**
Class/subclass: C 40, C 15	**Page 1 of 1**

We are in favour of GB scheme because it reflects full all directions of combinatory chemistry. In our viewpoint it is possible to combine both schemes, using some subgroups of US scheme.

It is desirable to clarify the wording of group 1/00 (GB proposal) as it is unclear whether this group includes the chemical libraries as such, or to define more precisely classification definitions for this group. In our opinion groups 3/36 - 3/42 (US proposal) for general processes of preparing libraries are very useful.

UK Patent Office **Date: 18 May 2000**

Comments on Project C422/99, Subclass C 40 B

We are a bit confused about the US counter-proposal as we thought that the Revision Working Group agreed that submissions should be based upon a main group only subclass as the technology was not yet defined enough to subdivide any further. The US counter-proposal obviously goes much further than the equivalent of main groups and as such we could not support it.

If desired, GB too could submit a more refined breakdown.

Jim Calvert
U.K. Patent Office

DEUTSCHES PATENT- UND MARKENAMT German Patent and Trademark Office	Class/Subcl.: **C40B/C15B**
	Date : 18.05.2000
DE - Comments — C422	

Re: Comments on proposals from Annex 1 and 2

1.- Many combinatorial chemistry applications use well known chemical technologies. Chemical libraries as such are often identical to chemical compounds expressed by general chemical ("Markush" – Type) formulae. The new classification for combinatorial chemistry should cover subject matter only which is of distinct art and cannot be classified in the present IPC. Chemical libraries as such, characterised by their chemical nature should be classified in the existing groups for chemical compounds. Indexing could be useful for such cases.

2.- We prefer the scheme from Annex 1 proposed by GB therefor, which stresses special features of the combinatorial chemistry especially in groups 3/00 to 7/00. We support the presentation via "hyperlinks". But the covered subject matter should be clarified in detail in the "hyperlink". The group 1/00 is ambiguous and should cover special methods for the synthesis of compound libraries only (see the groups C15B 3/36 to 3/42 from Annex 2). We do not support the residual group 9/00 and prefer a head group for combinatorial chemistry. We appreciate the offer of GB to define references to other areas of the IPC, which is necessary.

3.- We do not support the proposal from Annex 2 proposed by US. The scheme contains many groups (libraries as such, screening methods characterised by the chemical nature of the screened compounds), which should be classified in the present IPC. The groups 3/36 to 3/42 could be combined with the scheme from Annex 1.

4.- We cite DE19805719A1, DE19806848A1, DE19843242A1, WO9803521A1 as examples for combinatorial chemistry involving inorganic compounds or catalysts.

H. P. Gerster

Japanese Patent Office

15 may 2000

Project:C422 Subclass:C40B,C15

We propose;
The new combinatorial chemistry classification should be used as such as the main group A61P, accompanied with the current classifications for individual compounds. Or the new classification should be created as the unlinked indexing code.
(Reasons)
There are many combinatorial chemistry applications whose technology is shared by individual compound applications. Therefore, we must search not only the new classifications but also the current classifications for patent documents.

[Definition of the technology, which relates to Combinatorial Chemistry]
Combinatorial chemistry is the technology of producing large varieties of chemical products (as a chemical or combinatorial library) efficiently, by a selected set of different building blocks of varying structures or by a selected set of different chemical materials.
Combinatorial chemistry technology includes the following;
(1) The method of producing chemical products by the combinatorial chemistry technology, and devices or objects which are specially adapted for producing a chemical library; such as a synthesizer of a chemical library, linkers, carriers, building blocks and so on.
(2) The chemical products produced by the combinatorial chemistry technology, such as a chemical or combinatorial library.
(3) The method of screening for a chemical library, and devices or objects which have technical features specially adapted for combinatorial chemistry; such as screening devices, tags and so on.

[Regarding the British Proposal]
We propose to add the main group as 'Library' and also classify into current classifications for individual compounds (members) of a library.
It is necessary to clarify the definitions of 'specially adapted' of the main group 3/00 and 5/00, because this will decrease useless searches of the main groups.

[Regarding the American Proposal]
Detailed classifications such as the American proposal are not necessary. Our proposal is to classify into not only the new combinatorial chemistry classification but also the current classifications for individual compounds. Therefore, we will be able to search easily in detail by using both of the current and new classifications for patent documents, without using such detailed classifications.

We would like to discuss the following questions.
1. Multiple Classification;
   How do you classify combinatorial chemistry now? Especially how do you classify the multiple classification rule?
2. Classifications about the chemical products combined by other moieties (such as carriers, linkers, tags, and so on);
   How do you classify the chemical compounds combined by other moieties (such as carriers, linkers, tags, and so on)? Which do you apply a last place rule or a multiple classification rule?
3. Classifications of tags;
   We classify tags as C07D or C07C etc. regarding compounds in Japan. How do you classify them in your office? For example are they classified into G01N?

EUROPEAN PATENT OFFICE
Principal Directorate Documentation

Comments
16 May 2000

Project: C422 Subclass: C 40 B

After being used by a minority of specialists, combinatorial technology is now present in the daily life of many bench chemists and biologists. It already has changed the way drug discovery is thought of and the initiative taken by the GB Patent Office to reflect these changes in the world of patents is most welcome.

This technology is basically a tool enabling a faster preparation, screening or discovery of compounds. It involves technical aspects which might already be used in other technological areas or which might be used therein in the future. Using a single classification scheme to cover all these technical aspects (now spread all over the IPC) would imply the creation of a high number of further subdivisions merely mirroring existing classification schemes, hence creating redundant information; this would serve no purpose.

Consequently, the EPO, conscious of the need to modify the IPC in order to enable an appropriate and systematic access to this new technology, proposes to implement the principles of **multi-aspect classification**.
It would be used by our classifiers as the basis for a classification system, allowing the use of a refined coding scheme, i.e. no paper filing in each of the multiple entries.

The proposed procedure is to continue to classify library aspects in the corresponding fields of the IPC. Libraries of compounds should be classified according to the nature of the latter i.e. libraries of

- organic compounds in C 07 C to C 07 K
- of oxides in C 01
- ceramics in C 04
- alloys in C 22
- enzymes in C 12
- organic syntheses of libraries in C 07 B, etc.

while adding one or several classes showing that library technology is involved.
This would enable the identification of (a) particular technical aspect(s) present in a patent document dealing with combinatorial library (related) technology.

It is proposed to implement this concept of multi-aspect classification by the creation of a new subclass C 40 B, as proposed by the GB office.

The present proposal is also in line with the current policy of the trilateral partners as well as with that developed in WIPO Advanced Seminar on the International Patent Classification, which is to create added-value within the framework of the IPC by the use of multi-aspect classification.

<u>Comments on the GB proposal:</u>

We agree with the proposal, provided products, methods and apparatus related to combinatorial technology are not only classified in the C 40 B subdivisions, but also in their respective fields, i.e. provided this proposal in considered in the frame of a multi-aspect classification.

Furthermore, we think that :

- a subgroup devoted to libraries *per se* should be added (see our proposed C 40 B 3/00 subgroup)
- libraries should also be classified according to the structure of the compounds they are made of, as we said above. Therefore, no subdivision according to the chemical nature of the compound library produced should have to be added in the new C 40 B 3/00 subgroup.

Comments on the US proposal

We do not think that 1/00 can include both a *method* of screening and a *product* related to screening.

We noticed that a head group for methods of preparation of the libraries is not foreseen.

We agree with the head group for libraries per se.

EP proposal

Taking the GB and US proposals into account, we would like to submit our proposal for a subclass as a mean to identify (a) particular technical aspect(s) present in a patent document dealing with combinatorial library (related) technology.

Apart from this scheme, and since solid-bound compounds or reagents are being increasingly used, but not necessarily for a combinatorial purpose, it is proposed to use an indexing code for example C 07 M 11:00, in order to "tag" documents involving solid-bound products.
However, if the Working Group considers that it should be a proposal on its own, we would be prepared to file for a new separate revision project of the IPC.

C 40 B **COMBINATORIAL TECHNOLOGY**

Notes

(1) This subclass covers elements already classified as such in sections A, B, C or G.

(2) Documents classified in this subclass should also be classified in appropriate subclasses providing for their structural or functional features in their corresponding fields.

(3) The classification symbols of this subclass are not listed first when assigned to patent documents.

N 1/00 Preparation of libraries

N 1/02 $ characterized by the chemical nature of the library members produced (libraries per se 3/00)

N 1/04 $ characterized by the method used

N 1/06 $ $ Organic chemistry synthesis

N 1/08 $ $ $ Solution phase synthesis

N 1/10 $ $ $ $ Spatially separate synthesis

N 1/12 $ $ $ $ Preparation of mixtures

N 1/14 $ $ $ Solid phase synthesis

N 1/16 $ $ $ $ characterised by the use of a particular linker (linker per se 13/02)

N 1/18 $ $ $ $ $ "Traceless" or "safety-catch" linker

N 1/20 $ $ $ $ $ Photochemically cleavable linker

N 1/22 $ $ $ $ characterised by the use of a solid support (support per se 13/04)

N 1/24 $ $ $ $ Characterized by the tagging or labelling of the library

N 1/26 $ $ $ $ Spatially separate synthesis

N 1/28 $ $ $ $ Light-directed, spatially addressable parallel chemical synthesis

N 1/30 $ $ $ $ Preparation of mixtures, e.g. split synthesis

N 1/32 $ $ Biochemical synthesis

N 1/34 $ $ Virtual or mathematical conception of libraries

N 1/36 $ $ Methods not covered by 1/06, 1/32 or 1/34

N 1/38 $ characterized by the use of a particular apparatus

N 3/00 Libraries per se

N 3/02 $ Arrays

N 3/04 $ Mixtures

N 5/00 Apparatus, devices or processes specially adapted for use in the synthesis of chemical libraries, including preparation of libraries characterised by the use of an apparatus

N 5/02 $ Apparatus; Devices (linkers or solid support per se 13/02, 13/04)

N 5/04 $ $ Reactors

N 5/06 $ $ Apparatus for dispensing or evacuating reagents

N 5/08 $ $ Apparatus for recovering products

N 5/10 $ $ Apparatus for dispensing or evacuating solid phase support

N 5/12 $ $ Apparatus for mixing reagents in reaction vessels

N 5/14 $ $ Apparatus for heating or cooling

N 5/16 $ $ Apparatus for coding or tagging

N 5/18 $ $ Apparatuses or devices not covered by 5/04 to 5/16

N 5/20	$ Control devices
N 5/22	$ Processes
N 7/00	Screening; Methods specially adapted for use in screening chemical libraries
N 9/00	Identification of active compounds present in chemical libraries
N 9/02	$ by their position in space e.g. by use of grids of phials
N 9/04	$ $ Spatially separate synthesis
N 9/06	$ $ Light-directed, spatially addressable parallel chemical synthesis
N 9/08	$ by iterative deconvolution
N 9/10	$ by analytical methods
N 9/12	$ $ Mass spectrometry (MS)
N 9/14	$ $ Infra-red (IR)
N 9/16	$ $ Nuclear magnetic resonance (NMR)
N 9/18	$ $ Colorimetric assays
N 9/20	$ by biochemical methods
N 9/22	$ by the detection of tags or labels
N 13/00	Subjects not provided for in groups 1/00 to 9/00
N 13/02	$ Linkers per se (method of preparation characterised by the use of a particular linker 1/16)
N 13/04	$ Solid supports (method of preparation characterised by the use of a particular solid support 1/22)

C 07 M

N 11:00	Low-molecular weight organic compounds having a covalent bond to a solid support.

Anne Glanddier.

Swedish Patent and Registration Office

IPC Revision Project C 422, subclass C40B/C15B **May 29th, 2000**

COMMENTS
relating to IPC/C 422/00

We are in favour of the scheme proposed by EP, but we think that it lacks divided groups for biochemical synthesis and methods. Combinatorial chemistry is an expanding technology and even though the number of documents regarding combinatorial chemistry is not so large yet, there will most certainly be a substantial increase of documents in this field.

Our opinion is also that the new subclass C40B or C15B should only be used as secondary classification for compounds already classified as such in their usual subclasses, e.g. C07 or C08, in the same way as A61P.

Furthermore, we wonder how the difference between screening as in group 7/00 and identification as in 9/00 should be defined. Our interpretation is that ' screening' is a way of choosing a substance or a group of substances from its application or functionality and that the term ' identification' aims at the chemical constitution of a substance or a group of substances.

We propose subdivision of group 1/32 in the EP proposal, where the subject matter of C15B1/00 – 1/14 of the US proposal is incorporated into 1/32. Further, we propose subdivision of group 7/00 for screening in the EP proposal, where subgroups for common biochemical methods are included.

C40B		**COMBINATORIAL TECHNOLOGY**
N	1/32	. . Biochemical synthesis
N	1/321	. . . carried out in a replicable entity
N	1/322	. . . . the entity being a virus, e.g. bacteriophage
N	1/323	. . . . the entity being a prokaryotic or eukaryotic cell
N	1/324	. . . . . Animal or human cell
N	1/325	. . . . . Yeast or single-cell fungus
N	1/326	. . . . . Bacterium
N	1/327	. . . characterised by the method used for introducing variability
…		
N	7/02	. Biochemical methods
N	7/04	. . using selection pressure
N	7/06	. . using biospecific binding
N	7/08	. . using markers
N	7/10	. . . markers inducing colour change
N	7/12	. . . fluorescent markers
N	7/14	. . using two or more of the methods covered by groups 7/04 – 7/12

Helena Danielsson