Pure & Appl. Chem., Vol. 49, pp. 1797 - 1802. Pergamon Press, 1977. Printed in Great Britain.

MANUAL METHODS FOR RETRIEVING INFORMATION IN PASCAL FILE

Denise Pélissier

C.N.R.S. - Informascience, Paris, France

Abstract - Manual methods for retrieving information in PASCAL file are based on the printed publications : Bulletins Signalétiques. The PASCAL data base is described : document sources, fields covered in chemistry and corresponding sections of Bulletins Signalétiques. Classification scheme. Description of an abstract and its elements. Indexing and indexes. Examples of use.

INTRODUCTION

Manual methods for retrieving information in PASCAL file (see Note a) are based on the printed publications : Bulletins Signalétiques. These journals, existing since 1940, were published up to 1969 by conventional methods. They are now produced automatically. The journals constantly improving are designed for research scientists, technologists, information scientists and also for non specialist readers. In 1976 the "Bulletin Signalétique" comprises 49 sections published monthly (10 issues per annum).

DOCUMENT SOURCES

The file covers a vast field as it handles all exact and life sciences as well as earth sciences and technology. The documents are drawn from journals (13 000), conference proceedings, research and development reports (chiefly those sponsored by DGRST, see Note b), theses (doctoral and master theses), books, patents.

The breakdown of documents processed by literature type is

Journal papers	93%
Conference proceedings	3,5%
Reports	1%
Patents (filed in France)	1,6%
Theses	0,5%
Books	0,4%

The geographical breakdown of journals acquired by subscription is as follows

Europe	62%
North America	28%
Asia	5,3%
Latin America, Africa, Oceania	4,7%

Note a. PASCAL : Programme Appliqué à la Sélection et à la Compilation automatique de la Littérature (Program applied to automatic selection and compilation of literature).

Note b. DGRST : Délégation Générale à la Recherche Scientifique et Technique (General delegation for scientific and technical research).

The breakdown by languages of all journals received is as follows

English	40%
French	20%
German	10%
Russian	9%
Sundry	21%

PASCAL DATA BASE AND ABSTRACTS JOURNALS

As indicated by the fields covered, the PASCAL data base is encyclopaedic as regards scientific and technical information. This is particularly interesting for an interdisciplinary field such as chemistry. Due to the large number of documents processed (more than 500 000 references each year) the corresponding documentary file is organized in sub-files or documentary units. This organization improved the file and permitted the development of a SDI service and automatic retrospective search (four years are now available). Chemistry is covered in 7 of the 8 documentary units.(Fig. 1)

Documentary units

Documentary unit : chemistry. 80 000 references each year. 4 journals or sections correspond to this unit, they are :

170 - Chemistry : 42 000 references per year deals with General Chemistry (equipment, equilibria, catalysis, combustion, thermochemistry, electrochemistry, surface chemistry, etc.) Mineral and organic chemistry (preparation and chemical properties of elements and compounds)
Analytical chemistry.

780 - Polymers : 20 000 references per year deals with analysis, structure, properties, elaboration and uses of polymers. Since 1974 coating products, inks, wood, paper, leather and related materials have been added to the file, they were treated before in section 880.

880 - Chemical Engineering, Chemical Industry : 10 000 references per year deals with chemical engineering, chemical industry (production and uses of mineral and organic compounds, dyes, fertilizers, explosives), building materials (lime, plaster, cement products, ceramics, glasses), fats and oils, surface active agents and detergents, essential oils and cosmetics.

885 - Pollution, Wastes, Noise : 9 500 references per year deals with Water and air pollution (prevention, control and treatment) solid wastes, noise, legislation.

In the other documentary units a certain number of sections are wholly or partially interesting for chemists.

Documentary unit : chemical physics. 25 000 references per year. 2 journals correspond to this unit, they are :

161 - Condensed matter structure, Cristallography 8 500 references per year.

165 - Atomic and molecular physics. Physics of fluids and plasmas. 17 000 references each year (80% concerning chemistry).

Documentary unit : Physics. 90 000 references per year. There are 7 journals corresponding to this unit, only one is really interesting for chemists.

160 - Physics of condensed matter. 12 000 references per year deals with acoustic, electrical, magnetic, mechanical, optical properties of materials, electronic structure.

Documentary unit : Earth sciences. 35 000 references per year. There are 8 journals corresponding to this unit, only one is really interesting for chemists.

220 - Mineralogy, Geochemistry, Extraterrestrial Geology. 5600 references per year (80% concerning chemistry).

Documentary unit : Life sciences. 180 000 references per year. There are 20 journals corresponding to this unit, 2 are interesting for chemists :

320 - Biochemistry, Biophysics : 15 000 references per year

330 - Pharmacology, Toxicology : 23 000 references per year

Documentary unit : Energy. 19 000 references per year. The corresponding journal is :

730 - Fuels, Energy. 19 000 references per year (30% concerning Chemistry) deals with : Composition, properties, production and treatments of fossil fuels (coal, petroleum, etc.) Natural energy (solar energy, wind energy, etc.), Thermics.

Documentary unit : Engineering sciences. 35 000 references per year.
There are 2 journals in this unit :

740 - Metals, Metallurgy. 20 000 references per year (50% concerning chemistry, mainly elaboration of metals and alloys, corrosion and prevention)

890 - Mechanical engineering, Building and civil engineering, Transportation. 15 000 references per year (10% interesting for chemists).

To sum up among the 500 000 references of the PASCAL file about 150 000 concern Chemistry (80 000 for the documentary unit chemistry).

Description of an abstract and its elements

The abstracts describe briefly the essential elements of the document so that the reader can decide whether he needs to resort to the full document or not. These abstracts are as objective as possible in order to be used throughout the file. (see Fig. 2)

They include a bibliographic description giving author's name, affiliation, original title of the document, and its translation into French, etc.

The cataloguing is done in accordance with the UNISIST Reference Manual. This assures compatibility of the information with that processed by other large documentation centers throughout the world.

A classification code is attributed to each description in order not only to distribute the various abstracts within the various journals sections (some are duplicated if need be) but also to organize, as it were, the documentary file itself. For example the reference of a document dealing with pollution by oil refining plants can be found in section 730 (Fuels, Energy) and in section 885 (Pollution).

Indexing by means of controlled descriptors finally completes the documentary analysis of each paper. All the important elements of the document are described : type of reactions, properties, relationships between structure and activity (biological for example), method of analysis, procedures, apparatus, working conditions, etc.

The descriptors are drawn from controlled alphabetical lists or from thesauri. There is a thesaurus for Polymer Science and in Atmospheric Pollution. A thesaurus in Chemical Engineering is nearly finished.
The controlled descriptors are then used for the automatic searching and for the constitution of indexes.

Indexes

Each monthly issue of a journal contains indexes for easy use. There are subject, author and patentee indexes (for Applied Chemistry and Technology only).

Subject indexes are either hierarchic or permuted. In Chemistry due to the size of the different files they are mainly hierarchic and thematic. Their philosophy depends on the field covered. For example the main subject headings of the chemical Engineering index are procedures. For the building materials the subject headings are of course materials. Some sections also have when necessary geographical indexes. This is the case for Atmospheric Pollution and for Energy.

Fig. 1

Fields covered in chemistry and corresponding sections of Bulletins Signalétiques

DOCUMENTARY UNIT	BULLETINS	SUBJECT COVERAGE
CHEMISTRY	170	GENERAL CHEMISTRY. MINERAL AND ORGANIC CHEMISTRY. ANALYTICAL CHEMISTRY
	780	POLYMERS, COATING PRODUCTS, INKS, WOOD, PAPER, LEATHER AND RELATED MATERIALS
	880	CHEMICAL ENGINEERING. CHEMICAL INDUSTRY. BUILDING MATERIALS. FATS AND OILS. SURFACE ACTIVE AGENTS AND DETERGENTS. ESSENTIAL OILS AND COSMETICS
	885	POLLUTION. WASTES. NOISE
CHEMICAL PHYSICS	161	CONDENSED MATTER STRUCTURE. CRISTALLOGRAPHY
	165	ATOMIC AND MOLECULAR PHYSICS. PHYSICS OF FLUIDS AND PLASMAS
PHYSICS	160	PHYSICS OF CONDENSED MATTER
EARTH SCIENCES	220	MINERALOGY, GEOCHEMISTRY, EXTRA-TERRESTRIAL GEOLOGY
LIFE SCIENCES	320	BIOCHEMISTRY. BIOPHYSICS
	330	PHARMACOLOGY. TOXICOLOGY
ENERGY	730	FUELS (COMPOSITION, PROPERTIES, TREATMENTS). NATURAL ENERGY. THERMICS
ENGINEERING SCIENCES	740	METALLURGY
	890	MECHANICAL ENGINEERING. BUILDING AND CIVIL ENGINEERING. TRANSPORTATION

Fig. 2

Retrieval of an article about analysis of hydrocarbons and alcohols by gas chromatography using the hierarchic index

76-170-**20789.** *LONG (M.), RAVERDINO (V.), DI TULLIO (G.), TOMARCHIO (L.).* (Liquichimica Robassomero S.p.A., Robassomero, Italy). **Some applications of molecular sieves in the gas chromatographic analysis of hydrocarbons and alcohols.**
J. Chromatogr., Netherl., (1976), 117, no 2, 305-314, bibl. (11 réf.).
Méthode et applications. Technique permettant le contrôle en continu de la production industrielle de n-paraffines et alcools de haute pureté.

SUBJECT HEADINGS

n°1- **Hydrocarbure**
Catalyseur
Encrassement, 19275.
Combustion, 19311.
Diffusion
Capillaire, Verre, 19969.
Dosage
Chromatographie phase gazeuse,
→ 20768, 20789, 20809.
Chromatographie phase gazeuse, Spectrométrie IR, 20769.

n°2- **Alcool**
Diffusion
Capillaire, Verre, 19969.
Dosage
Chromatographie phase gazeuse,
→ 20789.
Sécurité, 19026.

n°3- **Chromatographie phase gazeuse**
Phase stationnaire
Polyol, 20788.
Propiononitrile(isoalcoxy-3), 19054.
→ Tamis moléculaire, 20789.
Technique
Frontale, Utilisation, 20579.

Each year new subject headings are added according to the evolution of science and technology. A certain number of cross references are there to minimize the barriers to be overcome by a user.

Author indexes are listed in alphabetical order. There are no cross references as compound names have an entry at every element. Patentee indexes exist for Applied Chemistry and Technology (sections 730-740-780-880-885-890). All the indexes are cumulated at the end of the year.

Nitrique acide
Fabrication
Contrôle commande, Ordinateur, 3324.
Epuration polluant gazeux, Azote dioxyde, 3325.
Epuration polluant gazeux, Azote monoxyde, 3325.
Matière première, Azote dioxyde dimère, Eau, Contrôle commande, 3324.
Procédé Sabar, 3298.
Usine
Le Havre, 3493.
Utilisation
Décomposition, Phosphorite, Cinétique, 3307.

Hierarchic index

KULA (J.), 4122.
KULAKOV (M. V.), 3269.
KULAKOV (V. N.), 3345.
KULESZA (J.), 4122.
KULIKOVSKIJ (S. I.), 3191.
KUMAR CHAKRABURTTY (AMIYA), 3528.
KUMAR PAL (CHANCHAL), 3528.
KUNIHIRO (K.), 4001.
KURBATOVA (I. I.), 3559.
KURIYAMA (N.), 3919.
KUROCHKINA (M. I.), 3186.
KURSHPEL (L. A.), 3617.
KURSKAYA (I. N.), 3695.
KURZ (H. P.), 3238.

Author index

Canada
Diffusion atmosphérique
Phénomène météorologique, Climatologie, 3249.
Prévention pollution
Mine, Norme émission, 3360.

D

Danemark
Prévention pollution
Aciérie, Four électrique, 3376.

Geographical index

REFRATECHNIK ALBERT G.M.B.H, 3840.
RETIF (CLAUDE FRANÇOIS), 3498.
REVCOLEVSHI (ALEXANDRE), 3911.
RHEINISCHE BRAUNKOHLENWERKE A.G, 3386, 3387, 3388.
RHEINISCH-WESTFALISCHES ELEKTRIZITATSWERK A.G, 3353.
RHONE POULENC INDUSTRIES, 3359.
RINALDI (NOE UGO), 3374.
ROHRBACH (RUDOLF), 3604.

Patentee index

CONCLUSIONS

There is a difference between manual searching in a printed index and machine retrospective searching. During a manual search a continuous series of decisions are taken throughout the search, as for machine search the search strategy is decided once the logical equation is written. That's why depending on the question the results are not always the same when comparing by both methods. Besides some uses of indexes are irreplaceable; they can help to precise a question for a profile to get new ideas by analogies for example.

Although working actually to develop automatic access to the file (in batch and on line) we try every year to improve and simplify the indexes being aware it will still remain for a certain time for a lot of users a useful and inexpensive means to get scientific and technical information.