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Journal Coverage by the Major Chemical Title and Abstract Publications

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The journal coverage provided by *Chemical Titles, Current Contents, Science Citation Index, Chemischer Informationsdienst,* and *Index Chemicus* is discussed and compared with the CASSI list of the thousand primary journals most frequently cited by *Chemical Abstracts.* On the basis of this comparison, frequency of journal citation in the *Journal of the American Chemical Society,* and frequency of journal citation in the major chemical title and abstract publications, two lists of 186 and 64 core journals of chemistry are presented in alphabetical and rank order, respectively.

The world's chemical literature continues to grow at an annual rate of 8 to 9% as measured by the number of abstracts of scientific papers from journals and other serial publications published by *Chemical Abstracts,* and the task for the active research chemist to keep up-to-date on recent developments in his chosen specialty becomes more and more difficult. Although it has been shown[1] that some 250 "core journals," out of a total number of 8500 abstracted in 1970, produce approximately 30% of all papers of chemical interest (excluding patent literature), even this relatively "small" number of primary information sources is too large to permit regular weekly scanning. Statistical studies[2] have revealed that on the average a chemist manages to check regularly the contents of seven to eight journals devoted to his research specialty. To keep abreast of current advances published in the remaining literature sources, he resorts to abstract and title publications. This conventional method of current-awareness searching can be remarkably efficient, especially when it is supplemented by subscription to an SDI service[3] providing computerized searching of selected data bases.

One of the most important parameters in the selection of a suitable data base for manual searching is the journal coverage provided. Six major chemical title and abstract publications are presently available in the western world: *Chemical Abstracts* (CA), *Current Abstracts of Chemistry and Index Chemicus* (IC), *Science Citation Index* (SCI), *Chemischer Informationsdienst* (CI), *Chemical Titles* (CT), and *Current Contents* (CC). *Chemical Abstracts* undoubtedly provides the most comprehensive literature coverage and may therefore be chosen as standard for the purpose of comparison. However, the number of papers, patents, and reports abstracted annually by Chemical Abstracts Service (CAS) is so high (approximately 300,000) that time constraints may necessitate a more selective approach if it is possible to achieve relatively high recall by searching one of the other five, less comprehensive data bases. The selection may be based on differences in indexing, computer-searchable elements, presentation of structural diagrams, substructure search capabilities, publication frequency, time delay between publication of primary and secondary source document, or on differences in journal coverage. The results of a detailed comparison of the journal coverage provided by the aforementioned five chemical title and abstract publications (other than CA) are reported in this paper.

ABSTRACT AND TITLE PUBLICATIONS

Chemical Abstracts provides the most comprehensive literature coverage in chemistry. More than a thousand abstracts are processed each working day, and approximately 12,000 current journals or serial publications are continuously monitored for chemical papers. Although papers from 8500 different journals were abstracted in 1970, approximately 85% of the nonpatent abstracts originated from only 2000 journals, 75% from 1212 journals, 50% from 340 journals and about 30% from some 250 "core journals" which are abstracted from cover to cover.[1] In 1969, CAS published a comprehensive list of all scientific and technical primary source publications relevant to the chemical sciences published since 1830. This catalog, which replaced the former "Lists of Periodicals Abstracted by Chemical Abstracts", was called ACCESS.[4] It is now continued with regular quarterly supplements under the new title "Chemical Abstracts Service Source Index" (CASSI). Among the 30,798 entries in ACCESS are 10,399 current serials; 6169 serials no longer published or published under a new name; 2784 volumes of conference papers; 1813 monograph entries; and 9333 cross-references from variant title forms. The following information is listed under each source entry: full journal title and its English translation, ASTM Coden, standard title abbreviation, and all of those 400 participating libraries from 28 countries which have the specified document. The quarterly supplements provide the corresponding data for new journals and for those journals which have recently ceased publication, split into two or more sections, changed their title, restarted after a period of inactivity, and for old journals that have recently published papers of chemical interest for the first time. The value of this catalog for reference purposes is obvious although a chemist or science librarian is frequently interested in a more selective journal list. To this end, CAS has included in its introduction to CASSI two lists of the thousand primary journals most frequently cited in *Chemical Abstracts*,[5] one in alphabetical order by full title and the other in rank order according to the journal's "productivity." These two short lists are based on a coverage analysis of *Chemical Abstracts*, volumes 68 to 72 (January 1968–June 1970), and contain the abbreviated journal title and ASTM Coden in addition to full title and rank. Owing to the growing integration of various scientific disciplines and the broadening interests of chemists, an ever increasing number of papers containing information of potential interest to chemists are found in journals devoted primarily to physics, biology or engineering, and in interdisciplinary journals. This trend has resulted in a substantial and undesirable overlap in coverage among the various secondary services (e.g., *Chemical Abstracts* and *Biosis*) and caused them to grow annually by about 8% while the over-all *primary* literature of science and technology appears to grow by only 5 to 6% per year. The world's major abstracting services are presently working toward a reduction in this unnecessary duplication of coverage.[6]

Chemical Titles is published by CAS and covers approximately half of the entire chemical literature. It appears biweekly and is one of the most current alerting services available since the time delay between primary and secondary publication is generally not more than one month. Its major disadvantage compared to CA is the fact that it provides no details beyond the information given in the titles of scientific papers. Of the 733 journals covered and listed on the inside covers of each issue, only 587 or 80% are also found in the CASSI list of the 1000 most productive journals. The remaining 20% are new journals, review publications, supplements to listed journals, or prestigious society or discipline journals which are low in productivity.

Current Contents, a publication of the Institute for Scientific Information (ISI), Philadelphia, appears weekly in five separate issues:

Current Contents, Physical and Chemical Sciences
Current Contents, Life Sciences
Current Contents, Engineering and Technology
Current Contents, Agricultural, Food and Veterinary Sciences and
Current Contents, Behavioral, Social and Educational Sciences.

The tables of contents of chemical journals are scattered throughout the first four issues. The "Physical and Chemical Sciences" issue covers about 750 journals approximately half of which are devoted to chemistry and chemical physics. More than one hundred of the journals are also listed in "CC, Life Sciences" which is primarily devoted to the fields of medical sciences, biology, and biochemistry; only one third of the approximately 1000 journals covered in this issue contain papers of chemical interest. If one includes the coverage of chemical engineering and agricultural and food chemistry provided by "CC, Engineering and Technology" and "CC, Agricultural, Food and Veterinary Sciences," *Current Contents* lists the titles of papers published in approximately 700 journals of chemistry and related subjects. This number must be interpreted with caution since it is very difficult to draw borderlines between the various fields of science covered by CC. Table I (column 5) shows that 218 of these journals are also found in the CASSI list of the 250 most productive journals. It is noteworthy that most of the remaining 32 journals are of Russian origin. The main dis-

Table I. Journal Coverage by the Major Chemical Title and Abstract Publications as Related to the Frequency of Journal Citation in *Chemical Abstracts*

Title or Abstract Publication	Journals Covered (Only Chemistry and Related Subjects) (1)	Journals Found among the *n* Primary Journals Most Frequently Cited in CA[5]								
		$n = 100$			$n = 250$			$n = 1000$		
		No. of journals (2)	% of col. (1) (3)	% (n = 100%) (4)	No. of journals (5)	% of col. (1) (6)	% (n = 100%) (7)	No. of journals (8)	% of col. (1) (9)	% (n = 100%) (10)
A. *Chemical Titles* (CT)	733	99	13.5	99	237	32	95	587	80	59
B. *Current Contents* (CC)	~700	97	~14	97	218	~33	87	~630	~90	~63
C. *Science Citation Index* (SCI)	~650	97	~14	97	213	~33	85	605	~93	61
D. *Chemischer Informationsdienst* (CI)	222	52	23	52	98	44	39	163	73	16
E. *Index Chemicus* (IC)	~108	40	37	40	65	60	26	105	97	10.5
F. All five (see above and Table III)	64	30	47	30	45	70	18	64	100	6.4
G. Four of the five (see above and Table II)	186	57	31	57	106	57	42	173	93	17

advantages of CC relative to CT are the absence of a subject index and the listing of only the first author's name in the author index of each weekly issue. Although CC and CT cover nearly the same number of chemical journals, only about 550 journals are common to both title publications.

The journal coverage provided by the *Science Citation Index*, a quarterly ISI publication, is slightly more selective (about 650 journals of chemistry and related subjects as compared with CC's 700) but in all other respects very similar to *Current Contents* (see Table I, columns 2, 5, and 8).

Chemischer Informationsdienst (ChemInform) is a relatively new (1970) German abstracting service published by the Gesellschaft Deutscher Chemiker (German Chemical Society) and Farbwerke Hoechst, and issued weekly. Of the 222 regularly monitored journals,[7] 33 are abstracted from cover to cover. A special feature of ChemInform is the presentation of chemical equations and structural diagrams which greatly facilitates rapid scanning of the abstracts. Nearly forty of the covered source documents are actually monographs published in book form and review journals (i.e., secondary literature) or very special university and industrial-technological reports which are not covered by any other chemical title or abstract publication except CA. The data in columns 2, 5, and 8 of Table I clearly reflect this fact: 48 of CA's 100 most productive journals and 152 of the 250 most productive journals are *not* abstracted; on the other hand, 59 of the 222 ChemInform journals are *not* found in the CASSI list of the 1000 most productive journals! It appears from these facts that ChemInform is specifically geared to the literature demands of the industrial user. Several more specialized industrial abstracting services have been reviewed in a previous issue of this Journal.[8]

Index Chemicus is the title of the monthly index issues of *Current Abstracts of Chemistry and Index Chemicus*, a weekly ISI publication. It specifically abstracts those papers from 108 source journals which report new chemical compounds, and presents structural diagrams, reaction flow charts, tables, and an instrumental data alert for rapid information retrieval by the reader. Due to its restriction to new compounds, the selected journals are primarily devoted to the fields of organic and biochemistry, and not only physical chemistry but also the major inorganic chemistry journals (e.g., *Inorg. Chem.; J. Chem. Soc., Dalton Trans.; J. Inorg. Nucl. Chem.*) are not abstracted. Table I (column 2) reveals that 60 of the 100 most productive CA journals are not covered in *Index Chemicus*, another consequence of this high degree of specialization.

THE CORE JOURNALS OF CHEMISTRY

In the preceding section and in Table I, the journal coverage provided by the five major chemical title and abstract publications has been related to the CASSI lists of the 100, 250, and 1000 primary journals most frequently cited in *Chemical Abstracts*, and certain conclusions have been drawn on the basis of this comparison. It may well be argued that such conclusions are not very meaningful since the productivity of a specific journal, measured by the number of papers published over a given time period, is not necessarily related to its significance to the scientific community. Indeed, the fact that the major chemistry journals of several small European countries have not been ranked among the 100 most productive CA-journals may simply be due to the smaller number of active research chemists working in these countries, taking for granted the natural preference of scientists to publish their results "at home." Language and other personal preferences, and the very extensive coverage by CA of physics and biology journals may also be cited in support of the hypothesis that the 100 most productive CA-journals cannot be regarded as the 100 most significant "core" journals of chemistry.

Another approach to the problem of assembling a meaningful list of chemical core journals relates the significance of a journal to the number of times it has been cited in the chemical literature over a specified time period. To this end, *Current Contents* has recently published three lists of the 50 journals most frequently cited by the *Journal of the American Chemical Society*, by the *Journal of Chemical Physics*, and by all scientific journals covered in SCI.[9,10] Since the more significant papers are generally cited more frequently in the current literature, this approach is certainly superior to the selection of journal productivity as a quantitatively measurable parameter for comparison. However, the ranking of a specific journal by this method will also depend to a considerable extent on the choice of the citing journal. For instance, the *Journal of Physical Chemistry* is ranked No. 7 in ISI's list of the journals most frequently cited by *J. Amer. Chem. Soc.*, but No. 4 in the corresponding *J. Chem. Phys.* list. Also, German authors prefer reading and citing German papers, and the same relationship appears to apply to other languages. Garfield[9] has pointed out that certain additional distortions may arise because of the relatively weak coverage of the Russian literature by SCI.

Tables II and III of this paper are the result of a third

Table II. List of Journals Covered by at Least Five of the Six Major Chemical Title and Abstract Publications‡ (with ASTM Coden and CA rank)

Abbreviated Title	ASTM Coden	CA Rank
Accounts Chem. Res.	ACHRE	840
**Acta Chem. Scand.*	ACSAA	47
Acta Chim. (Budapest)	ACASA	215
†*Acta Pharm. Suecica*	APSXA	747
†*Acta Pol. Pharm.*	APPHA	509
**Agr. Biol. Chem.*	ABCHA	132
Anal. Chem.	ANCHA	39
Anal. Chim. Acta	ACACA	102
Analyst (London)	ANALA	227
†*An. Asoc. Quim. Argent.*	AAQAA	...
**Angew. Chem.*	ANCEA	92
**Ann. Chim. (Paris)*	ANCPA	844
**Ann. Chim. (Rome)*	ANCRA	311
Ann. N.Y. Acad. Sci.	ANYAA	122
**Ann. Pharm. Fr.*	APFRA	657
†*An. Quim.*	ANQUB	345
†*Antibiotiki (Moscow)*	ANTBA	234
**Appl. Microbiol.*	APMBA	164
†*Arch. Int. Pharmacodyn. Ther.*	AIPTA	88
†*Arch. Int. Physiol. Biochim.*	AIPBA	782
**Arch. Pharm. (Weinheim, Ger.)*	APBDA	300
Arzneim.-Forsch.	ARZNA	91
**Aust. J. Chem.*	AJCHA	69
Ber. Bunsenges. Phys. Chem.	BBPCA	206
**Biochemistry*	BICHA	33
**Biochem. J.*	BIJOA	12
**Biochem. Pharmacol.*	BCPCA	89
†*Biochim. Biophys. Acta*	BBACA	4
†*Biokhimiya*	BIOHA	216
†*Biopolymers*	BIPMA	277
†*Brit. J. Pharmacol.*	BJPCB	397
Bull. Acad. Pol. Sci., Ser. Sci. Chim.	BAPCA	346
**Bull. Chem. Soc. Jap.*	BCSJA	16
**Bull. Soc. Chim. Belg.*	BSCBA	571
**Bull. Soc. Chim. Fr.*	BSCFA	13
†*Can. J. Biochem.*	CJBIA	175
**Can. J. Chem.*	CJCHA	28
Can. J. Chem. Eng.	CJCEA	454
†*Can. J. Pharm. Sci.*	CNJPA	993
**Carbohyd. Res.*	CRBRA	171
Carbon	CRBNA	419
**Chem. Ber.*	CHBEA	46
Chem. Brit.	CHMBA	892
Chem. Eng. (New York)	CHEEA	818
Chem. Eng. Progr.	CEPRA	684
Chem. Eng. Sci.	CESCA	201
**Chem. Ind. (London)*	CHINA	90
Chem.-Ing.-Tech.	CITEA	245
Chem. Listy	CHLSA	474
**Chem. Pharm. Bull.*	CPBTA	51
Chem. Rev.	CHREA	...
**Chem. Scr.*	CSRPB	410
Chem. Tech. (Leipzig)	CHTEA	385
Chem. Technol.	CHMTB	...
Chem.-Ztg., Chem. App.	CZCAA	848
**Chimia*	CHIMA	473
Chim. Ind., Genie Chim.	CIGCA	573
**Chim. Ind. (Milan)*	CINMA	306
Chim. Ther.	CHTPB	572
†*Clin. Chim. Acta*	CCATA	106
**Collect. Czech. Chem. Commun.*	CCCCA	50
†*Comp. Biochem. Physiol. A*	CBPAB	82
†*Comp. Biochem. Physiol. B*	CBPBB	...
Coord. Chem. Rev.	CCHRA	...
Corros. Sci.	CRRSA	525
**C. R. Acad. Sci., Ser. C*	CHDCA	9
Croat. Chem. Acta	CCACA	891
†*Diss. Pharm. Pharmacol.*	DPHFA	545
Dokl. Akad. Nauk SSSR, Ser. Khim.	DASKA	6
Dokl. Bolg. Akad. Nauk	DBANA	243
Electrochim. Acta	ELCAA	252
Erdoel, Kohle, Erdgas, Petrochem. Brennst. Chem.	EKVBA	828
**Eur. J. Biochem.*	EJBCA	83
**Experientia*	EXPEA	44
**Farmaco, Ed. Sci.*	FRPSA	428
**Gazz. Chim. Ital.*	GCITA	283
**Helv. Chim. Acta*	HCACA	134
Hoppe-Seyler's Z. Physiol. Chem.	HSZPA	146
Ind. Chim. Belge	ICBEA	84
Ind. Eng. Chem., Process Des. Develop.	IEPDA	388
Ind. Eng. Chem., Prod. Res. Develop.	IEPRA	622
**Indian J. Chem.*	IJOCA	61
Inorg. Chem.	INOCA	30
Inorg. Nucl. Chem. Lett.	INUCA	196
**Int. J. Protein Res.*	IPRRB	942
Isr. J. Chem.	ISJCA	443
Izv. Akad. Nauk SSSR, Ser. Khim.	IASKA	19

Table 2, (Continued)

Abbreviated Title	ASTM Coden	CA Rank
J. Agr. Food Chem.	JAFCA	136
J. Amer. Ceram. Soc.	JACTA	190
**J. Amer. Chem. Soc.*	JACSA	2
J. Amer. Oil Chem. Soc.	JAOCA	209
**J. Antibiot.*	JANTA	320
J. Appl. Chem. Biotechnol.	JACBB	522
J. Appl. Polym. Sci.	JAPNA	141
**J. Biochem. (Tokyo)*	JOBIA	150
**J. Biol. Chem.*	JBCHA	18
J. Catal.	JCTLA	187
J. Chem. Educ.	JCEDA	121
**J. Chem. Eng. Data*	JCEAA	176
J. Chem. Phys.	JCPSA	3
**J. Chem. Soc., Chem. Commun.*	JCCCA	10
J. Chem. Soc., Dalton Trans.	JCDTB	25
**J. Chem. Soc., Faraday Trans., 1*	JCFTA	59
J. Chem. Soc., Faraday Trans., 2	JCFTB	...
**J. Chem. Soc., Perkin Trans., 1*	JCPRB	24
J. Chem. Soc., Perkin Trans., 2	JCPKB	119
J. Chem. Thermodyn.	JCTDA	...
J. Chim. Phys. Physicochim. Biol.	JCPBA	93
J. Colloid Interface Sci.	JCISA	139
J. Electroanal. Chem. Inter-Facial Electrochem.	JEIEB	174
J. Electrochem. Soc.	JESOA	70
**J. Heterocycl. Chem.*	JHTCA	178
**J. Indian Chem. Soc.*	JICSA	167
J. Inorg. Nucl. Chem.	JINCA	49
†*J. Label. Compounds*	JLCAA	689
†*J. Lipid Res.*	JLPRA	386
J. Macromol. Sci., Chem.	JMCHB	437
**J. Med. Chem.*	JMCMA	64
J. Mol. Spectrosc.	JMOSA	198
J. Mol. Struct.	JMOSB	463
J. Organometal. Chem.	JORCA	60
**J. Org. Chem.*	JOCEA	8
**J. Pharm. Pharmacol.*	JPPMA	143
**J. Pharm. Sci.*	JPMSA	55
J. Phys. Chem.	JPCHA	11
**J. Prakt. Chem.*	JPCEA	411
J. Res. Nat. Bur. Stand., Sect. A	JNBAA	831
J. Soc. Dyers Colour.	JSDCA	916
**Justus Liebigs Ann. Chem.*	JLACB	137
Kem. Tidskr.	KETIA	...
†*Khim.-Farm. Zh.*	KHFZA	203
**Khim. Geterosikl. Soedin.*	KGSSA	72
†*Khim. Prir. Soedin.*	KPSUA	210
Kolloid-Z. Z. Polym.	KZZPA	307
†*Life Sci.*	LIFSA	120
†*Lloydia*	LLOYA	977
**Magy. Kem. Foly.*	MGKFA	313
Magy. Kem. Lapja	MGKLA	631
Mikrochim. Acta	MIACA	226
**Monatsh. Chem.*	MOCHA	105
**Nature (London)*	NATUA	7
†*Nature (London) New Biol.*	NNBYA	...
**Naturwissenschaften*	NATWA	126
†*Naunyn-Schmiedebergs Arch. Pharmakol.*	NNAPB	568
Neftekhimiya	NEFTA	258
**Nippon Kagaku Kaishi*	NKAKB	104
Nippon Nogei Kagaku Kaishi	NNKKA	274
Organometal. Chem. Rev., Sect. A	OCRAA	...
Organometal. Chem. Syn.	OMCSA	...
†*Org. Mass Spectrom.*	ORMSB	348
Period Polytech., Chem. Eng. (Budapest)	PDPTA	954
**Pharm. Acta Helv.*	PAHEA	858
**Pharmazie*	PHARA	254
**Phytochemistry*	PYTCA	85
†*Proc. Nat. Acad. Sci. U.S.*	PNASA	54
**Przem. Chem.*	PRCHA	272
Quart. Rev., Chem. Soc.	QUREA	...
Radiochim. Acta	RAACA	365
**Recl. Trav. Chim. Pays-Bas*	RTCPA	240
†*Rev. Roum. Biochim.*	RRBCA	981
**Rev. Roum. Chim.*	RRCHA	154
**Rocz. Chem.*	ROCHA	117
**Science*	SCIEA	35
†*Steroids*	STEDA	310
**Suom. Kemistilehti B*	SUKBA	361
Syn. Comm.	SYNCA	...
**Synthesis*	SYNTB	709
**Tetrahedron*	TETRA	41
**Tetrahedron Lett.*	TELEA	5
Theor. Chim. Acta	TCHAA	248
Trans. Inst. Chem. Eng.	TICEA	953
Ukr. Khim. Zh.	UKZHA	108
**Yakugaku Zasshi*	YKKZA	100
**Yuki Gosei Kagaku Kyokai Shi*	YGKKA	350
Z. Anorg. Allg. Chem.	ZAACA	111
**Z. Chem.*	ZECEA	114
Zh. Anal. Khim.	ZAKHA	67
Zh. Fiz. Khim.	ZFKHA	20
Zh. Neorg. Khim.	ZNOKA	21
**Zh. Obshch. Khim.*	ZOKHA	17
**Zh. Org. Khim.*	ZORKA	32
Zh. Prikl. Khim. (Leningrad)	ZPKHA	29
Z. Naturforsch. A	ZENAA	78
**Z. Naturforsch. B*	ZENBA	62
Z. Phys. Chem. (Frankfurt)	ZPCFA	237
Z. Phys. Chem. (Leipzig)	ZPCLA	294

‡CA, CT, CC, SCI, CI and IC.
*Covered by CA, CT, CC, SCI, CI and IC (see Table III).
†Covered by CA, IC, CT, CC and SCI.

Table III. Primary Journals Covered by All the Major Chemical Title and Abstract Publications*, in Rank Order

Abbreviated Title	ASTM Coden	CA Rank	Abbreviated Title	ASTM Coden	CA Rank
1. *J. Amer. Chem. Soc.*	JACSA	2	31. *Zh. Obshch. Khim.*	ZOKHA	17
2. *J. Org. Chem.*	JOCEA	8	32. *C. R. Acad. Sci., Ser. C*	CHDCA	9
3. *J. Chem. Soc., Perkin Trans., 1*	JCPRB	24	33. *Experientia*	EXPEA	44
4. *Chem. Ber.*	CHBEA	46	34. *Indian J. Chem.*	IJOCA	61
5. *Angew. Chem.*	ANCEA	92	35. *Z. Naturforsch. B.*	ZENBA	62
6. *Justus Liebigs Ann. Chem.*	JLACB	137	36. *Nippon Kagaku Kaishi*	NKAKB	104
			37. *Naturwissenschaften*	NATWA	126
7. *Bull. Chem. Soc. Jap.*	BCSJA	16	38. *Agr. Biol. Chem.*	ABCHA	132
8. *Helv. Chim. Acta*	HCACA	134	39. *J. Agr. Food Chem.*	JAFKA	136
9. *Recl. Trav. Chem. Pays-Bas*	RTCPA	240	40. *Rev. Roum. Chim.*	RRCHA	154
			41. *J. Indian Chem. Soc.*	JICSA	167
10. *Bull. Soc. Chim. Fr.*	BSCFA	13	42. *Carbohyd. Res.*	CRBRA	171
11. *Gazz. Chim. Ital.*	GCITA	283	43. *Ann. Chim. (Rome)*	ANCRA	311
12. *Zh. Org. Khim.*	ZORKA	32	44. *J. Prakt. Chem.*	JPCEA	411
13. *Collect. Czech. Chem. Commun.*	CCCCA	50	45. *Chimia*	CHIMA	473
			46. *Bull. Soc. Chim. Belg.*	BSCBA	571
14. *Khim. Geterotsikl. Soedin.*	KGSSA	72	47. *Ann. Chim. (Paris)*	ANCPA	844
			48. *Phytochemistry*	PYTCA	85
15. *Monatsh. Chem.*	MOCHA	105	49. *J. Chem. Eng. Data*	JCEAA	176
16. *Z. Chem.*	ZECEA	114	50. *Chim. Ind. (Milan)*	CINMA	306
17. *Rocz. Chem.*	ROCHA	117	51. *Chem. Scr.*	CSRPB	410
18. *J. Heterocycl. Chem.*	JHTCA	178	52. *Chem. Pharm. Bull.*	CPBTA	51
19. *J. Med. Chem.*	JMCMA	64	53. *J. Pharm. Sci.*	JPMSA	55
20. *Synthesis*	SYNTB	709	54. *Yakugaku Zasshi*	YKKZA	100
21. *Tetrahedron Lett.*	TELEA	5	55. *Pharmazie*	PHARA	254
22. *J. Chem. Soc., Chem. Commun.*	JCCCA	10	56. *Przem. Chem.*	PRCHA	272
			57. *Arch. Pharm. (Weinheim, Ger.)*	APBDA	300
23. *Can. J. Chem.*	CJCHA	28			
24. *Tetrahedron*	TETRA	41	58. *Magy. Kem. Foly.*	MGKFA	313
25. *J. Chem. Soc., Faraday Trans., 1*	JCFTA	59	59. *Yuki Gosei Kagaku Kyokai Shi*	YGKKA	350
26. *Acta Chem. Scand.*	ACSAA	47	60. *Suom. Kemistilehti B*	SUKBA	361
27. *Nature*	NATUA	7	61. *Farmaco, Ed. Sci.*	FRPSA	428
28. *Chem. Ind. (London)*	CHINA	90	62. *Ann. Pharm. Fr.*	APFRA	657
29. *Aust. J. Chem.*	AJCHA	69	63. *Pharm. Acta Helv.*	PAHEA	858
30. *Science*	SCIEA	35	64. *Int. J. Protein Res.*	IPRRB	942

**Chemical Abstracts, Chemical Titles, Chemischer Informationsdienst, Index Chemicus, Science Citation Index and Current Contents.*

approach combining the preceding two methods with the frequency of journal citation in the six major chemical title and abstract publications. To present to the scientific community a significant portion of the chemical literature and to reach the widest possible audience, the editorial boards of selective abstracting services may be assumed to base their journal selection on a careful analysis of the relative significance of the scientific results presented therein. On this assumption, a journal covered by all six abstract and title publications can be considered of higher rank and importance than one abstracted by only five or four of them. A comparison of the lists of source publications reveals that 64 journals (Table III) are covered by all six services (CA, CT, CC, SCI, CI, and IC) and 186 (Table II) by at least five of them. Thus, Table II is presented as a list of the core journals of chemistry. The journal selection offered by the most selective abstracting services, *Chemischer Informationsdienst* and *Index Chemicus*, is obviously the limiting factor in this approach, and any journal not covered by at least one of them will not be found in Table II. However, owing to their widely differing emphasis on specific sections of the chemical literature—namely, industrial chemistry and technology in the case of ChemInform, organic and biochemistry for Index Chemicus—this list provides a fairly complete coverage of all subdisciplines of chemistry. The figures presented in the last row of Table I show that in terms of journal productivity, the 186 journals listed in Table II cover the literature as well as the 222 source journals of ChemInform. Furthermore, nearly all journals found in the lists of the 100 and 250 most productive CA-journals, but *not* in Table II, are devoted to subject areas other than chemistry, primarily physics, biology, and technology.

Finally, Table III represents an attempt at ranking the 64 journals covered by all six title and abstract publications on the basis of (in order of decreasing priority) frequency of citation in the various Current Contents issues (a journal listed in both the "Physical and Chemical Sciences" and the "Life Sciences" issue is ranked higher than one listed in only one of them), frequency of citation by *J. Amer. Chem. Soc.*[10] and journal productivity.[5] The major shortcoming of this table is the extremely weak representation of physical chemistry which is due to the exclusive emphasis by *Index Chemicus* on journals reporting *new* compounds.

In summary, it is recognized that there are no absolute criteria for ranking journals in terms of the over-all significance of their contributions to science. However, the chemistry journal lists presented in Tables II and III are hoped to serve as guidelines for the chemist and the information specialist who has to make a judicious selection from the vast number of source documents publishing results relevant to the chemical sciences.

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Reference Literature to Solubility Data between Halogenated Hydrocarbons and Water

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References are listed for the solubility and miscibility between halogenated hydrocarbons, C_1 to C_6, and water.

Halogenated hydrocarbons are used as solvents, refrigerants, propellants, insecticides, anesthetic agents, etc. There are several aspects when knowledge on the solubility is essential. The following examples illustrate the various problems when the solubilities of halogenated hydrocarbons have been measured or the available values have been applied—e.g., in case there should be a leak in the evaporator in a refrigeration unit;[69] if these liquids are used as solvents in processes involving compounds sensitive to moisture and as homogeneous or heterogeneous catalysts when their moisture content may have serious consequences;[53] understanding of aqueous solutions;[3, 60, 75] to test the theory of the heat of mixing of liquids;[91] to study the interfacial properties, absorption characteristics, heat of absorption, hydrogen bond formation, the infinitely dilute solubility characteristics, etc.,[39] formation of gas hydrate chathrates and hydrate-formers;[22] selecting the most economical hydrating agent for demineralizing sea water;[6] to use these compounds as propellants for aqueous aerosol mixtures.[69] Halogenated hydrocarbons are commonly used as refrigerants, and, therefore, a problem of hydrate formation in refrigeration systems arises. It has been proposed that cyclic formation and decomposition of gas hydrates may be a means of purification of saline water, and, probably, there is a relation between the simple gas hydrates and more complex hydrates which occur in biological systems.[103] The data on the solubility of halogenated hydrocarbons in water are important not only for engineering calculations in connection with unit operations (calculating the over-all absorption coefficients for packed absorption and stripping towers), but also in estimation of the dynamic behavior (particularly dissolution) of spills on water. The magnitude of the solubility of halogenated hydrocarbons vary and have different toxicity to aquatic biota. To correlate the biological effect of halogenated hydrocarbon spillages, a reasonably accurate knowledge of their solubilities is required.[24, 44]

The mutual solubilities are very slight between halogenated hydrocarbons and water, and, therefore, the determination requires a very careful technique. A review of the various methods is presented by Tranchant.[95] Methods for the determination of water are reported by Riddick and Bunger,[79] Marsden,[56] Weissberger and Rossiter,[101] and Sellers.[88] The discrepancy between the various values obtained by different investigators make it very difficult to select the best data among the published solubilities. Recently, Högfeldt and Fredlund[31] reported the results of different measurements and give a rule on how to choose the right determination method. There are many empirical and semiempirical tests to check the measured values;[26, 27, 28, 33, 46, 63, 77] however, these consistency checks are valid mostly for regular solutions and not for aqueous solutions which have abnormal thermodynamic properties.[19, 75, 85] The presence of monomeric and polymeric species of water in chlorinated solvents has also been reported.[37,66] In addition, Schatzberg,[83] Ödberg and Högfeldt,[66] Leinonen *et al.*,[51] and Jhon *et al.*[36] reported various correlation techniques for the solubility of water, and for the solubilities in water. These correlations provide a rational procedure for the checking of solubilities of substances with similar structure. A recent article[32] provides a consistency test for members of a homologous series without restriction regarding the property of the substances; polar, nonpolar, forming hydrogen bond or not, the linear correlation on a double logarithm paper is valid. This correlation is so general for accurate experimental data, that serious departures from linearity invite suspicion regarding accuracy.

In this compilation, the main sources of references are standard handbooks (secondary sources): "Chemical Rubber Handbook,"[29,100] "Handbook of Chemistry,"[48] etc.; multi-volume handbooks: Landolt-Bornstein,[47] "International Critical Tables"[98]; and handbooks on solubility data: Stephen and Stephen,[92] Seidell,[86,87] Linke,[52]