of chemistry. Millions of copies of these booklets are sold each year in the Soviet Union.

Information on chemistry and chemical technology in the Soviet Union is further disseminated by subscriptions to journals published in the United States and internationally on chemistry and chemical technology. These journals are purchased through Mezhdunarodnaya Kniga and shipped directly to universities and research institutes throughout the USSR.

Chemical information is also made available through a series of publications offered by MIR Publishing House titled "New Books From Abroad". This is a series of publications whereby in-depth reviews describe the foreign published books.

HOW SCIENTIFIC INFORMATION BECOMES KNOWN IN THE WEST

Scientific information emanating from the USSR becomes known in the West through the services of a number of commercial and public agencies. In the United States, several noteworthy sources are: Plenum Publishing Corp., Chemical Abstracts Service, and the American Institute of Physics. As Plenum is the largest publisher of English-language translations of Soviet materials it is important to know how they go about making Soviet scientific and technical information available to the Western World. With regard to *journals*, Plenum Publishing Corporation translates into English *91* Soviet journals *cover-to-cover*. Journals are accepted for publication only after extensive evaluation by qualified scientists. Once Plenum decides to translate a journal, high-quality translations are achieved by using technical specialists who have English as their native language. These translations are carefully monitored through a sophisticated quality control system. Translated manuscripts are reviewed by proofreaders who check for errors in translation as well as for technical errors and omissions. The manuscripts are then typeset and proofread once again for errors in preparation. They are then printed, bound, and distributed throughout the world. On the average, a translation is published six months after the Russian edition. Timing is of the utmost importance throughout the system and is second only to quality.

Plenum participates in all major abstracting/indexing services in order to make the availability of their English translations known to a wide audience. In this way researchers may gain knowledge about the availability of individual articles by referring to readily available on-line or manual indexes.

With regard to books, the selection of Soviet materials to be translated into English is done by a group of scientists in the various subdisciplines of chemistry. Books are selected for their contributions to the world literature and not because they present the Soviet point of view. The book publishing program follows basically the same channels as the journals publishing program. Specialized, highly qualified translators are selected to translate the manuscript of the book. Following the translation, technical editors, who are specialists in the subdiciplines, carefully edit the book and frequently write introductions and check the references to make sure that no significant Western references have been omitted. The books are then typeset and published and distributed throughout the World.

Plenum distributes brochures and review copies, takes ads in major scientific publications, and participates in conferences throughout the world in order to make the availability of this information known to the researchers who require it.

Chemical Abstracts as a Resource for Health and Safety-Related Chemical Information†

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Documents relevant to the health and safety of the worker or consumer exposed to chemicals or radiation extend over the entire range of the chemical disciplines, and therefore pertinent information can appear throughout the Chemical Abstracts Service information systems. Access routes to such information in both CAS printed publications and computer-readable services are discussed. In the weekly issues of *Chemical Abstracts*, health and safety information can be accessed through the natural-language Keyword Index. Retrieval of pertinent information through the controlled headings of the CA Volume Indexes in conjunction with the Index Guide is also discussed. *CA Selects*, a set of current-awareness publications, is described as it pertains to the specialized areas of health and safety.

The printed and computer-readable services provided by CAS cover not only the area of pure chemistry, but, in addition, the chemical aspects of many other scientific fields including geology, physics, and the biological sciences. CAS's coverage of biochemistry is very comprehensive. In fact, nearly one-third of all the information made available by CAS is related to biochemistry, making the CAS database an excellent source of information relevant to the health and safety of humans exposed to chemicals or radiation.

The CAS database contains abstracts, bibliographic information (such as titles, authors, and work location), natural-language index terms (known as keywords), section numbers, and volume index entries. Select portions of this database are packaged into a variety of computer-readable and printed services.

CA WEEKLY ISSUES

The CA weekly issues contain abstracts or brief summaries disclosing the main findings of a document and are probably the most familiar of the printed services. Associated bibliographic information and a keyword index are also present.

Each even/odd issue pair is divided into 80 subject-oriented sections, many of which contain large quantities of health and safety information. Section 59 (Air Pollution and Industrial Hygiene), Section 71 (Nuclear Technology), and Section 4 (Toxicology) are foremost among these; however, coverage of

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0095-2338/80/1620-0012$01.00/0

SECTION DISTRIBUTION OF HEALTH AND SAFETY INFORMATION NINTH COLLECTIVE (1972-1976)

Section Grouping	Section Numbers	Documents	% of Total
Biochemistry	1-20	2803	25%
Organic Chemistry	21-34	482	4%
Macromolecular Chemistry	35-46	1167	10%
Applied Chemistry & Chemical Engr.	47-64	5041	45%
Physical and Analytical Chemistry	65-80	1816	16%
		11309	100%

Figure 1.

KEYWORD INDEX

Explosion ammonia review 174996w
chem plant review 171512c
⋮
Health hazard asphalt paving mix 122015z
hazard cobalt 194309j
⋮
Safety acetylene vinyl acetate prodn 194358s
aluminum alloy prodn 194156t
chem paper manuf 172144p

Figure 2.

health and safety information in CA is by no means restricted to these three sections. A computer search of the CAS database for the 9th Collective Period (1972–1976) using highly relevant health and safety terms (e.g., health physics and implosion) revealed that all 80 sections of CA contained health and safety information. Figure 1 shows a breakdown of the results on the basis of the five CA section groupings and clearly reflects the interdisciplinary nature of health and safety.

The term "documents" refers not only to journal articles, books, patents, dissertations, etc., but also includes letters to the editor such as those appearing in *Chemical and Engineering News*. The health and safety information in these documents need not be of primary importance; a single statement within a document such as "the reaction was run at temperatures below 180° to prevent explosion" is sufficient to warrant highlighting in the abstract, keywords, and volume index entries.

Given that abstracts relevant to the area of human health and safety can be found in any of the 80 sections, a keyword index is provided at the back of each issue for efficient access to relevant information. This index is an alphabetical listing of "keyword phrases", made up of from one to five words followed by an abstract number (Figure 2).

The terms within the keyword phrase are selected by the document analyst primarily from the document title and abstract, and hence reflect the author's terminology. The Keyword Index does contain one controlled vocabulary term and that's the term "safety". Since 1973 we have tried to collect studies relevant to laboratory and industrial safety at this keyword. However, for comprehensive searching, related keyword terms such as health hazard and explosion should also be consulted.

The keyword entries for a given document reflect author intent. Thus, keywording will vary depending on whether safety is the main or incidental point of a document. For example, two of the keyword phrases for a document entitled "A low hazard procedure for the laboratory preparation of polynitrate esters" might be:

Safety polynitrate ester prepn
Nitrate poly ester safety

Notice that "safety" is part of both keyword phrases, making it possible to access this paper under the term "safety" or under the term for the class of compounds (in this case nitrate).

CA08717135821k

Title: Organoplatinum Compounds. III. Tetrakis[trimethyl platinum(IV)perchlorate], preparative and structural aspects of a new organoplatinum cluster compound

Author: Neruda, Boris; Glozbach, Eberhard; Lorberth, Joerg
Location: Fachber. Chem., Philipps-Univ., Marburg, Ger.
SEC-SUB: CA029013, Cross-ref: 075 Publ. Class: Journal
Journal: J. Organomet. Chem. Coden: JORCAI Publ. Yr: 77
Volume: 131 Issue: 2 Pages: 317-20 Language: Eng

Keyword phrases: Cluster methylplatinum perchlorate
Platinum methyl cluster compd
Safety methylplatinum cluster
Crystal structure methylplatinum cluster
Mol structure methylplatinum cluster

Figure 3.

However, for a document entitled "The preparation and structural aspects of a new organoplatinum cluster compound", in which the author indicates that the compound may explode on heat or shock treatment, two of the keyword phrases might be:

Safety platinum cluster compd
Platinum cluster compd

As before, one of the keyword phrases starts with "safety". Unlike the previous example, however, the keyword phrase for the compound of interest does not contain a safety term because the author's main interest was not the safety of the compound, but rather its preparation and structural features.

Therefore, in searching the Keyword Index for documents dealing with the safety aspects of a particular compound or class of compounds, it is necessary to look under both safety terms and compound terms.

Keyword phrases are also included in the weekly computer-readable files *CA Search* and *CA Condensates* as access points for on-line searching. In addition, these files contain the same bibliographic information found in the printed weekly issues; unlike the printed issues, however, they do not contain abstracts.

The bibliographic information in the computer-readable files provides several additional access points to the health and safety literature. This can readily be seen by looking at the computer-readable record (Figure 3) in light of a search for the safety aspects of organometallic compounds. Considering the printed access route first, i.e., the keyword phrases, there is no entry to this document via a term such as "organometallic" or "organoplatinum". So to find this safety paper it probably would be easiest, although time consuming, to scan through the keyword phrases beginning with the term "safety". In searching via computer, however, the document can be readily accessed by combining the term "safety" with the title term "organoplatinum", the journal title term "organomet.", or the CA section number for organometallic compounds, CA029.

Unlike CA weekly issues which are primarily for current-awareness searching, the weekly computer-readable files have the added advantage of being useful for both current-awareness and retrospective searching.

VOLUME INDEXES

The remaining part of the CAS database, the volume index entries, is also packaged into both printed and computer-readable services. In computer-readable form, the volume index entries appear as part of the weekly *CA Search* file and the biweekly CASIA file. In printed form, they are issued semiannually as the Chemical Substance Index and the General Subject Index. The Chemical Substance Index contains index entries for specific chemical compounds that have new data reported about them in a given document. The General Subject Index contains index entries for such things

as biochemical concepts, taxonomy names, chemical properties, classes of substances, e.g., amines, etc.

Unlike the natural-language Keyword Index these indexes have controlled-vocabulary headings, meaning that a specific compound or a specific idea will always appear at a given place in the index, greatly increasing the ease and speed of searching. For example, a list of carcinogenic substances can be easily compiled by consulting the heading "Carcinogens" in the General Subject Index. To accomplish this same search using the natural-language Keyword Index would be laborious indeed, as it would necessitate looking not only under the term "carcinogen", but under many other equivalent terms, such as cancer, tumor, carcinoma, etc.

In addition to the controlled vocabulary, the depth of indexing is greater in the volume indexes than in the Keyword Index. For example, for a document dealing with poisoning from various metals, the keyword entries probably would be:

Metal poisoning
Poisoning metal

In the volume indexes, however, there would be entries both at the headings "Metals" and "Poisoning" in the General Subject Index and at the headings for all the specific metals studied in the Chemical Substance Index.

INDEX GUIDE

To effectively use the volume index entries when searching, whether they are in printed or computer-readable form, CAS provides an Index Guide. Among other things, the Index Guide contains cross-references to help in finding index headings. There are cross-references from common chemical names used in the literature to CA Index Names; e.g., vinyl chloride is cross-referred in the Guide to the systematic CA Index Name chloroethene. This name appears in an inverted format with the heading parent first, i.e., Ethene, chloro-, and is followed by the number [75-01-4]. This is CAS's unique identification number for the compound and is known as a Registry Number.

There are also cross-references from conceptual ideas to the general subject heading for those ideas. For example, occupational disease is cross-referred to Disease, occupational.

Finally, there are "see also" cross-references to related headings that might be of interest to the searcher. For example, under the heading *Safety*, there are five related headings listed:

Accidents
Disease, occupational
Health hazard
Health physics
Injury

In addition to cross-references the Index Guide contains indexing policy notes which indicate how various headings are used and what type of information one might expect to find there. For example, at the heading *Standards, legal and permissive* the heading content note reads:

> *Standards, legal and permissive*
> Studies of legal and permissive standards as established by governmental and other regulatory agencies, particularly for substances of biological and toxicological interest, as they apply both to specific substances and to classes of substances, are indexed at this heading.

Since the note indicates that the standards indexed at this heading are only those established by governmental or other regulatory agencies, standards merely suggested by authors will not appear here.

32. Medicine
Disease
. Respiratory tract diseases
.. Lung, disease or disorder
... Pneumoconiosis
.... Anthracosis
.... Asbestosis
.... Siderosis
.... Silicosis

Figure 4.

The appendixes to the Index Guide also contain helpful information for the searcher. Besides a discussion of general subject heading selection and chemical nomenclature policies, the appendixes contain hierarchies of the general subject headings. These hierarchies can be very useful in search profile development, as they list the general subject headings (excluding the taxonomic headings) in order of increasing specificity. For example, part of hierarchy number 32 (Medicine) deals with occupational lung diseases (Figure 4). The hierarchy indicates that in compiling information about occupational lung diseases, the broad heading Pneumoconiosis as well as the four more specific headings listed below it should be consulted.

All in all, the Index Guide is an invaluable aid to the searcher and should be the starting point for any search involving CA volume index entries.

SPECIALIZED INFORMATION PACKAGES

There are several specialized information packages published by CAS that contain health and safety information. Two of these are part of the series of current-awareness publications known as *CA Selects*. One *Selects*, entitled "Chemical Hazards", contains abstracts that deal with human health and safety; the other, "Carcinogens, Mutagens and Teratogens", contains abstracts of both animal and human studies dealing with carcinogens, mutagens, and teratogens. The *CA Selects* are designed for use by the individual scientist, and are issued biweekly, corresponding to two weekly issues of printed CA. All 80 sections of CA are scanned for abstracts of interest to a given *Selects*.

Another source of health and safety information is the weekly CAS publication, *Chemical Industry Notes* (CIN), which contains extracts of business-oriented articles pertinent to the chemical industry. Industrial accidents, industrial hygiene, and governmental regulations of drugs, cosmetics, and chemicals are among the topics covered in CIN. CIN is also available as a computer-readable file.

CONCLUSION

CAS services are an important source of human health and safety information. The coverage of health and safety in CA is diversified and encompasses industrial safety, laboratory safety, consumer safety, and environmental safety. Because CAS's coverage of the world's chemical literature is so comprehensive, it may at times be the only secondary information service providing access to certain health and safety documents; it is, without doubt, an essential database for any search of the health and safety literature.