

This heading is primarily concerned with:

- . organic compounds stated or known to have dyeing properties
- . organic compounds which have a dyestuff structure and are coloured themselves or become coloured on contact with acidic or alkaline substances
- . salts (*including* lakes) and complexes of the above compounds
- . leuco derivatives of vat dyes, and functional derivatives thereof
- . mixtures of dyes and/or pigments without further additives
- . special physical forms of dyes and pigments and methods of making such forms
- . crude preparations obtained from natural sources, and containing natural colouring matters or derivatives thereof
- . processes for preparing, extracting and purifying the above materials

Also classified here are:

- . photographic compositions characterized solely by novel optical sensitizing dyes
- . dye bath compositions characterized solely by the presence of novel dyes
- . chromogenic pressure-sensitive recording sheets characterized solely by the use therein of novel dyes

#### Explanation of subject matter of heading and relationship with other headings

This heading is divided into four parts. Part A is concerned with dyes and pigments characterised by chemical structure and processes for making such dyes and pigments and also with the purification of, and salts, complexes and special physical forms of, dyes and pigments falling wholly within a *single* classifying term of the main classifying schedule of this Part

Part B is concerned with mixtures of dyes and/or pigments without further additives where the mixture contains dyes and/or pigments of different kinds *ie* selected from different classifying terms of Part A

Part C is concerned with salts (*including* lakes) and complexes of dyes and pigments in general and with methods of making such salts and complexes *other than when* such dyes and pigments fall within a single classifying term of the main classifying schedule of Part A

Part D is concerned with special physical forms of dyes and pigments in general and with methods of making such forms, and also with the purification of dyes and pigments in general, *other than when* such dyes and pigments fall within a single classifying term of the main classifying schedule of Part A

Excluded are:

- . compositions of dyestuffs or pigments admixed with other materials—*headings for nature or use of composition* eg A2B, Food preparations; A5B, Pharmaceutical preparations &c; B1V, Organic dispersions; C3K, Polymer &c additives; C4A, Paints, inks &c; D1B, Dyeing processes &c
- . processes for stabilizing dyestuffs or pigments by admixture with other materials—*headings for use of the composition so obtained* eg A2B, Food preparations; A5B, Pharmaceutical preparations &c; C4A, Paints, inks &c; D1B, Dyeing processes &c
- . carotenoid compounds—C2C, Organic compounds
- . compounds (*other than* leuco derivatives of vat dyes) which develop colour only after application to the material to be coloured, unless the colour is generated merely by change of pH—C2C, Organic compounds; D1B, Dyeing processes &c
- . optical brightening agents—*headings for compounds*, eg C2C, Organic compounds
- . compounds containing metal atoms linked directly to carbon—C2J, Organometallic compounds
- . compounds containing silicon—C2R, Organic silicon compounds; C3T, Organo-silicon polymers
- . dyestuffs which are also synthetic resins or derivatives of cellulose or other polysaccharides—*headings for such compounds*, eg C3A, Cellulose derivatives &c; C3P, Addition polymers &c; C3R, Condensation polymers &c
- . processes for forming or modifying compounds on a textile material or fibre—D1B, Dyeing processes &c
- . producing dyes and pigments of unknown composition using the techniques grouped under the term “combinatorial chemistry”, that is, the synthesis of large arrays (known as “chemical libraries”) of diverse dyes and pigments by the systematic and repetitive connection of a set of different “building blocks” of different structure—C2L, Combinatorial chemistry and chemical libraries
- . . *However* dyes and pigments of novel composition produced by combinatorial chemistry are classified in this heading

The exclusion references listed 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)

As classification in this heading inherently denotes activity as a dye or pigment, term S1399 from U1S is not assigned for inventions classified here. Subject to its indexing rules, U1S may be used to record other uses or applications disclosed, and to record significant properties of materials with which this heading is concerned. Terms from U1S are applied in addition to any terms P100-P140 of this heading that are applied

Operative dates for Key entries

The operative dates 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, earlier than that of Edition A

In order to obtain a more logical order when lists of terms are obtained by computer, the codes for certain terms were amended with effect from Edition K by incorporating leading zeros in the numerical part. Thus, for instance, PAA1P and PAA4A become PAA01P and PAA04A respectively. Such terms have marginal codes modified with a double dagger: h‡, i‡ and j‡. File lists are available for terms so annotated back to the operative date of the Edition corresponding to the code letter, although the terms themselves are operative only from Edition K

Classifying, Indexing and Searching Notes:

1. Documents are allocated to the relevant part of the heading according to the significant disclosure of the documents. A general indexing schedule is provided which relates to the utility of dyes and pigments and which is applicable to all Parts of the heading
2. Part A is for disclosures characterised by the chemical structure of dyes or pigments or by processes for preparing dyes or pigments. Part A is also for disclosures concerned with salts, complexes and special physical forms of dyes and pigments and with methods of making them with the purification of dyes and pigments *provided that* the dyes or pigments concerned fall within a single classifying term of the main classifying schedule of Part A (*See also* Notes 4 and 5 *below*). However, special physical forms of, and purification processes of interest, that are applicable to, azo dyes *in general* are classified in Part D rather than under term PAZ of Part A. The main classifying schedule provides thirty terms for the classification of dyes and pigments by structure and origin and a further term relating to methods of making leuco compounds of vat dyes (*See also* Note 6 *below*). The said thirty terms are in priority order so that a given dye or pigment is classified only in the first-appearing place that will properly accept it. Part A also contains indexing schedules for all but four of these classifying terms.
3. Part B is for disclosures relating to mixtures of dyes and/or pigments without further additives where the mixture contains dyes and/or pigments selected from different classifying terms of Part A. It is thus relatively rare for a given disclosure to be classified in both parts A and B
4. Part C is for disclosures relating to salts (*including* lakes) and complexes of dyes and pigments and methods of making such salts and complexes *other than when* the dyes or pigments concerned fall within a single classifying term of the main classifying schedule of Part A (*See* Note 2 *above*)
5. Part D is for disclosures where the interest resides in special physical forms of dyes and pigments in general and methods of making such forms or in the purification of dyes and pigments in general *other than when* the dyes or pigments concerned fall within a single classifying term of the main classifying schedule of Part A. However, special physical forms of, and purification processes of interest that are applicable to, azo dyes *in general* are classified here rather than in Part A (*See* Note 2 *above*)
6. Novel leuco compounds of vat dyes, and esters or other derivatives thereof are classified as the appropriate vat dye. Novel methods of preparing such compounds are classified only under classifying term PL methods of making leuco compounds &c
7. In the indexing schedules index is made under every allowable and appropriate term. If low level terms are applied, any corresponding higher-level term is also applied
8. The names of ring systems embrace all saturated and unsaturated forms thereof with the exceptions of “benzene” and “naphthalene” which are reserved for the fully unsaturated forms, and “cyclohexane” which denotes a fully saturated ring
9. The term *novel* as used in this heading in connection with compounds, products, processes &c is not intended to denote a requirement of absolute novelty, but merely that the appropriate compounds &c are stated in the documents under consideration to be novel or appear to the classifier to be non-conventional or otherwise of interest
10. The term “dye” used in the classifying and indexing schedules of this heading is inclusive of both dyes and pigments

Part A: dyes and their preparation (See also Note 2 of the Classifying, Indexing and Searching Notes above)

Main classifying schedule

*These terms are in a priority order, a given dye structure being classified only in the first appearing place that will properly accept it*

	PE	dyes obtained from natural products
i	PXA	aniline black dyes .. <i>this term corresponds to term PDIA used in previous Key Editions</i>
i	PXS	sulphurised dyes of indefinite constitution .. <i>for indexing terms See Indexing Schedule 1</i>
w	PZZ	dyes as defined in PAAT-PBX below but <b>not</b> characterised by their physical form or method of preparation, and <b>not</b> concerning mixtures of dyes
w		dyes characterised by their physical form or method of preparation or concerning mixtures of dyes —
i	PAAT	.. triazinyl dyes <i>ie</i> dyes containing a fully unsaturated <i>s</i> -triazine ring not directly attached to an azo group .. <i>for indexing terms See Indexing Schedules 2 and 27</i>
i	PAAR	.. “reactive ring” dyes <i>ie</i> dyes containing a ring system bearing a directly attached substituent capable of reacting with the substrate to form a covalent bond, but no directly attached azo groups .. <i>for indexing terms See Indexing Schedules 2 and 27</i>
k	PCB	.. porphyrazine dyes (including phthalocyanines) .. <i>for indexing terms See Indexing Schedules 3 and 26</i>
k	PBY	.. other macrocyclic dyes having at least 4 N atoms in the macrocyclic ring .. <i>for indexing terms See Indexing Schedule 4</i>
i	PBL	.. isoindoline, perinaphthazole and indolizine (pyrrocoline) dyes .. <i>for indexing terms See Indexing Schedule 5</i>
i	PBD	.. indigoid dyes .. <i>for indexing terms See Indexing Schedule 6</i>
k	PBE	.. perylene and perinone dyes .. <i>for indexing terms See Indexing Schedule 7</i>
h	PAF	.. formazan dyes .. <i>for indexing terms See Indexing Schedule 8</i>
j	PAE	.. metal complex dyes of azo and azomethine compounds .. <i>for indexing terms See Indexing Schedules 9 and 27</i>
k	PQA	.. azacyanine dyes having an exocyclic methine group bound to a nitrogen atom, and metal complexes thereof not provided for above .. <i>for indexing terms See Indexing Schedule 10</i>
	PDIL	.. stilbene dyes containing azo and/or azoxy groups .. <i>for indexing terms See Indexing Schedule 11</i>
j	PAZ	.. azo dyes .. structures— <i>for indexing terms See Indexing Schedules 12 and 27</i> .. methods of producing— <i>for indexing terms See Indexing Schedule 13</i> .. specially physical forms of, and purification processes of interest that are applicable to, azo dyes <i>in general</i> — <i>See Part D below</i>
k	PQS	.. quinophthalone and squarylium dyes .. <i>for indexing terms See Indexing Schedule 14</i>
k	PQC	.. cyanine dyes containing a “Type I” or “Type II” nucleus .. <i>for indexing terms See Indexing Schedules 15 and 27</i>
k	PQM	.. cyanine dyes containing an exocyclic methine group (including acetylenic analogues thereof) not provided for above .. <i>for indexing terms See Indexing Schedule 16</i>
k	PCA	.. anthracene dyes (including fused anthracenes)— .. containing a single unfused anthracene ring as the only anthracene nucleus .. <i>for indexing terms See Indexing Schedules 17 and 26</i>
k	PCF	.. other .. <i>for indexing terms See Indexing Schedule 18</i>
i	PBS	.. xanthene, thioxanthene, phthalide, azaphthalide and naphthalide dyes .. <i>for indexing terms See Indexing Schedule 19</i>
k	PQR	.. diarylmethane, diarylmethine, triarylmethane and triarylmethine dyes .. leuco bases— <i>See C2C, Organic Compounds</i> .. <i>for indexing terms See Indexing Schedule 20</i>
i	PBA	.. phenazine, phenoxazine, phenothiazine and acridine dyes (including quinacridones) .. <i>for indexing terms See Indexing Schedule 21</i>
i	PBQ	.. quinone, quinone imine and quinone oxime (nitroso) dyes .. <i>for indexing terms See Indexing Schedule 22</i>
k	PQX	.. azacyanine, hydrazine and polyazine dyes <i>not provided for above</i> .. <i>for indexing terms See Indexing Schedule 23</i>
k	PBB	.. coumarin, coumarin imine, naphthalimide, pyrrolo-pyrrole and spiropyran (including spirothiapyran) dyes .. <i>for indexing terms See Indexing Schedule 24</i>
i	PBN	.. nitro dyes .. picric acid— <i>See C2C, Organic Compounds</i>
i	PBX	.. other dyes of definite constitution .. <i>for indexing terms See Indexing Schedule 25</i>
i	PXX	.. other dyes of constitution not sufficiently known for them to be classified above
	PL	.. methods of making leuco compounds of vat dyes and esters and other derivatives thereof

Indexing Schedule 1

*Terms from this schedule are applicable to classifying term PXS*

*Index is made according to the intermediates which are subjected to sulphurisation. The terms are arranged in a priority order, the intermediate to be indexed being assigned only the first appropriate term*

i	PXS7	phthalocyanines
i	PXS8	azo and azamethine compounds
		compounds in which an amino or imino group links two aromatic ring systems ( <i>eg</i> indophenols)—
i	PXS6A	. both ring systems being carbocyclic
i	PXS6B	. at least one ring system being heterocyclic
		compounds containing a ring system of at least three fused rings—
		. anthracene—
i	PXS1	. . not fused with a further ring system
i	PXS2	. . fused with at least one further carbocyclic or heterocyclic ring system
		. other—
i	PXS3	. . carbocyclic
i	PXS4	. . heterocyclic
		other compounds—
i	PXS9	. containing at least one heterocyclic ring system
i	PXS10	. containing no heterocyclic ring system

Indexing Schedule 2

Terms from this Schedule are applicable to classifying terms PAAR and PAAT

See also Indexing Schedule 27 for substituents

In this schedule, the term “reactive ring” means a ring system defined in the class definition of PAAR and the term “s-triazine ring” denotes only the fully unsaturated form thereof

Terms with marginal code h† have the same definitions as the corresponding terms in the Edition H key (q.v.) but are of different scope in view of the new definitions of the ring systems necessarily present in the dyes

Terms with marginal code h‡ or j‡—See the note following Operative dates for Key entries

j‡	PAA01P	. azo dye system
j‡	PAA01Q	. other
		characteristics of the chromogen—
		. azo dye system—
h	PAA36	. . not metal-complexed
		. . complexed with—
h	PAA18	. . . copper
h	PAA19	. . . chromium or cobalt
h	PAA20	. . . other metal
		. . . containing a metallised grouping <i>other than</i> free hydroxyl groups on each side of the azo linkage—
h	PAA15	. . . . carboxylic group
h	PAA16	. . . . other
h	PAA17	. . having two or more different ligands linked to the same metal atom
		. . having a single azo group attached directly to—
h	PAA29	. . an acyclic carbon atom
h	PAA23	. . a carbocyclic ring system ( <i>other than</i> a benzene or naphthalene ring)
		. . a heterocyclic ring system—
h	PAA21	. . . . of a diazo component
		. . . . of a coupling component—
h	PAA24	. . . . . pyrazole
h	PAA25	. . . . . pyridine
h	PAA26	. . . . . pyrimidine
h	PAA22	. . . . . other
		. . monoazo—
		. . the azo group being attached to at least one benzene or naphthalene ring—
h	PAA30	. . . . two benzene rings
		. . . . one benzene ring—
h	PAA31	. . . . . of the diazo component
h	PAA32	. . . . . of the coupling component
h	PAA33	. . . . two naphthalene rings
		. . . . one naphthalene ring—
h	PAA34	. . . . . of the diazo component
h	PAA35	. . . . . of the coupling component
h	PAA37	. . other
		. . disazo—
		. . the linkage between the two azo groups comprising—
		. . . . an s-triazine ring or “reactive ring” and—
h†	PAA42	. . . . . at least one naphthalene ring
h†	PAA43	. . . . . no naphthalene ring
		. . . . a ring system to which both azo groups are attached—
h	PAA39	. . . . . benzene
h	PAA40	. . . . . naphthalene
h	PAA44	. . . . . other
h	PAA41	. . . . two directly linked benzene rings to each of which an azo group is attached
h	PAA38	. . . . other
h	PAA12	. . trisazo
h	PAA13	. . tetrakisazo
h	PAA14	. . pentakis and higher polyazo
h‡	PAA09	. formazan dye system
k	PAA10A	. an azacyanine, cyanine, methine, quinophthalone or squarylium dye system according to any of classes PQA, PQC, PQM, PQR, PQS and PQX
		. macrocyclic dye system having at least 4 N atoms in the macrocyclic ring
		. . porphyrazines
k	PAA04A	. . . metal complexes of “phthalocyanines” (as defined in Indexing Schedule 3)
k	PAA04B	. . other
k	PAA05A	. . other
		. chromogen not included above, and containing a ring system of at least three fused rings—
		. . anthracene—
h‡	PAA01	. . . not fused with a further ring system
		. . . fused with at least one further ring system—
h‡	PAA02	. . . . carbocyclic only
h‡	PAA03	. . . . heterocyclic
h‡	PAA06	. . dioxazine
h‡	PAA07	. . other

Indexing Schedule 2—cont

h†	PAA08	. other chromogen
		characteristics of the <i>s</i> -triazine ring or “reactive ring”—
h†	PAA57	. absence of directly attached halogen ( <i>this term is not applied in the case of an s-triazine ring to which term PAA56 below is applied</i> )
		. directly bonded to a ring system of—
h†	PAA55	.. a chromogen
h†	PAA61	.. a non-chromogenic moiety
		... <i>the ring system (when other than benzene) is also indexed by terms PAA74-PAA82 below</i>
		. type of <i>s</i> -triazine ring or “reactive ring”—
		.. <i>s</i> -triazine having directly attached to the carbon atoms—
h†	PAA54	... less than three heteroatoms—
		... three heteroatoms—
h†	PAA56	.... all nitrogen
		.... nitrogen and halogen only—
h†	PAA51	..... one halogen
h†	PAA52	..... two halogens
h†	PAA53	..... other
		.. pyrimidine—
h†	PAA59	.. having as the only substituents both halogen atoms and amino groups
h†	PAA60	.. other
h†	PAA58	.. pyridazine
h†	PAA62	.. quinoxaline
		.. other—
i	PAA67	... carbocyclic
i	PAA66	... heterocyclic
		other ring systems not forming part of a chromogen—
		. carbocyclic—
		.. <i>benzene is not indexed</i>
h	PAA74	.. cyclohexane
h	PAA75	.. naphthalene
h	PAA76	.. other
		. heterocyclic—
		.. monocyclic—
h	PAA80	... having nitrogen as the only heteroatom
h	PAA81	... other
h	PAA82	.. polycyclic
		special features—
i	PAA11	. biphenyl groups <i>other than</i> those in respect of which the term PAA41 <i>above</i> is assigned
i	PAA83A	. reactive substituent not directly attached to an <i>s</i> -triazine ring or “reactive ring”
k	PAA79A	. heteroatom <i>other than</i> nitrogen, oxygen, sulphur or halogen, and <i>other than</i> the phosphorus atom of a phosphato group (-OPO <sub>3</sub> H)
		. ionic charge—
h	PAA84	.. cationic
h	PAA85	.. anionic ( <i>this term is not applied when the only counterion is H<sup>+</sup>, Na<sup>+</sup>, K<sup>+</sup> and/or NH<sub>4</sub><sup>+</sup></i> ) (5)
k	PAA78A	. mixtures of two or more dyes within this class <i>other than</i> mixtures of dyes which differ from one another only in respect of substituents directly attached to a porphyrazine (including phthalocyanine) nucleus
		. more than one <i>s</i> -triazine ring or “reactive ring”—
h	PAA86	.. all <i>s</i> -triazine
h†	PAA89	.. some <i>s</i> -triazine
h†	PAA90	.. none <i>s</i> -triazine
h†	PAA87	.. the moiety between them, considered as a whole, comprising a chromogen (21)
h†	PAA88	.. linked by a direct bond or via a non-chromogenic moiety
		. more than one chromogen, at least one being other than an azo dye—
h	PAA71	.. an azo dye system also being present
h	PAA72	.. no azo dye system being present
		. stilbene moiety—
h	PAA27	.. directly attached to an azo group
h	PAA28	.. not directly attached to an azo group
		. unsaturation <i>other than</i> in a heterocyclic ring system or a stilbene moiety—
i	PAA77B	.. acetylenic or cycloolefinic
i	PAA77A	.. olefinic <i>other than</i> cycloolefinic

Indexing Schedule 3

*Terms from this Schedule are applicable to classifying term PCB*

*See also Indexing Schedule 26 for substituents and further features*

General Notes and definitions

. 1. "Porphyrzine nucleus" means a porphyrzine (ie tetraazaporphin) ring system in which each of the four pyrrole rings may be unfused or fused to a further ring system

. 2. "Phthalocyanine" means tetrabenzoporphyrzine in which none of the four benzene rings is fused to a further ring system

general character of the porphyrzine nucleus—

k	PCB01P	. bearing at least one sulphonyl halide or sulphonamide group attached via the sulphur atom
k	PCB01Q	. other
		atoms at the centre of the porphyrzine nucleus—
k	PC35	. hydrogen only (ie "unmetallised" compounds)
k	PC99	. other (eg metal)
		special features—
k	PC85	. porphyrzine nucleus bearing hydrogen and/or halogen atoms only
		. porphyrzine nucleus <i>other than</i> phthalocyanine, any of the four pyrrole ring being—
k	PC97	. . unfused
k	PC95	. . fused to a carbocyclic ring system <i>other than</i> benzene
k	PC96	. . fused to a heterocyclic ring system
		. more than one porphyrzine nucleus—
k	PC29	. . two nuclei between which a metal atom is "sandwiched"
k	PC30	. . other
k	PC87	. azo group
		methods of producing—
		. preparing special physical form or purified form—
		. . <i>See terms PC24-PC24B in Indexing Schedule 26</i>
		. synthesis of the porphyrzine nucleus from—
		. . aromatic nitriles—
k	PC55	. . . <i>ortho</i> -dinitriles (eg "phthalonitrile")
k	PC60C	. . . other
		. . other than aromatic nitriles—
k	PC60A	. . . aromatic <i>ortho</i> -diacids (eg phthalic) or salts or anhydrides thereof
k	PC60B	. . . isoindolines or cyclic imides (eg phthalimide)
k	PC60X	. . . other
k	PC76	. replacing the atom(s) at the centre of the porphyrzine nucleus (eg replacing hydrogen by metal, or replacing metal by hydrogen or a different metal)
k	PC37A	. halogenation of the porphyrzine nucleus
k	PC10A	. sulphonation of the porphyrzine nucleus
k	PC08A	. halosulphonation of the porphyrzine nucleus

Indexing Schedule 4

Terms from this Schedule are applicable to classifying term **PBY**

- k PBY1 macrocycles comprising—  
 k PBY2 . four pyrrole rings (eg porphins *other than* porphyrazines)  
 . other

Indexing Schedule 5

Terms from this Schedule are applicable to classifying term **PBL**

- i PBL1 isoindoline dyes  
 i PBL2 perinaphthazole dyes  
 indolizine dyes—  
 i PBL3 . phthaloyl pyrrocolines  
 i PBL4 . other

Indexing Schedule 6

Terms from this Schedule are applicable to classifying term **PBD**

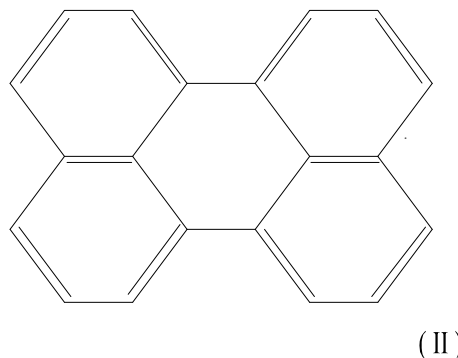
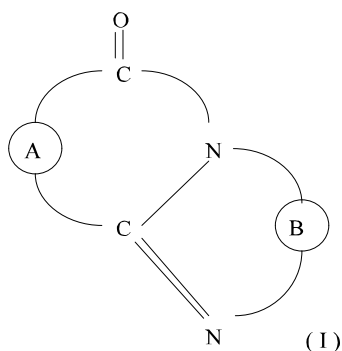
- i PBD1 bis-indole indigos  
 i PBD2 bis-thianaphthene indigos  
 i PBD3 indole-thianaphthene indigos  
 i PBD4 other indigos

Indexing Schedule 7

Terms from this Schedule are applicable to classifying term **PBE**

General notes and definitions

1. “Perinone” means a compound comprising an intracyclic acylamidine structure of formula (I) in which A and B each complete a 5- or 6-membered ring which may be unfused or fused to a further ring system C



2. “Perylene” means a compound comprising a structure of formula (II) which may be unfused or fused to a heterocyclic ring system, but not fused to a carbocyclic ring system. Excluded are compounds in which any of the carbon atoms of structure (II) are replaced by heteroatoms.

perinones in which—

- k PBE1A . A completes a 5-membered ring and B completes—  
 k PBE1B . . a 5-membered ring  
 . . a 6-membered ring (eg “phthaloperinones”)  
 . A completes a 6-membered ring and B completes—  
 . . a 5-membered ring (eg “naphthoylene-benzimidazoles”)—  
 k PBE2A . . . a ring system C having two perinone systems fused thereto  
 k PBE2B . . . other  
 k PBE3A . . a 6-membered ring (eg “naphthaloperinones”)  
 . the A and B rings each being—  
 k PBE4C . . otherwise unfused  
 . . fused to a further ring system—  
 k PBE3B . . . perylene or a heterocyclic-fused perylene  
 . . . other—  
 k PBE4A . . . carbocyclic  
 . . . . benzene and naphthalene are not indexed  
 k PBE4B . . . heterocyclic

Indexing Schedule 7—cont

- k PBE9B perylenes—  
 . unfused  
 . heterocyclic fused—  
 . . perinones  
 . . . *See under “perinones” above*  
 . . bis(cyclic imides) of 3,4,9,10-perylenetetracarboxylic acid—  
 . . . *N, N'*-diaryl (where “aryl” includes heteroaryl)  
 . . . other
- k PBE8A  
 k PBE8B  
 k PBE9A . . other heterocyclic-fused perinones  
 further features—
- k PBE7A . azo group  
 k PBE10A . biphenyl group  
 . two or more perinone or perylene systems not forming part of a single ring system—
- k PBE7B . . perinone systems only  
 k PBE7C . . other  
 . ring systems *other than* those of perinone and perylene systems—  
 . . carbocyclic—  
 . . . cyclohexane  
 . . . naphthalene  
 . . . other  
 . . . . *benzene is not indexed*  
 . . heterocyclic—  
 . . . monocyclic—  
 . . . . having nitrogen as the only heteroatom  
 . . . . other
- k PBE6A  
 k PBE6B  
 k PBE6C . . polycyclic

Indexing Schedule 8

*Terms from this Schedule are applicable to classifying term PAF*

- metal complexes—
- i PAF1A . copper  
 i PAF1B . nickel  
 i PAF1C . cobalt  
 i PAF1X . other  
 i PAF3 . the metal being complexed with more than one dye ligand  
 h PAF2 not metal complexed  
 having attached to the *meso* position—
- i PAF4 . benzene  
 i PAF5 . other *including* H  
 containing—
- i PAF6 . more than one formazan moiety, the formazan moieties being linked covalently  
 i PAF7 . an azo group not forming part of a formazan group  
 i PAF8 . a stilbene moiety

Indexing Schedule 9

*Terms from this Schedule are applicable to classifying term PAE*

*See also Indexing Schedule 27 for substituents*

General notes and definitions

- . 1. "Azomethine group" means a group of formula  $>C=N-$ , neither atom of which forms part of a ring or is attached to a further hetero-atom
- . 2(a). "Azo ligand" means a ligand containing an azo group but no metal-complexed azomethine group
- . 2(b). "Azomethine ligand" means any other ligand containing an azomethine group
- . 3. Substituents in azo and azomethine ligands are indexed according to Indexing Schedule 27. Substituents in other ligands are not indexed

*Terms with marginal code J<sub>‡</sub>—See the note following Operative dates for Key entries*

ligands present—

J <sub>‡</sub>	PAE01P	. azo ligands with or without azomethine ligands
J <sub>‡</sub>	PAE01Q	. azomethine ligands but no azo ligands
		counterions present—
k	PAE64	. anions
k	PAE63	. cations <i>other than</i> H <sup>+</sup> , H <sub>3</sub> O <sup>+</sup> , Na <sup>+</sup> , K <sup>+</sup> and NH <sub>4</sub> <sup>+</sup>
		metal atoms in complex union—
		. type—
J <sub>‡</sub>	PAE01	. . chromium—
		. . . introduced by chroming with—
J <sub>‡</sub>	PAE01A	. . . . chromates, chromites or dichromates
J <sub>‡</sub>	PAE01B	. . . . complex chromium compounds of hydroxycarboxylic acids
J <sub>‡</sub>	PAE02	. . cobalt
J <sub>‡</sub>	PAE07	. . copper—
J <sub>‡</sub>	PAE07A	. . . introduced by coppering with copper-ammonia or copper-amine compounds
J <sub>‡</sub>	PAE03	. . iron
J <sub>‡</sub>	PAE08	. . nickel
J <sub>‡</sub>	PAE04	. . other
		. number—
		. . one complexed with—
J	PAE24	. . . one azo ligand or two identical azo ligands
J	PAE18	. . . one azomethine ligand or two identical azomethine ligands
		. . . two different azo or azomethine ligands—
J	PAE21	. . . . azo ligands only
J	PAE23	. . . . azomethine ligands only
J	PAE22	. . . . azo and azomethine ligands
		. . two, complexed with—
J <sub>‡</sub>	PAE09	. . . one azo or azomethine ligand
J	PAE10	. . . two or more azo or azomethine ligands
J	PAE11	. . three or more
		azo and azomethine ligand characteristics—
		. metallisable systems—
		. . <i>NB each discrete system is indexed individually</i>
		. . independent of an azo or azomethine group—
J	PAE56	. . . a carboxy group and hydroxy group in <i>ortho</i> position to one another
J	PAE57	. . . other
		. . comprising an azo or azomethine group—
J	PAE19	. . . bidentate
J	PAE20	. . . tetradentate or higher polydentate
J	PAE49	. . . tridentate, no hydroxy groups present
		. . . tridentate, the metallisable atoms or groups associated with the azo or azomethine group being—
		. . . . hydroxy groups—
J	PAE48	. . . . . one
J	PAE47	. . . . . two
		. . . . . produced in the course of metallisation from—
J	PAE50	. . . . . an etherified hydroxy group
J	PAE51	. . . . . other
		. . . . nitrogen atom—
J	PAE53	. . . . . of an exocyclic amino group—
J	PAE53C	. . . . . secondary amino
J	PAE53T	. . . . . tertiary amino
J	PAE54	. . . . . other
J	PAE52	. . . . carboxy group
J	PAE55	. . . . other

Indexing Schedule 9—cont

- . atoms and ring systems to which an azo or azomethine group is attached—
- j PAE39 . . acyclic carbon atom
- j PAE40 . . carbocyclic ring system (*other than* a benzene or naphthalene ring)
- . . heterocyclic ring system—
- . . . monocyclic—
- j PAE38 . . . . pyrazole
- j PAE41 . . . . pyridine
- j PAE42 . . . . other
- j PAE43 . . . polycyclic
- . ring systems to which no azo or azomethine group is attached—
- j PAE44 . . carbocyclic (*other than* benzene)
- j PAE45 . . heterocyclic
- j PAE46 . . biphenyl groups (*other than* those to each benzene ring of which an azo group is attached in a disazo dye ligand—*See term* PAE31A *below*)
- . . stilbene moieties—
- j PAE61 . . directly attached to an azo or azomethine group
- j PAE62 . . not directly attached to an azo or azomethine group
- azo ligands, further characteristics—
- j PAE25 . . an azo group to which additional atom(s) is/are attached (*eg* azoxy)
- . . monoazo, the azo group being attached to—
- j PAE27 . . . two benzene and/or naphthalene rings
- j PAE28 . . . other
- . . disazo, the azo group being attached, in the linkage between them, to—
- . . benzene or naphthalene ring(s) only—
- j PAE30 . . . a benzene ring to which both azo groups are attached
- j PAE31 . . . two benzene rings to each of which one azo group is attached—
- j PAE31A . . . . the two benzene rings being directly linked to one another
- j PAE32 . . . a naphthalene ring
- j PAE33 . . . other
- j PAE34 . . trisazo
- j PAE35 . . tetrakisazo
- j PAE36 . . pentakisazo and higher polyazo
- . . number of azo groups—
- j PAE12 . . zero
- j PAE13 . . one
- j PAE14 . . two or more
- . . number of azomethine groups—
- . . . one, the azomethine group being attached to—
- j PAE15 . . . two benzene and/or naphthalene rings
- j PAE16 . . . other
- j PAE17 . . . two or more
- other ligands—
- j PAE58 . . monodentate
- j PAE59 . . bidentate
- j PAE60 . . tridentate or higher polydentate

Indexing Schedule 10

*Terms from this schedule are applicable to classifying term PQA*

General noted and definitions

- . 1. An "azomethine chain" essentially comprises the following two members bonded together—
- (a) an exocyclic methine group; and
- (b) an amino or imino group which may be exocyclic or intracyclic
- . 2. The above azomethine chain may be extended by attachment to the exocyclic atom(s) thereof of further members (a) and/or (b)
- number of members of the or each azomethine chain—

- k PQA4A . . six or more
- k PQA4B . . five
- k PQA4C . . four
- . . three, thereof the pattern of carbon and nitrogen atoms is—
- k PQA5A . . CNN
- k PQA5B . . CCN
- k PQA6A . . CNC
- k PQA6B . . NCN
- k PQA6C . . two

Indexing Schedule 10—cont

- number of intracyclic nitrogen atoms in the or each azomethine chain—
- k PQA7A . one or more  
 . zero, the number of ring systems attached to the azomethine chain being—
- k PQA2A . . three or more  
 . . . two, the number of these ring systems which are benzene or 1,4-cyclohexadiene being—
- k PQA3A . . . two  
 k PQA3B . . . one  
 k PQA3C . . . zero  
 k PQA2B . . one  
 k PQA2C . . zero
- ring systems present—
- k PQA9A . a “Type I nucleus” as defined in Indexing Schedule 15  
 k PQA9B . a “Type II nucleus” as defined in Indexing Schedule 15  
 . other—
- k PQA10A . . heterocyclic *other than* those in respect of which the mark PQA7A is applicable  
 k PQA10B . . carbocyclic  
 . . . benzene and 1,4-cyclohexadiene are not indexed
- special features—
- k PQA7B . azo group  
 k PQA8B . branched azomethine chain  
 k PQA7C . metal complex  
 . more than one azomethine chain—
- k PQA1B . . two  
 k PQA1A . . three or more  
 k PQA8A . spiro configuration

Indexing Schedule 11

*Terms from this Schedule are applicable to classifying term PD1L*

- k PD1L1 disazo dyes  
 k PD1L2 tris and polyazo dyes  
 k PD1L3 dyes containing azoxy groups  
 k PD1L4 dyes containing no acidic water-solubilizing groups  
 k PD1L5 dyes wherein the stilbene residue is not directly linked to —N=N—

Indexing Schedule 12

*Terms from this Schedule are applicable to classifying term PAZ*

*See also Indexing Schedule 27 for substituents*

*Terms with marginal code h<sub>‡</sub>, i<sub>‡</sub> or j<sub>‡</sub>—See the note following Operative dates for Key entries*

- ring systems present—
- j<sub>‡</sub> PAZ01B . benzene alone or with cyclohexane only  
 j<sub>‡</sub> PAZ01N . naphthalene alone or with benzene or cyclohexane only  
 j<sub>‡</sub> PAZ01A . other
- monoazo dyes D-N=N-K, where D is the residue of a diazo component (or of a corresponding hydrazine or hydrazone), and K is the residue of a coupling component, *including* such monoazo dyes in which the substituents have been chemically modified subsequent to the coupling reaction—
- . ring system of D to which the azo group is directly attached—
- . . carbocyclic ring system—
- . . . benzene—
- . . . . unsubstituted, or substituted by methyl, halo, nitro or cyano only
- i PAM10A . . . . substituted by a directly attached ring system  
 i PAM11A . . . . other—
- . . . . . substituted by a group attached through a sulphur atom
- i PAM12A . . . . . not substituted by a group attached through a sulphur atom  
 i PAM12B . . . . . a further benzene ring, but no other ring system, being present in D
- i PAM12C . . . . . a further benzene ring, but no other ring system, being present in D
- i<sub>‡</sub> PAM07A . . naphthalene  
 i<sub>‡</sub> PAM08A . . anthracene  
 i<sub>‡</sub> PAM09A . . other carbocyclic ring system
- . . heterocyclic ring system, the ring system containing as heteroatoms—
- . . . nitrogen only—
- h<sub>‡</sub> PAM01 . . . . monocyclic  
 h<sub>‡</sub> PAM02 . . . . polycyclic  
 h<sub>‡</sub> PAM03 . . . sulphur only  
 . . . nitrogen and sulphur only—
- h<sub>‡</sub> PAM04 . . . . monocyclic  
 h<sub>‡</sub> PAM05 . . . . polycyclic  
 h<sub>‡</sub> PAM06 . . . other

Indexing Schedule 12—cont

- . atom or ring system of K to which the azo group is directly attached—
- . . . exocyclic carbon atom which is—
- h PAM28 . . . attached also to the carbon atom of a carboxylic amide or thiocarboxylic amide group
- h PAM29 . . . other
- . . . carbocyclic ring system—
- . . . benzene—
- . . . . . substituted *para* to the azo group by a substituent attached through a nitrogen atom—
- . . . . . an exocyclic amino group—
- i PAM15P . . . . . primary
- i PAM15C . . . . . secondary
- i PAM15T . . . . . tertiary
- i PAM15Q . . . . . quaternary
- . . . . . substituted by—
- i PAM14A . . . . . hydrocarbon group(s) only
- i PAM14B . . . . . other
- i PAM16A . . . . . containing benzene, but no other ring system, in its substituent(s)
- i PAM16B . . . . . other than exocyclic amino group
- i PAM16C . . . . . other
- . . . naphthalene—
- . . . . . a free or substituted amino group thereon being—
- i PAM18A . . . . . present
- i PAM19A . . . . . absent
- i PAM20A . . . other carbocyclic ring system
- . . . heterocyclic ring system—
- . . . monocyclic—
- h PAM21 . . . . . pyrazole
- h PAM22 . . . . . pyridine
- h PAM23 . . . . . pyrimidine
- h PAM24 . . . . . other
- . . . polycyclic—
- i PAM25A . . . . . indole
- j PAM26A . . . . . quinoline
- j PAM27A . . . . . other
- . ring systems not attached to the azo group—
- . . carbocyclic—
- . . . location—
- i PAM34D . . . . . in D
- i PAM34K . . . . . in K
- . . . type—
- h PAM30 . . . . . naphthalene
- h PAM31 . . . . . anthracene
- h PAM32 . . . . . cyclohexane
- h PAM33 . . . . . other
- . . . . . *benzene rings are not indexed*
- . . heterocyclic—
- . . . location—
- i PAM36D . . . . . in D
- i PAM36K . . . . . in K
- . . . heteroatoms in the ring system—
- . . . . . nitrogen only—
- h PAM38 . . . . . pyridine, piperidine
- h PAM39 . . . . . other
- h PAM40 . . . . . nitrogen and sulphur only
- h PAM41 . . . . . nitrogen and oxygen only
- h PAM42 . . . . . other
- monoazo dyes *not otherwise provided for above—*
- . *index is made only according to method of preparation—See Indexing Schedule 13 below*

Indexing Schedule 12—*cont*

disazo dyes X-N=N-Z-N=N-Y

. characteristics of X and Y—

. . number of benzene and naphthalene rings to which an azo group is directly attached—

h PAD44

. . . zero

. . . one, the ring being—

h PAD42

. . . . benzene

h PAD43

. . . . naphthalene

. . . two, the rings being—

h PAD39

. . . . both benzene

h PAD40

. . . . both naphthalene

h PAD41

. . . . benzene and naphthalene

. . other atoms or ring systems to which an azo group is directly attached—

h PAD45

. . . acyclic carbon atom

h PAD47

. . . carbocyclic ring system *other than* benzene or naphthalene

. . . heterocyclic ring system—

h PAD46

. . . . of a diazo component

. . . . of a coupling component—

h PAD48

. . . . . pyrazole

h PAD49

. . . . . pyridine

h PAD50

. . . . . other

. characteristics of Z—

. . number of benzene and naphthalene rings to which an azo group is directly attached—

h PAD34

. . . zero

. . . one—

. . . . to which both azo groups are attached—

. . . . . benzene, the relationship of the azo groups being—

h PAD35

. . . . . . *para*

h PAD37

. . . . . . *ortho*

h PAD38

. . . . . . *meta*

h PAD36

. . . . . naphthalene

. . . . to which only one azo group is attached—

h PAD32

. . . . . benzene

h PAD33

. . . . . naphthalene

. . . two—

. . . . directly linked to one another, the rings being—

h PAD29

. . . . . both benzene

h PAD30

. . . . . other

. . . . indirectly linked—

. . . . . the rings being—

h PAD26

. . . . . . both benzene

h PAD27

. . . . . . both naphthalene

h PAD28

. . . . . benzene and naphthalene

. . . . . the linkage comprising one or more of the following bivalent moieties—

. . . . . . combinations thereof are indexed under each appropriate term

h PAD23

. . . . . . . acyclic hydrocarbon radical, whether or not carrying monovalent substituents or ring systems

h PAD14

. . . . . . . acylamino or thioacylamino (*other than* urea, urethane, thiourea and thiourethane)

h PAD16

. . . . . . . amino

h PAD17

. . . . . . . carboxylic ester

h PAD18

. . . . . . . ether

h PAD19

. . . . . . . ketonic

## Indexing Schedule 12—cont

		..... ring system—
h	PAD24	..... benzene
h	PAD25	..... other ring system
h	PAD20	..... sulphonamido
h	PAD21	..... sulphone or sulphoxide
h	PAD22	..... sulphonic ester
h	PAD15	..... urea, urethane, thiourea or thiourethane
h	PAD31	..... other
		.. other atoms or ring systems to which an azo group is directly attached—
h	PAD12	.. acyclic carbon atom
h	PAD13	.. carbocyclic ring system <i>other than</i> benzene or naphthalene
		.. heterocyclic ring system—
h	PAD10	.... to which both azo groups are attached
h	PAD11	.... to which only one azo group is attached
		.... monocyclic—
h†	PAD07	.... pyrazole
h†	PAD08	.... other
h†	PAD09	.... polycyclic
		. ring systems of X, Y and Z not directly attached to an azo group—
		.. carbocyclic—
h†	PAD01	.. cyclohexane
h†	PAD02	.. naphthalene
h†	PAD03	.. other
		.... <i>benzene is not indexed</i>
		.. heterocyclic—
		.. monocyclic—
h†	PAD04	.... containing nitrogen as the only heteroatom
h†	PAD05	.... other
h†	PAD06	.... polycyclic
		polyazo dyes—
		. number of azo groups—
h	PAP25	.. three
h	PAP23	.. four
h	PAP20	.. five
h	PAP21	.. six
h	PAP22	.. seven or more
h	PAP24	. the azo groups not all lying in a single chain
		. atoms and ring systems to which the azo groups are directly attached—
		.. within the azo system—
h	PAP16	.... a benzene ring to which two azo groups only are attached in <i>ortho</i> or <i>meta</i> relationship
		.... benzene or naphthalene rings only—
h	PAP17	.... benzene only
h	PAP18	.... naphthalene only
h	PAP19	.... benzene and naphthalene
h	PAP15	.... the linkage between each pair of adjacent azo groups being a benzene or naphthalene ring to which both azo groups are attached
		.... the linkage between any pair of adjacent azo groups comprising two benzene or naphthalene rings to each of which an azo group is attached
		..... two benzene rings connected to one another via—
h	PAP13	..... a direct bond
h	PAP14	..... other
h	PAP11	..... two naphthalene rings
h	PAP12	..... a benzene ring and a naphthalene ring
h†	PAP07	.... an acyclic carbon atom
h†	PAP08	.... a carbocyclic ring system <i>other than</i> benzene or naphthalene
		.... a heterocyclic ring system—
h†	PAP09	.... monocyclic
h	PAP10	.... polycyclic
		.. terminating the azo system—
		.... benzene or naphthalene rings only—
h	PAP26	.... benzene only
h	PAP27	.... naphthalene only
h	PAP28	.... benzene and naphthalene
h	PAP34	.... an acyclic carbon atom
h	PAP35	.... a carbocyclic ring system <i>other than</i> benzene or naphthalene

Indexing Schedule 12—cont

- ... a heterocyclic ring system—
    - ... of a diazo component—
    - ... monocyclic
    - ... polycyclic
    - ... of a coupling component—
    - ... pyrazole
    - ... pyridine
    - ... other
    - ring systems not directly attached to an azo group—
    - carbocyclic—
    - cyclohexane
    - naphthalene
    - other
    - ... *benzene is not indexed*
    - heterocyclic—
    - monocyclic—
    - ... having nitrogen as the only heteroatom
    - ... other
    - ... polycyclic
  - special features—
  - azo groups to which additional atoms or groups are attached—
  - azoxy groups
  - other
  - biphenyl groups *other than* those in respect of which a term PAD29 or PAPI3 *above* is assigned
  - exocyclic chain of five or more carbon atoms, none of which is doubly or multiply bonded to a hetero-atom
  - heteroatoms *other than* nitrogen, oxygen, sulphur or halogen and *other than* the phosphorus atom of a phosphato group (-OPO<sub>3</sub>H)
  - ionic charge—
  - anionic—
  - ... salts (*including lakes*) with metals *other than* Na and K
  - ... other (*this term is not applied when the only counterion is H<sub>+</sub>, Na<sub>+</sub>, K<sub>+</sub> and/or NH<sub>4</sub><sup>+</sup>*)
  - cationic—
  - quaternary nitrogen atom
  - other
  - mixtures of two or more azo dyes (*identical with term PAG4, operative before Edition I*)
  - special physical form or purified form of individual azo dyes—
  - specific crystallographic or amorphous form
  - purified form
  - unsaturation *other than* in a heterocyclic ring system—
  - acetylenic or cycloolefinic
  - olefinic *other than* cycloolefinic
- Indexing Schedule 13  
*Terms from this Schedule are applicable to classifying term PAZ*
- methods of producing azo dyes—
  - preparing special physical forms or purifying—
  - processes applicable to azo dyes having indexed structures—*See terms PAC3-PAC3B of Indexing Schedule 10 above*
  - processes applicable to azo dyes *in general*—*See Part D below*
  - synthetic methods in which an azo group originates from two directly linked nitrogen atoms of a reactant subjected to coupling or condensation—
  - formation of azo groups from—
  - a diazo compound (*including* diazonium salts and compounds in which a diazo group is intracyclic or attached to a further hetero-atom)—
  - ... *NB only processes specifically catered for by terms PAQ8A-PAQ5C below are indexed*
  - ... coupling component having a displaceable substituent at the coupling site
  - ... diazo compound—
  - ... diazonium salt (*other than* chloride or sulphate)
  - ... other than a diazonium salt
  - ... diazotising agent—
  - ... ester of nitrous acid
  - ... other (*other than* sodium nitrite or nitrosylsulphuric acid)
  - ... diazotisation reaction—
  - ... *See also terms PAQ6A-PAQ6B below*
  - ... in the presence of the coupling component—
  - ... self-coupling
  - ... other
  - ... selective (*ie* not all of the diazotisable amine groups are diazotised)

## Indexing Schedule 13—cont

- j PAQ6A . . . . diazotisation or coupling reaction—  
     . . . . . continuous (*ie* non-batchwise)  
     . . . . . in the presence of a dye—  
 j PAQ4A . . . . . a previously prepared sample of the desired dye  
 j PAQ4B . . . . . other  
 j PAQ4C . . . . . under anhydrous conditions  
 j PAQ8B . . . . . with automatic control  
 j PAK18 . . . . . involving more than one diazo compound or more than one coupling component  
 j PAQ6B . . . . . in a process which is itself of technical interest  
     . . . . . inorganic substances present during diazotisation or coupling—  
 j PAK20A . . . . . basic substances (*other than* Na, K or NH<sub>4</sub> hydroxides, carbonates or bicarbonates)—  
 j PAQ7A . . . . . in a process which is itself of technical interest  
 j PAK20B . . . . . non-basic substances (*other than* H<sub>2</sub>O, HCl, H<sub>2</sub>SO<sub>4</sub> or H<sub>3</sub>PO<sub>4</sub>)—  
 j PAQ7B . . . . . in a process which is itself of technical interest  
     . . . . . organic substances (*other than* reactants, dyes, or substances whose sole function is to destroy excess  
         diazotising agent) present during diazotisation or coupling—  
 j PAK10B . . . . . polyethers and polyalkoxylated compounds—  
 j PAQ10B . . . . . in a process which is itself of technical interest  
     . . . . . acidic or anionic substances (*including* salts thereof)—  
 j PAQ9A . . . . . in a process which is itself of technical interest  
     . . . . . carboxylic acids containing no sulphonic acid groups—  
 j PAK2A . . . . . formic, acetic or propionic acid—  
     . . . . . *NB Na and K acetates are not indexed*  
 j PAK3 . . . . . having an exocyclic chain of nine or more carbon atoms  
 j PAK2B . . . . . other  
     . . . . . sulphonic acids—  
 j PAK1A . . . . . naphthalene sulphonic acid  
 j PAK1B . . . . . other  
 j PAK4A . . . . . other acidic or anionic substances  
     . . . . . basic or cationic substances (*including* salts thereof)—  
 j PAQ9B . . . . . in a process which is itself of technical interest  
     . . . . . amines (*including* ammonium salts and cyclic amines)—  
 j PAK5A . . . . . alkanolamines or ethers thereof  
 j PAK6A . . . . . having an exocyclic chain of nine or more carbon atoms  
 j PAK6B . . . . . pyridine or compounds containing a fused or unfused pyridine ring  
 j PAK5B . . . . . other  
 j PAK7 . . . . . other basic or cationic substances  
     . . . . . other organic substances—  
     . . . . . *NB substances containing more than one substituent are indexed under every appropriate term*  
 j PAQ10A . . . . . in a process which is itself of technical interest  
 j PAK8 . . . . . amphoteric or zwitterionic substances  
     . . . . . alcohols and ethers (*including* cyclic ethers)—  
     . . . . . containing alcohol groups but no ether groups—  
 j PAK9A . . . . . methanol, ethanol  
 j PAK9B . . . . . other  
     . . . . . containing ether groups—  
 j PAK11A . . . . . cyclic ethers  
 j PAK10A . . . . . other  
     . . . . . amides (*including* thioamides and cyclic amides)  
 j PAK16 . . . . . ureas, thioureas, urethanes, thiourethanes  
 j PAK19 . . . . . lactams  
 j PAK14A . . . . . formamide, dimethylformamide  
 j PAK14B . . . . . other  
 j PAK11B . . . . . hydrocarbons  
 j PAK12A . . . . . halohydrocarbons  
 j PAK12B . . . . . nitrohydrocarbons and halonitrohydrocarbons  
 j PAK13A . . . . . ketones  
 j PAK13B . . . . . sulphones  
 j PAK4B . . . . . other  
     . . . . . special features *not provided for above* of—  
 j PAQ5A . . . . . diazotisation reaction  
 j PAQ5B . . . . . coupling reaction  
 j PAQ5C . . . . . working-up procedure  
     . . . . . a hydrazine or hydrazone—  
 j PAR1 . . . . . oxidative coupling  
 j PAR2 . . . . . condensation with a carbonyl compound  
 j PAR3 . . . . . other  
 j PAR4 . . . . . other methods of formation of azo groups  
     . . . . . synthetic steps subsequent to formation of an azo group—  
 j PAL18B . . . . . processes to which two or more azo compounds are linked together

Indexing Schedule 13—cont

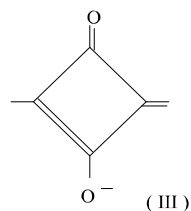
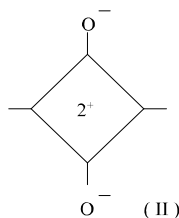
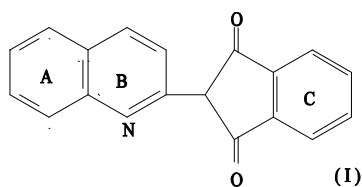
- ... processes in which the or each azo group in the product is/are present in a single reactant—
- ... . . . . formation or introduction of—
  - j PAL13 . . . . . acid ester groups of sulphuric, thiosulphuric or phosphoric acid
  - j PAL14 . . . . . acylamino or thioacylamino groups
    - ... . . . . . urea, thiourea, urethane or thiourethane groups—*See term PAL20 below*
  - j PAL12 . . . . . aldehydic or ketonic groups
    - ... . . . . . amino groups (*including* cyclic amino but *excluding* quaternary ammonium)—
  - j PAL15A . . . . . reduction of nitro groups
  - j PAL15B . . . . . hydrolysis of acylated amino groups
  - j PAL15C . . . . . other (*including* conversion of one amino group into another)
  - j PAL2 . . . . . carboxylic acid groups
  - j PAL1 . . . . . carboxylic ester groups
    - ... . . . . . cyano groups—
  - j PAL7A . . . . . by replacement of halogen
  - j PAL7B . . . . . other
  - j PAL11 . . . . . etherified hydroxy groups
  - j PAL9 . . . . . free alcoholic hydroxy groups
  - j PAL10 . . . . . free phenolic groups
  - j PAL18A . . . . . halogen atoms
    - ... . . . . . nitro groups—
  - j PAL8A . . . . . by nitration of an aromatic ring
  - j PAL8B . . . . . other
  - j PAL5 . . . . . sulphonamide groups
  - j PAL4 . . . . . sulphone or sulfoxide groups
    - ... . . . . . sulphonic acid groups—
  - j PAL3A . . . . . by sulphonation of an aromatic ring
  - j PAL3B . . . . . other
  - j PAL6 . . . . . sulphonic ester groups
  - j PAL20 . . . . . urea, thiourea, urethane or thiourethane groups
  - j PAL16B . . . . . formation of a ring or conversion of one ring into another
  - j PAL16A . . . . . formation of a bond between two previously unlinked carbon atoms *not provided for above*
    - ... . . . . . formation of salts—
  - j PAL19A . . . . . quaternisation of nitrogen atoms
  - j PAL19B . . . . . replacement of one salifying ion by another
    - ... . . . . . other
    - ... . . . . . *index is made only under the appropriate product terms*
  - ... . . . . . other processes, the total number of atoms in the dye molecule being—
  - j PAL17A . . . . . increased
  - j PAL17B . . . . . decreased
  - j PAL17C . . . . . unchanged
  - ... other synthetic methods—
  - ... formation of azo groups—
  - ... reduction of aromatic nitro compounds
  - ... condensation of aromatic nitro or nitroso compounds with aromatic amines
  - ... oxidation of aromatic amines (*including* “oxidative dimerisation”)
  - ... other
  - ... synthetic steps subsequent to formation of an azo group
  - ... processes *not provided for above*

Indexing Schedule 14

*Terms from this Schedule are applicable to classifying term PQS*

General notes and definitions

1. “*Quinophthalone*” means a dye which has at least one tautomeric form of formula (I) wherein rings A, B and C may each be substituted or unsubstituted, and may each have one or more, optionally substituted, ring systems fused thereto



2. “*Squarylium*” means a dye containing a radical of formula (II) or (III) quinophthalone dyes squarylium dyes

k PQS1  
k PQS2

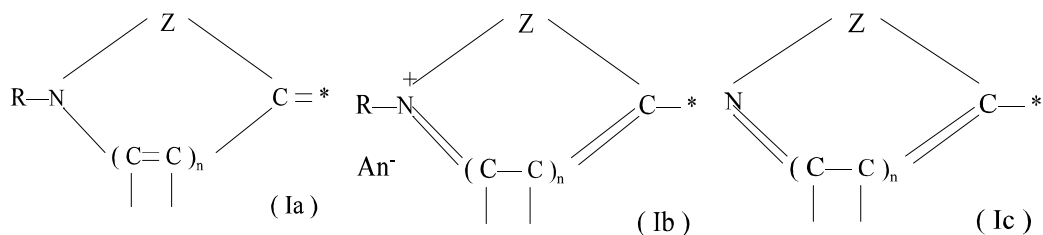
## Indexing Schedule 15

Terms from this Schedule are applicable to Classifying Term PQC

See also Indexing Schedule 27 for substituents

## General notes and definitions

.1. "Type I nucleus" means a moiety of formula Ia, Ib or Ic—



or tautomer thereof; wherein—

\* means that the bond is attached to a methine group (See note 5) or, in the case of formula Ia, to a carbon atom of a further ring system

n is 0 or 1. When n=1, the parenthesized carbons may form part of a further ring

Z completes a heterocyclic ring system which may carry substituents (including further ring systems)

R is selected from—

(a) a hydrogen atom

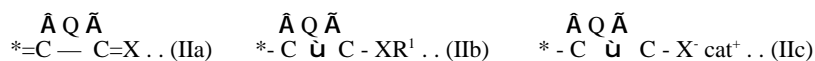
(b) a monovalent substituent

(c) a saturated hydrocarbon chain linked to a ring atom of the nucleus

(d) a saturated hydrocarbon chain linked to a methine chain joined at \*

An is an anion, or an anionic group in the molecule

.2. "Type II nucleus" means a moiety of formula IIa, IIb or IIc—



or tautomer thereof; wherein—

\* means that the bond is attached to a methine group (See note 5) or, in the case of formula IIa, to a carbon atom of any further ring system

Q completes a carbocyclic or heterocyclic ring system which may carry substituents (including further ring systems)

R' is a hydrogen atom or a monovalent substituent

X is O, S or Se

cat<sup>+</sup> is a cation, or a cationic group in the molecule

.3. When a nucleus can be regarded as either of Type I or Type II, it is considered to be of Type II for the purpose of indexing

.4. When R in a Type I nucleus is a group (d), the methine groups in the additional ring so formed are treated as if R were not so linked, ie as if they were exocyclic. In such a case, index is made under mark PQC59, and R is not further indexed as a substituent.

.5. "Methine group" means a methine group which is exocyclic, or treated as exocyclic in accordance with note 4, and may be substituted

.6. "Methine chain" include a single methine group

.7. In acetylenic analogues of methine dyes, the -C/ groups are treated as methine groups for the purposes of indexing and, in addition, mark PQC12 is applied

Indexing Schedule 15—*cont*

- k PQC01P . . . number of Type I and Type II nuclei—  
     . two—  
     . . . directly attached to one another—  
 k PQC76 . . . a Type I nucleus attached to a Type II nucleus  
 k PQC77 . . . other  
     . . . not directly attached to one another  
 k PQC54 . . . one Type I and one Type II nucleus  
     . . . two Type I or two Type II nuclei—  
     . . . . both Type I  
 k PQC50 . . . . both Type II  
 k PQC51 . . . . both carbocyclic  
 k PQC74A . . . . the ring skeletons of the two nuclei being—  
     . . . . . same  
 k PQC52 . . . . . different  
 k PQC53 . . . the direct linkage between the two nuclei comprising—  
     . . . . methine groups only (*See Note 5*)  
     . . . . . number of methine groups—  
     . . . . . . even—  
     . . . . . . . two  
 k PQC32 . . . . . . . four  
 k PQC34 . . . . . . . six or more  
 k PQC36 . . . . . . . odd—  
     . . . . . . . one  
 k PQC41 . . . . . . . three  
 k PQC43 . . . . . . . five  
 k PQC45 . . . . . . . seven  
 k PQC47 . . . . . . . nine or more  
 k PQC49 . . . . . substituents on the methine chain—  
     . . . . . attached through exocyclic atom—  
     . . . . . . methine chain branching from the main chain  
 k PQC19 . . . . . . . other hydrocarbon or substituted hydrocarbon group  
 k PQC24 . . . . . . . other substituent  
 k PQC25 . . . . . . . *index is also made according to Indexing Schedule 27*  
     . . . . . benzene ring (*including* substituted benzene)  
     . . . . . a ring system—  
     . . . . . cycloalkane or cycloalkene  
 k PQC21 . . . . . benzene  
 k PQC22 . . . . . other  
 k PQC23 . . . . . a carbon atom which is double-bonded to a heteroatom  
 k PQC20 . . . . . other atom or group *other than* a methine group  
 k PQC18 . . . . . methine groups *absent*  
 k PQC17 . . . . . other than two—  
 k PQC01Q . . . . . five or more—  
 k PQC06 . . . . . four  
 k PQC07 . . . . . three—  
     . . . . . one of which lies in the direct linkage between the other two  
     . . . . . central Type II nucleus to which the other two nuclei are linked—  
     . . . . . each by a methine chain  
 k PQC09 . . . . . other  
 k PQC10 . . . . . central Type I nucleus  
 k PQC11 . . . . . all three of which are linked (directly or indirectly) to—  
     . . . . . a central exocyclic atom which is—  
     . . . . . . directly attached to at least one of the three nuclei  
 k PQC13 . . . . . . not directly attached to any of the three nuclei  
 k PQC14 . . . . . a central ring system which is not itself a Type I or Type II nucleus  
 k PQC15 . . . . . one—  
     . . . . . number of methine chains attached—  
     . . . . . . two or more  
     . . . . . . one, the nucleus being—  
     . . . . . . . Type I—  
     . . . . . . . . connected via dimethine to benzene (styryl dyes)  
 k PQC80 . . . . . . . . other  
 k PQC81 . . . . . . . . Type II  
 k PQC73 . . . . . . . . zero  
 k PQC83 . . . . . . . . zero

- Indexing Schedule 15—cont  
 details of Type I and Type II nuclei—  
 . Type I nucleus—  
 . . ring structure—  
 k PQC63 . . . two or more heterocyclic rings  
 . . . one heterocyclic ring only—  
 . . . . five-membered ring with one nitrogen atom and optionally one further hetero atom, the latter being  
           in position 3—  
 k PQC56 . . . . . one nitrogen atom only  
 k PQC57 . . . . . one nitrogen atom plus one further hetero atom in position 3  
 k PQC58 . . . . . the nucleus containing less than the maximum possible number of double bonds  
 k PQC61 . . . . . six-membered ring with a single nitrogen as the only heteroatom  
 k PQC62 . . . . . other  
 . . . wherein R is a saturated hydrocarbon chain forming part of a ring system by being linked to—  
 k PQC59 . . . . a methine chain attached at \*  
 k PQC60 . . . . a ring atom of the nucleus  
 . . substituents on the nucleus—  
 . . . attached through an exocyclic carbon atom not doubly or multiply bonded to any further atom—  
 k PQC64 . . . . unsubstituted hydrocarbon group  
 . . . . . C-methyl and N-(C<sub>1-4</sub> alkyl) groups are not indexed  
 k PQC65 . . . . substituted hydrocarbon group  
 k PQC66 . . . benzene ring (including substituted benzene)  
 . Type II nucleus—  
 . . ring structure—  
 k PQC74 . . . carbocyclic  
 . . . heterocyclic—  
 k PQC67 . . . . pyrazole, imidazole, oxazole or thiazole  
 k PQC68 . . . . pyrimidine (including barbituric and thiobarbituric acid derivatives)  
 k PQC69 . . . . other  
 . . substituents on the nucleus—  
 . . . attached through an exocyclic carbon atom not doubly or multiply bonded to any further atom—  
 k PQC70 . . . . unsubstituted hydrocarbon group  
 . . . . . C-methyl and N-(C<sub>1-4</sub> alkyl) groups are not indexed  
 k PQC71 . . . . substituted hydrocarbon group  
 k PQC72 . . . benzene ring (including substituted benzene)  
 . . . . benzene attached to Type II pyrazole is not indexed  
 ring systems other than those of Type I and Type II nuclei and other than those in respect of which marks  
 PQC15, PQC21 and PQC23 are applicable—  
 k PQC90 . carbocyclic—  
 . . benzene is not indexed  
 . . attached to—  
 k PQC90A . . . a Type I nucleus  
 k PQC90B . . . a Type II nucleus  
 k PQC90M . . . a methine group  
 k PQC90X . . . other  
 k PQC85 . heterocyclic—  
 . . attached to—  
 k PQC85A . . . a Type I nucleus  
 k PQC85B . . . a Type II nucleus  
 k PQC85M . . . a methine group  
 k PQC85X . . . other  
 special features—  
 k PQC12 . acetylenic group in the chromophore  
 k PQC03 . biphenyl group  
 k PQC02 . exocyclic chain (other than a methine chain) of five or more carbon atoms, none of which is doubly or multiply  
           bonded to a heteroatom  
 . ions and ligands associated with the dye molecule—  
 . . the specific ions and ligands set forth in Table I are not indexed  
 k PQC92 . . anions  
 k PQC87 . . cations  
 k PQC88 . . ligands  
 k PQC05 . mixture of two or more dyes within this class  
 k PQC08 . special physical form or purified form of individual dyes—  
 k PQC08A . . specific crystallographic or amorphous form  
 k PQC08B . . purified form  
 k PQC16 . spiro configuration  
 k PQC04 . stilbene moiety

**TABLE 1**

The following specific non-metallic ions and ligands are not indexed:

Anions

Halide  
Perchlorate  
Hydroxide  
Sulphate, Bisulphate  
Sulphamate  
Nitrate

Phosphate  
Carbonate, Bicarbonate  
Methylsulphate, Ethylsulphate, Propylsulphate  
Cyanate, Thiocyanate  
Borate, Fluoroborate  
Benzenesulphonate, p-Toluenesulphonate

Cations

Hydrogen  
Ammonium  
Triethylammonium

Pyridium  
Piperidinium  
Benzylthiuronium

Ligands

Water, Methanol, Ethanol

Indexing Schedule 16

Terms from this schedule are applicable to classifying term PQM

General notes and definitions

1. "Methine group" means an exocyclic methine group which may be substituted.
2. "Methine chain" includes a single methine group
3. An unconjugated vinyl group is not considered to be a methine chain.
4. In acetylenic analogues of methine dyes, the -C/ groups are treated as methine groups for the purposes of indexing and, in addition, mark PQM8C is applied.

k	PQM01P	compounds in which the or each methine chain consists of a dimethine group to which only one ring system is attached—
		. number of dimethine chains—
k	PQM6C	. . two or more
		. . one, the attached ring system being—
k	PQM6A	. . . benzene (styryl dyes)
k	PQM6B	. . . other
		. nature of the or each dimethine chain—
k	PQM7A	$\begin{array}{c} \text{CN} \\   \\ \text{---CH=C} \\   \\ \text{CN} \end{array} \quad \text{or} \quad \begin{array}{c} \text{CN} \\   \\ \text{---C=C} \\   \quad   \\ \text{CN} \quad \text{CN} \\ * \end{array}$
k	PQM7B	. . other
k	PQM01Q	other compounds—
		. number of methine chains—
k	PQM2A	. . three or more
		. . two—
k	PQM2B	. . . attached to the same benzene or cyclohexadiene ring
k	PQM2C	. . . other
		. . one, the number of ring systems attached thereto being—
k	PQM3C	. . . five or more
k	PQM3A	. . . four
k	PQM3B	. . . three
		. . . two, the number of methine groups in the direct chain between the two ring systems being—
k	PQM5B	. . . . three or more
		. . . . two, the number of these ring systems which are benzene or cyclohexadiene being—
k	PQM4C	. . . . . two
k	PQM4B	. . . . . one
k	PQM4A	. . . . . zero
k	PQM5A	. . . . one methine group
k	PQM8A	. . . one
k	PQM8B	. . . zero

Indexing Schedule 16—cont

- ring systems present—  
 . attached to a methine chain—  
 k PQM9A . . heterocyclic  
 k PQM10A . . carbocyclic  
 . . . *benzene and cyclohexadiene are not indexed*  
 . not attached to a methine chain—  
 k PQM9B . . heterocyclic  
 k PQM10B . . carbocyclic  
 . . . *benzene is not indexed*
- special features—  
 k PQM8C . acetylenic group in the chromophore  
 k PQM1C . branched methine chain  
 k PQM1A . metal complex
- k PQM1B . methine group of formula  $\begin{array}{c} \text{CN} \\ / \\ =\text{C} \\ \backslash \\ \text{CN} \end{array}$  attached to a ring system
- k PQM2D . spiro configuration
- Indexing Schedule 17
- Terms from this Schedule are applicable to classifying term PCA*
- See also Indexing Schedule 26 for substituents and further features*
- General notes and definitions
- . 1. “Anthracene nucleus” means an unfused anthracene ring system
- . 2. “Anthraquinone” means optionally substituted 9,10-anthracenedione with all six double-bonds in place.  
*Excluded are hydrogenated forms, and compounds in which either or both of the two ketonic groups are absent*
- k PCA01P general character of the anthracene nucleus—  
 k PCA01Q . bearing at least one pair of directly attached nitrogen atoms in para relationship (eg 1,4-diamino-anthraquinone)  
 . other
- special features—  
 k PC80A . anthraquinone having directly attached thereto—  
 k PC28 . . amino group(s) and hydrogen atom(s) only  
 k PC98B . . no nitrogen atoms  
 k PC34 . anthracene nucleus *other than* anthraquinone  
 k PC98A . mixture of two or more anthracene dyes within this class  
 . synthesis of anthraquinone from non-anthraquinone compounds, *including* from non-anthraquinone anthracenes such as “leuco” compounds

Indexing Schedule 18

*Terms from this Schedule are applicable to Classifying term PCF*

General notes and definitions

- . 1. "Anthracene system" means a fused or unfused anthracene ring system
- . 2. "Carbocyclic-fused anthracene system" means a ring system in which anthracene is fused to a carbocyclic ring, and the total fused system may additionally comprise a heterocyclic ring
- . 3. "Heterocyclic-fused anthracene system" means a ring system in which anthracene is fused to a heterocyclic ring, but no anthracene is fused to a carbocyclic ring

perylene and perinone

. See class *PBE*

compounds of unidentified ring structure—

. prepared from or via—

- k PCF20 . . compounds which themselves fall within the present class (PCF)
- k PCF21 . . other

. in addition, indexing terms from the remainder of this Schedule are applied in respect of—

. . (a) the product structures insofar as these may be surmised

. . (b) the starting materials insofar as these fall within the present class

compounds containing a single anthracene system—

. fused

. unfused

. . See class *PCA*

- k PCF01Q compounds containing two or more anthracene systems—

k PCF24 . . two

k PCF25 . . three

k PCF26 . . four or more

k PCF27 . . all unfused

k PCF28 . . some unfused

k PCF29 . . none unfused (ie all fused)

. the linkage between each pair of anthracene systems consistent of—

. . a direct bond (single or multiple)

k PCF32 . . a non-anthracene ring system, or chain of such systems

k PCF33 . . an amino group (eg as in anthrimides)

k PCF31 . . a divalent radical connecting through a nitrogen atom at each end—

. . . at least one of the nitrogen atoms being attached to -CO-

k PCF34 . . . neither nitrogen atom being attached to -CO-

k PCF35 . . other

k PCF36 . . other

carbocyclic-fused anthracene systems (*See note 2*)—

k PCF22 . . at least one carbocyclic ring in the system being *other than* six-membered (eg five-membered as in

acidianthrone)

. all carbocyclic rings in the system being six-membered, their number being—

. . four—

k PCF18 . . . *ortho* fused (eg benzoanthraquinones, naphthacene derivatives)

k PCF17 . . . *ortho*- and *peri*-fused (eg benzanthrone)

k PCF19 . . five

. . six—

k PCF13 . . . having nine faces common to one another (eg anthanthrones)

k PCF14 . . . other (eg dibenzpyrenequinones)

. . seven, the total fused system comprising—

k PCF15 . . . no heterocyclic ring (eg benzodanthrones)

k PCF12 . . . a heterocyclic ring (eg the cyclisation products of benzanthranyl-amino-anthraquinones)

. . eight—

k PCF10 . . . pyranthrone (eg pyranthrone and heterocyclic-fused pyranthrone)

k PCF11 . . . other (eg naphthodianthrone)

. . nine—

k PCF06 . . . violanthrene or isoviolanthrene (eg dibenzanthrone, isodibenzanthrone and heterocyclic-fused derivatives

thereof)

k PCF07 . . . other (eg anthradianthrone)

k PCF08 . . ten or more

. heterocyclic ring in the fused system—

k PCF03 . . pyrrole (eg in "carbazolised" compounds)

k PCF04 . . pyridine

k PCF05 . . other

Indexing Schedule 18—contheterocyclic-fused anthracene systems (*See note 3*)—

. in which two or more heterocyclic rings are fused to adjacent faces of an anthracene ring—

- k PCF57 . . flavantrones  
k PCF58 . . other  
. other—  
. . number of heterocyclic rings in the fused system—  
k PCF52 . . . one  
k PCF50 . . . two or more  
. . characteristics of each heterocyclic ring in the fused system—  
k PCF51 . . . not directly fused to an anthracene ring  
. . . directly fused to an anthracene ring—  
. . . . *in the following subdivisions, each mark is a combination of two part-marks, the first identifying the heterocyclic ring fused to the anthracene ring, and the second indicating the nature of the fusion*  
. . . . nature of the heterocyclic ring—  
. . . . . containing nitrogen as the only heteroatom—  
. . . . . . five-membered—  
k PCF47— . . . . . pyrrole  
k PCF46— . . . . . other  
k PCF41— . . . . . pyridine  
k PCF43— . . . . . pyrazine  
k PCF42— . . . . . other  
k PCF45— . . . . . containing nitrogen with other heteroatoms  
k PCF44— . . . . . not containing nitrogen  
. . . . nature of fusion—  
. . . . . *ortho*-fused, the heterocyclic ring being—  
k —C . . . . . otherwise unfused  
. . . . . also fused—  
k —A . . . . . directly to a further anthracene ring  
k —B . . . . . otherwise  
k —D . . . . . *ortho*- and *peri*-fused  
further features—  
. ring other than anthracene systems—  
k PCF54 . . carbocyclic  
. . . *benzene is not indexed*  
k PCF55 . . heterocyclic  
k PCF59 . spiro configuration  
k PCF56 . unfused anthracene system *other than* anthraquinone

Indexing Schedule 19*Terms from this Schedule are applicable to classifying term PBS*

phthalides azaphthalides and naphthalides whereof the lactone ring is—

. spiro-condensed with—

- i PBS1 . . a xanthene ring system  
i PBS2 . . a ring system other than xanthene (*but including* thioxanthene)  
i PBS3 . not spiro-condensed  
xanthenes and thioxanthenes not provided for above—  
i PBS4A . xanthenes  
i PBS4B . thioxanthenes

Indexing Schedule 20*Terms from this Schedule are applicable to classifying term PQR*

diarylmethanes or diarylmethines

triarylmethanes or triarylmethines whereof the methane or methine carbon atom is—

- k PQR2 . interacyclic  
k PQR3 . exocyclic  
k PQR3A  
k PQR3B

Indexing Schedule 21*Terms from this Schedule are applicable to classifying term PBA**Terms annotated by i\* below are identical with corresponding terms in Key Editions earlier than Edition I, the codes of such earlier terms being indicated in brackets*

- i PBA1 phenothiazines  
i PBA2 phenazines  
phenoxazines—

Indexing Schedule 21—cont

i	PBA3	. containing one oxazine ring
i	PBA4	. containing more than one oxazine ring
i	PBA5	acridines ( <i>other than</i> quinacridones)
j	PBA6	quinacridones—
i*	PBA6C1	. isoquinacridones (PD1C1)
i*	PBA6C2	. quinacridones having fused rings (PD1C2) . nuclear substituents—
i*	PBA6C3	. . etherified hydroxy groups (PD1C3)
i*	PBA6C4	. . halogen atoms (PD1C4)
i*	PBA6C5	. . nitro groups (PD1C5)
i*	PBA6C6	. . other groups (PD1C6) . . . <i>hydrocarbon groups are not indexed</i>
i	PBA6C7	. treatment of pigments to change their physical form

Indexing Schedule 22

*Terms from this Schedule are applicable to classifying term PBQ*

		quinones—
i	PBQ1	. benzoquinones
i	PBQ2	. other quinone imines—
i	PBQ3	. benzoquinone imines
i	PBQ4	. other
i	PBQ5	quinone oximes

Indexing Schedule 23

*Terms from this Schedule are applicable to classifying term PQX*

k	PQX4	. . an —N= bridge directly linking two ring systems
k	PQX2	. . a hydrazine or hydrazone group
k	PQX3	. . a polyazine chain
k	PQX5	. . none of the above

Indexing Schedule 24

*Terms from this Schedule are applicable to classifying term PBB*

k	PBB1	coumarins and coumarin imines
k	PBB2	naphthalimides
k	PBB3	spiropyrans ( <i>including</i> spirothiapyrans)
k	PBB4	pyrrolo-pyrrole dyes

Indexing Schedule 25

*Terms from this Schedule are applicable to classifying term PBX*

		Index is made according to the ring systems present in, or conjugated to, the chromogenic moiety
i	PBX1	no heterocyclic ring system present
k	PBX2	heterocyclic ring systems present— . ring system at least one ring of which contains two or more nitrogen atoms, alone or with other hetero atoms—
i	PBX2A	. . monocyclic
i	PBX2C	. . bicyclic
i	PBX2D	. . tricyclic
i	PBX2E	. . tetracyclic
i	PBX2F	. . pentacyclic or higher polycyclic . other heterocyclic ring system—
i	PBX2G	. . monocyclic
i	PBX2H	. . bicyclic
i	PBX2J	. . tricyclic
i	PBX2K	. . tetracyclic
i	PBX2L	. . pentacyclic or higher polycyclic . special features—
i	PBX2M	. . metal complexes
i	PBX2B	. . a ring system containing a hetero atom other than N, O or S

Indexing Schedule 26

Terms from this Schedule are applicable to classifying terms PCA and PCB

General notes and definitions

- . 1. "Nucleus" means "porphyrazine nucleus" or "anthracene nucleus" as respectively defined in Indexing Schedules 3 and 17
- . 2. The following substituents are not indexed—
  - .. (a) unsubstituted hydrocarbon radicals
  - .. (b) the 9, 10-ketonic groups of "anthraquinones" as defined in Indexing Schedule 17
  - .. (c) substituents which are not connected (directly or indirectly) to the nucleus by entirely covalent bonding (eg substituents in non-dye saltifying ions)
  - .. (d) azo groups in Class PCB—See term PC87 in Indexing Schedule 3

substituents (See note 2 above)—

- . acid ester groups derived from sulphuric, thosulphuric or phosphoric acid—
    - .. sulphates
    - .. thiosulphates
    - .. phosphates
  - . acylamino and sulphonamido groups, *including* those whereof the nitrogen atom, but not the CO or SO<sub>2</sub> group, is intracyclic—
    - .. a single entity present having a skeletal structure greater than the minimum skeleton -CO-N< or -SO<sub>2</sub>-N< —
      - ... acylamino (eg >N-CO-N< or <N-CO-O-)
      - ... sulphonamido (eg >N-SO<sub>2</sub>-N< or -SO<sub>2</sub>-N-CN)
      - .. a single entity present having no more than the minimum skeleton -CO-N< or -SO<sub>2</sub>-N< —
        - ... directly attached to a nucleus via the N atom—
          - .... acylamino
          - .... sulphonamido
          - .... the CO or SO<sub>2</sub> moiety being—
            - ..... attached to a ring system *other than* benzene
            - ..... attached to benzene but to no further ring system
            - ..... not attached to a ring system
        - ... directly attached to a nucleus via the CO or SO<sub>2</sub> moiety—
          - .... acylamino
          - .... sulphonamido
          - .... the N atom being—
            - ..... intracyclic
            - ..... *See terms PC50 and PC51 below*
      - ... not attached to, or part of, a ring system
    - .. not directly attached to a nucleus—
      - .... directly attached to an extra-nuclear ring system via the N atom—
        - ..... acylamino
        - ..... sulphonamido
      - .... directly attached to an extra-nuclear ring system via the CO or SO<sub>2</sub> moiety—
        - ..... acylamino
        - ..... sulphonamido
  - .. not directly attached to a ring system—
    - .... acylamino
    - .... sulphonamido
- . aldehydic groups
- . amino groups, *including* quaternary ammonium groups, but *excluding* intracyclic amino and ammonium groups
- . directly attached to a nucleus, and also to—
  - ... a further ring system—
    - .... benzene only
    - .... other ring system
  - ... no further ring system—
    - .... hydrogen only
    - .... other
- . not directly attached to a nucleus—
  - ... directly attached to an extra-nuclear ring system
  - ... not directly attached to a ring system
- . carbonyl halide groups
- . carboxylic acid groups, *including* salts thereof
- . carboxylic ester groups
- . cyano groups

Indexing Schedule 26—cont

- . etherified hydroxyl groups—  
k PC21 . . directly attached to a nucleus  
k PC22 . . directly attached to an extra-nuclear ring system  
k PC23 . . not directly attached to a ring system  
. free alcoholic and phenolic hydroxyl groups—  
k PC25 . . directly attached to a nucleus  
k PC26 . . directly attached to an extra-nuclear ring system  
k PC27 . . not directly attached to a ring system  
. halogen atoms—  
k PC37 . . directly attached to a nucleus  
k PC38 . . directly attached to an extra-nuclear ring system  
k PC39 . . not directly attached to a ring system  
k PC14 . ketonic groups  
k PC01 . mercapto and thioether groups, and Se and Te analogues thereof—  
k PC01A . . -SH, -SeH and -TeH groups  
. sulphonamido groups  
. . *See* acylamino and sulphonamido groups *above*  
k PC03 . sulphone and sulposide groups  
. sulphonic acid groups, *including* salts thereof  
k PC10 . . directly attached to a nucleus  
k PC11 . . directly attached to an extra-nuclear ring system  
k PC12 . . not directly attached to a ring system  
k PC07 . sulphonic ester groups  
k PC08 . sulphonyl halide groups  
. thioether groups  
. . *See* mercapto and thioether groups *above*  
k PC94 . other substituents  
extra-nuclear ring systems—  
. directly attached to a nucleus—  
k PC41 . . benzene  
k PC42 . . other ring system  
. . . *the ring system is also indexed by terms PC05-PC51 below as appropriate*  
. carbocyclic—  
. . cyclohexane—  
k PC05 . . . directly bonded to an unfused benzene or further cyclohexane ring  
k PC06 . . . other  
k PC36 . . naphthalene  
k PC09 . . other  
. . . *benzene is not indexed*  
. heterocyclic—  
. . monocyclic—  
k PC47 . . . having nitrogen as the only heteroatom  
k PC48 . . . other  
k PC49 . . polycyclic  
. . a nitrogen ring-atom thereof being directly bonded to—  
k PC50 . . . an exocyclic -CO- group  
k PC51 . . . an exocyclic -SO<sub>2</sub>- group  
further features—  
k PC04 . biphenyl group  
. exocyclic carbon atom directly attached to a nucleus, this atom not being doubly or multiply bonded to a heteroatom, and being part of—  
k PC45 . . an unsubstituted hydrocarbon group  
k PC46 . . a substituted hydrocarbon group  
k PC13 . exocyclic chain of five or more carbon atoms, none of which is doubly or multiply bonded to a heteroatom  
k PC02 . heteroatom *other than* nitrogen, oxygen, sulphur and halogen, and *other than* the phosphorus atom of a phosphato group (-OPO<sub>3</sub>H)  
. salts and complexes with—  
k PC92 . . metals  
. . . *the central atom of a porphyrine nucleus is indexed only by term PC99 in Indexing Schedule 3*  
. . anionic species, the positive charge on the dye molecule being due to—  
k PC90 . . . quaternary nitrogen  
k PC91 . . . other  
k PC93 . . other  
k PC24 . special physical form or purified form—  
k PC24A . . special crystallographic or amorphous form  
k PC24B . . purified form  
. unsaturation, *other than* in a heterocyclic ring system—  
k PC17 . . acetylenic or cycloolefinic  
k PC16 . . olefinic *other than* cycloolefinic—  
k PC16A . . . of a stilbene moiety

Indexing Schedule 27

*Terms from this Schedule are applicable to classifying terms PAZ, PAAR, PAAT and PQC and are also used to index substituents in azo and azomethine ligands of complexes classified under term PAE*

	substituents—
	. <i>excepting—</i>
	.. <i>unsubstituted hydrocarbon radicals</i>
	.. <i>the 9,10-ketonic groups of anthroquinone nuclei</i>
	.. <i>substituents involved in complex union with a metal atom</i>
	.. <i>(in class PAZ:) substituents already indexed by terms PAC11 or PAD14-PAD31</i>
	.. <i>(in class PQC:) oxo, thioxo or free or salified hydroxyl or mercapto groups forming part of a Type III nucleus</i>
	. acid ester groups derived from sulphuric, thiosulphuric or phosphoric acid ( <i>including salts thereof</i> )—
k	PT13S . . sulphates
k	PT13T . . thiosulphates
k	PT13P . . phosphates
k	PT14 . acylamino and thioacylamino groups ( <i>other than urea, urethane, thiourea and thiourethane groups</i> )
k	PT12 . aldehydic and ketonic groups
	.. enolizable aldehydic and ketonic groups adjacent to a carbon atom to which an azo linkage is attached.
	<i>See terms PT09 and PT10 below</i>
k	PT15 . amino groups
k	PT02 . carboxylic acid groups ( <i>including salts thereof</i> )
k	PT01 . carboxylic ester groups
k	PT07 . cyano groups
k	PT11 . etherified hydroxy groups
k	PT09 . free alcoholic hydroxy groups
k	PT10 . free phenolic hydroxy groups
	. halogen atoms—
k	PT18 . . bromine
k	PT17 . . chlorine
k	PT16 . . fluorine
k	PT19 . . iodine
k	PT08 . nitro groups
k	PT05 . sulphonamido groups
k	PT04 . sulphone and sulphoxide groups
k	PT03 . sulphonic acid groups ( <i>including salts thereof</i> )
k	PT06 . sulphonic ester groups
k	PT20 . urea, urethane, thiourea and thiourethane groups
k	PT99 . other substituent

PART B: mixtures of dyes and/or pigments without further additives  
*See also* Note 3 of the Classifying, Indexing and Searching Notes *above*

PM dye and/or pigment mixtures

PART C: salts (*including* lakes) and complexes of dyes and pigments  
*See also* Notes 2 and 4 of the Classifying, Indexing and Searching Notes *above*

j PGA salts and complexes of—  
 j PGC . anionic dyes  
 . cationic dyes  
 PART D: special physical forms of dyes and pigments; purification of dyes and pigments  
*See also* Notes 2 and 5 of the Classifying, Indexing and Searching Notes *above*

i PP special physical forms

Indexing Schedule for term PP

preparation of special physical forms by—  
 j PP5 . comminution  
 j PP6 . granulation, agglomeration  
 . other—  
 j PP7 . . of pigments and water-insoluble dyes  
 j PP8 . . of water-soluble dyes  
 purification by—  
 j PP1 . membrane separation (*including* ultrafiltration, reverse osmosis and electro dialysis)  
 j PP2 . chromatography  
 j PP3 . other

Indexing Schedule for utility and properties of dyes and pigments and dye and/or pigment mixtures

*Terms from this schedule are applicable to all classifying terms in all parts of the heading, except classifying term PZZ in Part A, and are assigned in addition to any terms from U1S applied*

P100 chromogenic use in pressure sensitive recording media  
 P102 food and cosmetic additives  
 P104 mass coloration of polymers (*including* spin dyeing, bulk dyeing and mere references to incorporation)  
 P106 photographic and electrophotographic  
 P108 coloration of hydraulic materials, *eg* cement, plaster  
 P110 coloration of paints, lacquers and inks  
 P112 coloration of paper  
 P114 reactive dyestuff  
 textile dyeing and printing—  
 . cotton  
 P116 . wool  
 P118 . other non-synthetic fibres, *eg* viscose  
 P120 . polyesters  
 P122 . polyurethanes  
 P124 . other polyamides  
 P126 . acrylonitrile based polymers  
 P128 . vinyl chloride based polymers  
 P132 . other olefin and vinyl based polymers  
 P134 . cellulose acetate  
 P130 . other synthetic polymers  
 P136 bioactivity  
 P138 colouration of fur, feathers, hair, leather  
 P140