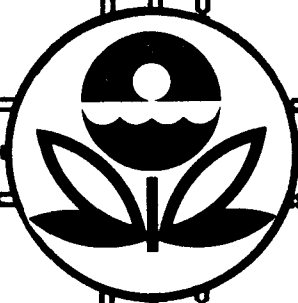


**USERS MANUAL
FOR THE APTIC TERMINAL
SEARCHING SYSTEM**



U.S. ENVIRONMENTAL PROTECTION AGENCY

USERS MANUAL FOR THE APTIC TERMINAL SEARCHING SYSTEM

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USERS MANUAL FOR THE APTIC TERMINAL SEARCHING SYSTEM

INTRODUCTION

This manual is a users guide for the searching system of the Air Pollution Technical Information Center (APTIC) of the Environmental Protection Agency, Research Triangle Park, North Carolina. It is intended primarily for use by the EPA Regional Offices, as well as other qualified users, as an aid in retrieving technical air pollution information from APTIC. The procedure for forming and implementing a search strategy for the system is fully described in this manual, in step-by-step, straightforward language. A complete explanation of the terms and operation symbols to be used is also included.

Because this is intended to serve as an interim manual, APTIC welcomes any suggestions that the users may have to improve the document. Moreover, the terminal searching system described herein is more limited than the regular system used by APTIC in the Research Triangle Park; therefore, if any questions or problems arise in the implementation of search strategies, do not hesitate to contact APTIC: phone 919-549-8411, extension 2141; Research Triangle Park, North Carolina 27711.

SEARCH PROCEDURE

EXPLANATION OF THE COMPUTER SEARCH PROCESS

The APTIC terminal searching system is designed to perform an extraction process using a single program. When a searcher submits a request for information from the files, the search program will first validate that request to ensure that the request terms are, in fact, valid ones. This is done by checking each term against the dictionary of terms stored in the computer.

Then, if the request contains no errors, the actual searching process begins. The descriptors (terms) of the request are first found in the computer file, a process directly analogous to the searching of a printed index. Next, a list of document numbers identifying those documents which are potential responses to the request is constructed. After this list is formed, the computer determines which of these documents fully satisfy the user's request (that is, which ones are "hits"), and the numbers designating these documents are printed out.

As is evident from the explanation above, the program processes each request as an entity, completing all action on one request before beginning work on another.

It is most important that the user read carefully the search procedure outline below, as well as the explanations of the use of the microthesaurus and the specific request language that follow the outline. Without a complete understanding of these explanations, a user will have difficulty forming a successful search strategy.

OUTLINE OF THE USER'S SEARCH PROCEDURE

- Step 1. Read everything in this manual before doing anything.
- Step 2. Write out a concise description of your request (e.g., "What efforts have been made to reduce air pollutant emissions from jet aircraft?").
- Step 3. Go to the APTIC microthesaurus (Supplement A). (Please note that a complete explanation of the use of the terms in the APTIC microthesaurus immediately follows this section. Read it carefully; you will have to understand how to use the terms of the microthesaurus to be able to write a successful search strategy.)
- Step 4. Look at the first block of keywords ("Fields 05, 16 & 17, and 18").
- Step 5. Decide whether a "Method of Support" keyword is needed; if so, choose the most accurate term in the block.*
- Step 6. Choose a "Category Assignment," and try to list secondary categories; if you choose carefully, your strategy will be more successful. This entry is not mandatory, but it is strongly recommended that the user choose a category assignment if at all possible in order to limit the number of hits and avoid irrelevant information.
- Step 7. Decide whether a "Document Attribute" keyword is needed; if so, include the most descriptive term in the block.*
- Step 8. Search the remainder of the APTIC microthesaurus carefully, looking for the keywords that most closely describe your specific needs.
- Step 9. Using the necessary search criteria (p.5) and request language (p. 16), write out the terms you have chosen in steps 3 through 8 above.
- Step 10. Double-check your actual search request to be sure that (1) you have included all the information that the computer will need, (2) your keywords are as accurate as possible, and (3) you have used the correct forms of request language in forming your request.
- Step 11. Call the EPA Research Triangle Park Data Systems Network.
- Step 12. Logon the terminal with the search procedure:

"logon userid proc(search)

↑
Type your designated userid** here.

* In these steps, it is not necessary to include the key terms mentioned if they do not suit your needs. However, you must read pages 11 through 16 in order to make such a decision.

** You will have to obtain the RTP user identification code that has been assigned to your Regional Office.

Step 13. Wait for the computer to return a READY; then enter:

search

Hit the return key. The following message will be printed by your terminal:

EPA INTERACTIVE DOCUMENT SEARCH.
PLEASE ENTER SEARCH CRITERIA.

Step 14. Enter the search request as you wrote it in step 9. Check to be sure that your request contains not more than seven lines, and that each line consists of 67 characters or less. Remember that multiword descriptors such as "fuel additives" cannot be broken and continued on the next line. Your last dictionary term must be followed by one space, then a question mark. The question mark tells the computer that you have completed your request. After you have checked your request to be sure that it meets the above criteria, hit the return key. After you return the carriage, you must wait for the computer to respond.

If your request was written correctly in every way, the computer will respond with a list of numbers designating those documents which satisfy the terms of your request. The computer lists these document numbers chronologically; generally, the oldest sources are listed first, the latest ones last.

If there was an error in your request, the computer will respond with an explanation of the error. Go back to the search position, correct the error, and begin again.

Step 15. After the request is completed, take the list of document numbers given by the computer and, to find the abstracts of the documents, use the attached cross-reference list of APTIC numbers (Supplement B) versus Air Pollution Abstracts bulletin numbers (NAB and volume and issue numbers). These NAB numbers will direct you to the correct abstract in the bulletin.

Example: If the computer gives you the APTIC number 43200, then, using the cross-reference list attached, you will find that the corresponding NAB number is 23097 (with volume and issue number V3N10). As you can see from the Abstracts bulletin, the NAB numbers appear sequentially, opposite the APTIC numbers and to the left of the beginning of the abstract itself. Thus, the abstract you wanted was of "Cupola Gas Scrubbers," p. 30.

If you have any trouble completing your inquiry via the terminal, please call APTIC, 919-549-8411, extension 2141.

SEARCH CRITERIA DESCRIPTION (Step 14)

When the user writes his search request on the computer terminal, he must not type more than seven lines, and each line must not exceed 67 characters. Moreover, he must not break multiword descriptors such as 'fuel additives' and continue them on the next line. He must remember to terminate his request with a space followed by a question mark; if he forgets, the computer will then remind him. When the user returns the carriage after typing his terminal question mark, he must wait for the computer to respond. The computer responds whenever the carriage is returned.

SEARCH PROCEDURE EXAMPLES

On the following pages are five examples of user searches. Example 1 illustrates a correctly executed document search request, complete with logon procedure. In Example 2, a search request with a specific category assignment was made, but no document numbers were generated by the computer; therefore, in Example 3, the category assignment was omitted. This latter example illustrates that, in some cases, it is better to omit a category assignment; however, it is still recommended that the user try a specific category first, then omit it if he wishes to gain more general information. Examples 4 and 5 illustrate possible user errors. Note that, in a request containing more than one line such as Example 5, the computer responds after each line (except the last) with the statement:

CONTINUATION ASSUMED. SEARCH CRITERIA MUST END WITH ?.

Example 1. Correct Search Procedure Yielding Three Document Numbers

```
"logon jekotip proc(search)
JEKOTIP LOGON IN PROGRESS AT 11:54:30 ON DECEMBER 5, 1972
```

```
READY
search
```

```
EPA INTERACTIVE DOCUMENT SEARCH.
```

```
PLEASE ENTER SEARCH CRITERIA.
<c/a-leg$ | c/a-std$> & land use ?
```

```
S01 INTERACTIVE PHASE COMPLETED
```

```
S01 EPA SEARCH PROGRAM
```

```
12/05/72
```

EPA SEARCH REQUEST 1

PAGE 1

```
S06 12.09.11 REQUEST NUMBER 0001
AA01TITLE EPA INTERACTIVE DOCUMENT SEARCH
AA03SEARCH FILE=INVERTED;
AA04PRINT
AA07REQUEST <C/A-LEG$ | C/A-STD$> & LAND USE ?

S03 EDIT PHASE COMPLETED
S04 IVRT PHASE COMPLETED
DOCUMENT NUMBER STRING FOR REQUEST 0001
0 12609 12910 45956
S06 12.09.33 REQUEST NUMBER 0001 COMPLETED
```

```
12/05/72
```

EPA SEARCH REQUEST 2

PAGE 1

```
S06 12.09.33 REQUEST NUMBER 0002
S02 END OF SEARCH PROGRAM
```

Example 2. Correct Search Procedure Yielding No Document Numbers

READY search			
EPA INTERACTIVE DOCUMENT SEARCH.			
PLEASE ENTER SEARCH CRITERIA.			
c/a-control methods & north carolina ?			
S01 INTERACTIVE PHASE COMPLETED			
S01 EPA SEARCH PROGRAM			
:	12/05/72	EPA SEARCH REQUEST	1 PAGE 1
S06 12.01.16 REQUEST NUMBER 0001			
AA01TITLE EPA INTERACTIVE DOCUMENT SEARCH			
AA03SEARCH FILE=INVERTED;			
AA04PRINT			
AA07REQUEST C/A-CONTROL METHODS & NORTH CAROLINA ?			
S03 EDIT PHASE COMPLETED			
IEF4041 JEKOTIPP ENDED TIME=12.01.28			
S04 IVRT PHASE COMPLETED			
DOCUMENT NUMBER STRING FOR REQUEST 0001			
DOC NO STRING=NONE			
S06 12.01.42 *REQUEST NUMBER 0001 COMPLETED			
:	12/05/72	EPA SEARCH REQUEST	2 PAGE 1
S06 12.01.42 REQUEST NUMBER 0002			
S02 END OF SEARCH PROGRAM			

Example 3. Correct Search Procedure Without Category Assignment - Yielding 37 Document Numbers

```

READY
search

EPA INTERACTIVE DOCUMENT SEARCH.

PLEASE ENTER SEARCH CRITERIA.
north carolina ?

S01 INTERACTIVE PHASE COMPLETED

S01 EPA SEARCH PROGRAM
:
12/05/72
EPA SEARCH REQUEST 1
PAGE 1

S06 11.56.29 REQUEST NUMBER 0001
AA01TITLE EPA INTERACTIVE DOCUMENT SEARCH
AA03SEARCH FILE=INVERTED;
AA04PRINT
AA07REQUEST NORTH CAROLINA ?

S03 EDIT PHASE COMPLETED.
S04 IVRT PHASE COMPLETED.
DOCUMENT NUMBER STRING FOR REQUEST 0001
3406 3438 3442 3832 386 953
9759 10700 11523 16368 16844 17690
32403 33300 35783 36337 39320 39766
S06 11.57.18 REQUEST NUMBER 0001 COMPLETED
:
12/05/72
EPA SEARCH REQUEST 2
PAGE 1

S06 11.57.18 REQUEST NUMBER 0002
S02 END OF SEARCH PROGRAM

```

Example 4. Incorrect Search Procedure - Request Term (Descriptor) Misspelled

READY
search

EPA INTERACTIVE DOCUMENT SEARCHII.

PLEASE ENTER SEARCH CRITERIA.

c/a
<c/a-leg\$ | c/a-std\$ > & land (ues) ?

S01 INTERACTIVE PHASE COMPLETED

S01 EPA SEARCH PROGRAM

:

12/05/72

EPA SEARCH REQUEST 1

PAGE 1

S06 12.06.00 REQUEST NUMBER 0001

AA01TITLE EPA INTERACTIVE DOCUMENT SEARCH -
AA03SEARCH FILE=INVERTED;
AA04PRINT.

SE06 DECS NOT IN DICT
LAND (UES)
S03 EDIT PHASE COMPLETED

S08 CORRECT ERRORS AND RESUBMIT REQUEST

S06 12.06.02 REQUEST NUMBER 0001 COMPLETED

:

12/05/72

EPA SEARCH REQUEST 2

PAGE 1

S06 12.06.02 REQUEST NUMBER 0002

S02 END OF SEARCH PROGRAM

Example 5. Incorrect Search Procedure - Line Over 67 Characters

```

READY
search

EPA INTERACTIVE DOCUMENT SEARCH.

PLEASE ENTER SEARCH CRITERIA.
<c/a-emission sources | c/a-measurement meth | c/a-control methods> & cooling towers ?
SEARCH CRITERIA MUST BE LESS THAN 67 CHARACTERS.
PLEASE ENTER SEARCH CRITERIA.

<c/a-emission sources | c/a-measurement meth |
CONTINUATION ASSUMED. SEARCH CRITERIA MUST END WITH ?.
c/a-control methods> & cooling towers ?

S01 INTERACTIVE PHASE COMPLETED
S01 EPA SEARCH PROGRAM
: 12/05/72 EPA SEARCH REQUEST 1 PAGE 1

S06 12.16.27 REQUEST NUMBER 0001
AA01TITLE EPA INTERACTIVE DOCUMENT SEARCH
AA03SEARCH FILE=INVERTED;
AA04PRINT
AA07REQUEST <C/A-EMISSION SOURCES | C/A-MEASUREMENT METH |
AA08 C/A-CONTROL METHODS> & COOLING TOWERS ?
S03 EDIT PHASE COMPLETED
S04 IVRT PHASE COMPLETED
DOCUMENT NUMBER STRING FOR REQUEST 0001
DOC NO STRING=NONE
S06 12.16.57 REQUEST NUMBER 0001 COMPLETED
: 12/05/72 EPA SEARCH REQUEST 2 PAGE 1

S06 12.16.57 REQUEST NUMBER 0002
S02 END OF SEARCH PROGRAM

```

USE OF MICROTHESAURUS TERMS

The most important steps in forming a search strategy are those which involve the use of the APTIC microthesaurus. If the user chooses his request terms carefully, he will receive a listing of documents which are useful and relevant to his specific request; however, if he errs in his choice of terms, he may receive quite undesirable results.

Thus, a good understanding of the use of the APTIC microthesaurus is essential. The following explanation is divided into two parts: the first deals with the section of the microthesaurus entitled "Fields 05, 16 & 17, and 18"; the second deals with the remaining sections.

FIELDS 05, 16 & 17, AND 18

This block of the microthesaurus is divided into three sections: "Method of Support," "Category Assignment," and "Document Attributes." Although it is not absolutely necessary to include these three designations in your search request, it is often best to determine which of the terms given most closely relate to your needs and include them; their inclusion necessarily limits and more clearly defines the areas that the computer will search to locate the document numbers you require.

Method of Support (m/s)

Inhouse - Work performed in EPA laboratories and offices.

Contract - Work done under contract issued by EPA.

Federal - Work done inhouse by another Federal agency with EPA funds.

Program Grant - (EPA)

Training Grant - (EPA)

Fellowship Grant - (EPA)

Research Grant - (EPA)

None - All other methods of support not otherwise identified.

Category Assignment (c/a)

Each document is assigned one or more general categories characterizing its major themes. The following categories, with their indicated scopes, are to be used. A given document may be assigned to more than one category if its content justifies multiple assignment.

General - Reviews of general problems, trends and background; documents not assignable to other categories. This category is to be used infrequently.

Emission Sources - Information pertaining to an industry, process, or material associated with air pollution. Documents in this category should be concerned primarily with characteristics of a specific class of emission sources including types, rates, and industries. Secondary coverage may include effects, control methods, etc.

Atmospheric Interaction - All chemical and physical phenomena occurring in the atmosphere. Included is material on dispersion, air pollution forecasts, meteorological effects, topographical effects, photochemical reactions in the atmosphere, etc. Laboratory studies of photochemical reactions are assigned to Basic Science and Technology.

Measurement Methods - Equipment as well as methods. Material is confined to development, testing, and evaluation of pollutant determination methods (sampling, analyzing, monitoring) and equipment as such. Data obtained by use of methods in specific applications are placed in the applicable subject categories.

Control Methods - Equipment and both specific source control and general abatement efforts. Included are documents describing the operating principles, design, operation, efficiency, etc., of equipment and methods of removing pollutants from the air. The scope of the document can vary from a description of a device for a specific source to an approach applicable to an entire industry, such as automobiles.

Effects - Human Health - Covers medical and epidemiological studies; biological human health effects produced by air pollutants; laboratory animal experiments.

Effects - Plants, Livestock - Effects on vegetation--crops, trees, other plants--and on livestock as distinguished from laboratory experimental animals.

Effects - Materials - Deterioration, corrosion, etc., of physical materials, buildings, and structures.

Effects - Economic - Economic implications of air pollution and its control, e.g., economic losses from pollution damage, and costs of control programs or equipment in general.

Air Quality Measurements - Pollution measurements in the ambient air, generally related to specific geographical locations such as area surveys. Material also includes general reviews of area situations and emission source inventories.

Legal and Administrative - Legal aspects including legislation, ordinances, rules, litigation, hearings, decisions, etc. Administration covers administrative and miscellaneous information concerning control agencies and control and research programs. Typical topics are personnel, budgets, contractual activities, and program descriptors.

Standards and Criteria - Recommended or adopted guides, criteria and standards for allowable emission limits or pollutant concentrations, air quality, equipment characteristics, and fuels.

Basic Science and Technology - General discussions or data compilations for the basic physical and chemical properties of pollutants. Also included are theoretical and laboratory studies on related chemical reactions and mechanisms, as well as mass transfer and other basic knowledge related to process engineering applications in emission control or abatement (excluding atmospheric photochemical studies and biochemical studies related to effects of air pollution).

Social Aspects - Sociological and psychological aspects such as social attitudes, public opinion studies, public relations and public information.

Document Attributes

These terms characterize the type and source of information presented by the document, in contrast to subject content, which is identified by descriptor terms. The document attributes differentiate various types of original work, reviews, bibliographies, etc. Thus they permit greater selectivity in searching in relation to the needs of a particular user. Document attributes of this type, with their scopes, are as follows:

Original Work (Theoretical) - Theoretical analysis, including economic analyses, as distinguished from experimental work and field measurements.

Original Work (Laboratory) - Original results of investigations carried out by the author in the laboratory, or under otherwise controlled conditions.

Original Work (Field) - Original results of investigations carried out by the author under natural conditions.

Reviews (Technical) - Summarization and/or evaluation of technical information or other material, as in literature reviews, state-of-the-art reviews, monographs, etc. If the source material is familiar (see Reviews - General, below) the summation or evaluation should be sufficiently significant to constitute new information.

Reviews (General) - Information generally known and accepted in the air pollution field. Documents under General in the Category Assignment section would normally be assigned this attribute.

Compilations - Facts or data, e. g., state laws, air network results.

Directories - Membership, agencies, associations, manufacturers, etc.

Bibliographies - Annotated bibliographies (reference plus abstract or characterization, but without summarizing comment or evaluation).

Patents - Published patents; other documents relating to patents.

Proceedings - Published papers and discussions of symposia, specialized meetings, etc.

Collection - Several articles by various authors, with no definite relationship to each other, appearing under a single cover.

Manuals - Operating, maintenance or planning guides, i.e., "how-to-do-it" documents.

Glossary - Dictionary-type listing of terms and definitions.

Books - Hardback textbooks and references for shelf use.

REMAINING MICROTHESAURUS TERMS

The remaining terms in the APTIC microthesaurus constitute a highly specialized listing of approximately 1,400 terms arranged alphabetically and hierarchically to describe specific scientific or related subjects in the field of air pollution.

The hierarchical groups are arranged in logical sections for two reasons:

1. Logical section divisions bring together narrower terms under a broad term which can serve as a key choice if the searcher needs a general coverage of similar concepts.
2. Such divisions assist the searcher in locating the most specific term available.

Because the terms indexed for a given report are chosen as specifically as possible, APTIC urges that the user choose the most specific terms possible when writing a search request. The search program automatically indexes the document accession number to broader terms within the hierarchy. Therefore, if the user chooses a broad term such as "analytical methods," he is thereby asking the computer to search the term "analytical methods" and all its subterms.

Because of the very high number of document numbers that are related to some broad terms in the APTIC system, the user should always keep in mind that the most specific term possible should be searched.

REQUEST LANGUAGE DESCRIPTION

The basic standard in the APTIC search system is the PL/1 character set, and so the following are acceptable in descriptors and subdescriptors:

A through Z; Ø through 9;) (. , * / - % # @ ' " _ = + ;

therefore, the following characters are used in the search language as separators and operators:

<u>Logic</u>	<u>Symbol</u>
logical AND	&
logical NOT	¬
logical OR	
for truncation of descriptors	\$
right parenthesis	>
left parenthesis	<
end of request	?

The fundamental abilities of the language permit the usual three Boolean operators, 'AND,' 'OR,' and 'NOT.' The symbols &, |, and ¬ respectively, will be used to represent these operators. A descriptor,* as interpreted by the search language, is that which appears between two operators. In the following example,

A & B & C

may represent a simple inquiry such as,

(A) (B) (C)
FUELS & FUEL ADDITIVES & AUTOMOBILES

* A DESCRIPTOR may be single word descriptor such as 'fuels' or a multiword descriptor such as 'fuel additives.'

Descriptors may be combined in a large number of ways. The simplest of these ways, a simple 'ANDing,' has already been illustrated, as A & B & C. The 'OR' is used in a similar manner, A | B | C. The former states that all three descriptors, A, B, and C, must appear on a document in order for that document to satisfy the request (be a 'hit'). The latter states that if any one of the three descriptors appears in a document, the document is a 'hit.'

Parentheses (less than and greater than signs) may be used freely to alter the meaning, but must be used with care. Parentheses cause the entire expression enclosed within them to be evaluated as an entity, the result of that evaluation then being considered as a sort of 'super-descriptor,' which is then analyzed with the remainder of the request. For example, consider the following:

1. A | B & C
2. < A | B > & C
3. A | < B & C >

The first statement defines a 'hit' as any document which contains either A alone or both B and C.

The second defines a 'hit' as one which contains either A or B, and C, i.e., A + C or B + C. The third defines a 'hit' as one which contains either A alone or both B and C, which is the same as (1). This is an example of redundant parentheses, which will not affect the search logic.

Nested parentheses are permissible, as in the following:

A & < B & < C | D > | E >

This decomposes into A & B & D or C, or A & E. However, if the parentheses are modified the same expression decomposes to different meanings.

Removing the outer parentheses gives A & B & < C | D > | E , which decomposes into A & B & C or A & B & D or E.

Removing the inner parentheses instead gives A & < B & C | D | E > , which decomposes into A & B & C or A & D or A & E.

Removing both sets gives A & B & C | D | E , which decomposes into A & B & C or D or E.

Logically, there is no limit to the number of nested parentheses which are possible, since the logical system deals with them one at a time. However, other limitations impose a maximum of eight nested sets. This does not imply that only eight sets may be used in an inquiry, only that a maximum of eight nested sets are permitted.

The 'NOT' operator ($\neg$) should be treated with special care since its function is different from either & or |. AND (&) and OR (|) are binary operators which imply a relationship between two descriptors. 'NOT' is unary. It affects only the descriptor following the $\neg$. 'NOT' implies 'AND,' i.e., $A \neg B$ means A and not B. $A \& \langle B | \neg C \rangle$ is not permitted and must be written as $A \& B | A \neg C$.

Truncation

It is possible to make inquiries of the system using only partial descriptors by use of the truncation feature. In the normal, or untruncated, mode a descriptor in the inquiry must match exactly with a descriptor in the record in order for the record to be a 'hit.' Using the truncation feature, it is possible to ignore terminal characters of descriptors in the record. In the following hypothetical inquiry, for example,

ROADS & ACCIDENTS

the descriptor 'ROADS' and the descriptor 'ACCIDENTS' must appear exactly as written in the document in order to be a 'hit.' In,

ROAD\$ & ACCIDENT\$

however, any descriptor such as ROAD, ROADS, ROADWAY, and the like, would match ROAD\$. Similarly, ACCIDENT, ACCIDENTS, and ACCIDENTAL would match ACCIDENT\$. Truncation is thus a useful feature for avoiding the necessity of 'ORing' together singular, plural, adjectival forms of the same word or words. The program will ignore any characters appearing in the document descriptors beyond those given in the inquiry. The truncation symbol (the \$) acts to block further comparison.

Truncation should be used with care, however, as unexpected retrieval might result from its injudicious use. For instance, in the above example, ROAD\$ will match successfully against not only the terms given above, but also against ROAD SIGNS, ROAD BUILDING, and any other descriptor, regardless of length which begins with the four characters ROAD. Similarly, ACCIDENT PREVENTION, ACCIDENTAL LOSS, and any other descriptor whose first eight characters are ACCIDENT will match successfully against ACCIDENT\$. Because it gives an alphabetical listing of all the terms in the computer, Supplement C is a convenient tool to be used in truncating. The statistics also included in this supplement are valuable because they give an indication of the likely number of 'hits' per term.

The only constraint of the truncation feature is that there must be a minimum of one character preceding the \$. An inquiry such as:

ROADS & \$

is invalid and will be rejected by the system.

The exact position of the truncation symbol has an effect on the retrieval. ACCIDENT\$ does not have the same meaning as ACCIDENT \$. In the former case (no blank between the word and the \$), the eight characters ACCIDENT are compared against the document records as described above. In the latter case, the nine characters A-C-C-I-D-E-N-T-blank are compared against the record. In this case, only such descriptors as ACCIDENT PREVENTION, and other multiple word descriptors beginning with the word ACCIDENT would be retrieved. Neither ACCIDENTS nor ACCIDENTAL would be retrieved. Furthermore, not even the simple descriptor ACCIDENT would be retrieved, because descriptors are assumed to end with the last significant character. That is, they do not have trailing blanks. Therefore, there would be no match between the eight character ACCIDENT in the record, and the nine character ACCIDENT \$ in the inquiry.

SUPPLEMENT A. APTIC MICROTHESAURUS

FIELDS 05, 16 & 17, and 18 Write the appropriate number in front of each item.	
METHOD OF SUPPORT (05-MAX 1; ENTRY MANDATORY) M/S-CONTRACT M/S-INHOUSE M/S-FEDERAL M/S-PROG GRT M/S-FELL GRT M/S-RES GRT M/S-NONE	
CATEGORY ASSIGNMENT (16-MAX 1 & 17-MAX 2) Use 16 for primary category, 17 for secondary category (ies). C/a-GENERAL C/a-EMISSION SOURCES C/a-ATMOS INTERACT C/a-MEASUREMENT METH C/a-CONTROL METHODS C/a-EFFECTS-HUM HLTH C/a-EFFECTS-PLANTS, LIVEST C/a-EFFECTS-MATERIALS C/a-EFFECTS-ECONOMIC C/a-AIR QUALITY MEAS C/a-LEGAL AND ADMIN C/a-STDs AND CRIT C/a-BASIC SCI-TECH C/a-SOCIAL ASPECTS	
DOCUMENT ATTRIBUTES (18-TOTAL MAX 5) Original Work (MAX 2) THEO LAB FLD Review (MAX 1) TECH GEN Type of Publication (MAX 2) COMP DIR BIB PAT PROC COLL MANL GLOS BKS	

ADMINISTRATIVE & SOCIAL ABATEMENT ADMINISTRATION AGREEMENTS CONTRACTING GRANTS PLANS AND PROGRAMS AIR QUALITY MEASUREMENT PROGRAMS AREA SURVEYS AIR MONITORING PROGRAM (CAMP) AIR QUALITY MONITORING PROGRAM (CAMP) NATIONAL AIR SAMPLING NETWORK (NASN) SURVEY METHODS CONTROL PROGRAMS PROPOSALS RESEARCH PROGRAMS ADVISORY SERVICES AIR POLLUTION EPISODES ALERTS AIR RESOURCE MANAGEMENT COMMERCIAL FIRMS CONTROL AGENCIES COSTS CRITERIA AIR QUALITY CRITERIA EQUIPMENT CRITERIA FUEL CRITERIA OPERATING CRITERIA ECONOMIC LOSSES EDUCATION ENFORCEMENT PROCEDURES EVALUATION FEASIBILITY STUDIES FEES GOVERNMENTS CITY GOVERNMENTS COUNTY GOVERNMENTS FEDERAL GOVERNMENTS LOCAL GOVERNMENTS REGIONAL GOVERNMENTS STATE GOVERNMENTS LEGAL ASPECTS CODES DECISIONS HEARINGS JUDICIAL HEARINGS SENATE HEARINGS LEGISLATION CLEAN AIR ACT LITIGATION PLANNING AND ZONING AREA EMISSION ALLOCATIONS LAND USE REGULATIONS MEETINGS MOTION PICTURES PERMITS PERSONNEL CHEMISTS ENGINEERS INSPECTORS INSTRUCTORS MANAGEMENT PERSONNEL MEDICAL PERSONNEL SANITARIANS STUDENTS PERSONNEL QUALIFICATIONS PUBLIC AFFAIRS CITIZENS GROUPS COMPLAINTS OPINION SURVEYS PUBLIC INFORMATION QUESTIONNAIRES RESEARCH INSTITUTES SALARIES SOCIO-ECONOMIC FACTORS SOCIAL ATTITUDES STANDARDS AIR QUALITY STANDARDS EMISSION STANDARDS EQUIPMENT STANDARDS FUEL STANDARDS TAXATION TECHNICAL SOCIETIES TRADE ASSOCIATIONS UNIVERSITIES	
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MODIFIERS ACUTE ANNUAL CHRONIC CONTINUOUS DIURNAL HOURLY INDOOR INTERNATIONAL INTERMITTENT MOBILE MONTHLY PORTABLE SEASONAL

MISCELLANEOUS EFFICIENCY TRENDS
--

OPEN-ENDED TERMS (NON-THESAURUS)

**MICROTHESAURUS OF
AIR POLLUTION TERMS**
 ENVIRONMENTAL PROTECTION AGENCY
 AIR POLLUTION TECHNICAL INFORMATION CENTER
 THIRD REVISION MAY 1972

HUMANS & ANIMALS

ANIMALS
BIRDS
GOATS
LABORATORY ANIMALS
CATS
DOGS
HAWK
HUNTERS
MICE
PARAMECIA
PRIMATES
RABBITS
POULTRY
SHEEP
HUMANS
ADULTS
CHILDREN
SEX
AGE
MALES
FEMALES

BIOSCIENCES & MEDICINE

BIOMEDICAL TECHNIQUES AND MEASUREMENT

ABSENTEEISM
ACTIVITIES
BIOCLIMATOLOGY
EPIDEMIOLOGY
GENETICS
HEALTH STATISTICS
HEMATOLOGY
HISTOLOGY
HUMAN GENETICS
BLOOD GAS ANALYSIS
CARBOXYHEMOGLOBIN
HEMOGLOBIN INTERACTIONS
IMMUNOLOGY
ANTIBODIES
ANTIGENS
LIFE SPAN
MORBIDITY
MORTALITY
OCCUPATIONAL HEALTH
PATHOLOGICAL ANATOMY
PATHOLOGICAL TECHNIQUES
RADIOLOGICAL HEALTH
TISSUE CULTURES
TREATMENT AND AIDS
ARTIFICIAL RESPIRATION
PREVENTING EXERCISES
DIAGNOSIS
AUTOPSY
BIO-ASSAY
BIOPSY

BODY PROCESSES AND FUNCTIONS

ADAPTATION
BLOOD PRESSURE
CELL GROWTH
CELL METABOLISM
DIGESTION
INGESTION
INHIBITION
METABOLISM
PULSE RATE
PULSATILITY
RESPIRATION
BREATHING
COMPLIANCE
DEPOSITION
LUNG CLEARANCE
LUNG VOLUME
PULMONARY FUNCTION
OXYGEN DIFFUSION
PULMONARY RESISTANCE
VENTILATION
RETENTION
RESPIRATORY
SYNERGISM
THRESHOLDS
TOXICITY
TOXIC TOLERANCES

FOODS & PLANTS

FOODS
MILK
PLANTS (BOTANY)
CROPS
WHEAT
BARLEY
CORN
COTTON
FLAX
GRASSES
OATS
SOYBEANS
TOBACCO
WHEAT
FLOWERS
LEAVES
PETUNIAS
SWEET PEAS
FRUITS
APPLES
CITRUS
GUMMIFEROUS
HERBS
LEAVES
ORCHARDS
TREES
VEGETABLES
WATERMELONS
LETTUCE
PINTO BEANS
POTATOES
SPINACH
TOMATOES
PLANT DAMAGE
BANDING
CHLOROSIS
MOTTLING
NECROSIS
PHYLLOXERA
TIP BURN
PLANT GROWTH
PHOTOSYNTHESIS
PLANT INDICATORS
CHLOROPHYLLS
RESPIRATION

MATERIALS & EFFECTS

MATERIALS

ADHESIVES
CARBON BLACK
CERAMICS
CONCRETE
CONSTRUCTION MATERIALS
ASPHALT
BRICKS
CEMENTS
CONCRETE
GLASS
STONE
LEATHER
LUBRICANTS
METALS
DISCOLORATION
FADING
SOILING
METALS
ALUMINUM
BISMUTH
CADMIUM
CHROMIUM
COPPER
FERROUS ALLOYS
IRON
STEEL
LEAD
LEAD ALLOYS
MAGNESIUM
MANGANESE
MERCURY
MOLYBDENUM
NICKEL
PLATINUM
TIN
TITANIUM
VANADIUM
ZINC
ZIRCONIUM
METALLIC PRODUCTS
ASBESTOS
CLAY
GRAPHITE
LIMESTONE
QUARTZ
PLASTER
PLASTIC
TEFLON
REFRAC TORIES
RUBBER
SYNTHETIC RUBBER
SEALING COMPOUNDS
SEALS
SURFACE COATINGS
LACQUERS
PAINTS
FARNISHES
TEXTILES
COTTONS
SYNTHETIC FIBERS
NYLON
WOOLS
TIRES
WOOD

DISEASES AND DISORDERS

ALLERGIES
ANEMIA
ANOXIA
APHYXIATION
BERNARD'S
BLINDNESS
CANCER
BRONCHIAL CANCER
LEUKEMIA
LUNG CANCER
LUNG DISEASES
TRACHEAL CANCER
CARCINOGENS
CARDIOVASCULAR DISEASES
ERYTHEMA
EYE IRRITATION
HEADACHES
HEALTH IMPAIRMENT
HYPERSENSITIVITY
HYPOXIA
INFECTIOUS DISEASES
LACHRYMATION
METAL POISONING
MUTATIONS
NAUSEA
VIRAL DISEASES
RESPIRATORY INFECTIONS
ASTHMA
BRONCHITIS
BRONCHOCONSTRICTION
BRONCHOPNEUMONIA
COMMON COLD
COUGH
EMPHYSEMA
HAY FEVER
INFLUENZA
PARANASALITIS
PLEURISIS
PNEUMONIOSIS
ANTHRACOSIS
ASBESTOSIS
BYSSINOSIS
FARMER'S LUNG
SILICOSIS
PNEUMONIA
PULMONARY EDEMA
TUBERCULOSIS
STERILIZATION
TUMORS

BODY CONSTITUENTS AND PARTS

BLOOD
BLOOD CELLS
LEUKOCYTES
LYMPHOCYTES
MONOCYTES
CILIA
SPERMATOCYTES
CIRCULATORY SYSTEM
BLOOD VESSELS
DIGESTIVE SYSTEM
ESOPHAGUS
INTESTINES
LIVER
MOUTH
NUTRITION
ENZYMES
EXCRETIONS
EYES
GLANDS
HISTAMINES
KIDNEYS
LIPIDS
MEMBRANES
NERVOUS SYSTEM
NUCLEIC ACIDS
PROTEINS
AMINO ACIDS
RESPIRATORY SYSTEM
BRONCHI
LARYNX
LUNGS
NOSTRILS
SINUSES
TRACHEA
SKIN
EPITHELIUM
TISSUES

LOCATIONS

GEOGRAPHICAL LOCATIONS

AFRICA
ALABAMA
ALASKA
ARIZONA
ARKANSAS
ASIA
JAPAN
CHINA
HAWAII
KANSAS
LOUISIANA
MAINE
MARYLAND
MASSACHUSETTS
MICHIGAN
MINNESOTA
MISSISSIPPI
MISSOURI
MONTANA
NEBRASKA
NEVADA
NEW HAMPSHIRE
NEW JERSEY
NEW MEXICO
NEW YORK
NEW YORK CITY
NORTH CAROLINA
NORTH DAKOTA
OHIO
CINCINNATI
OKLAHOMA
PENNSYLVANIA
DONORA
PHILADELPHIA
PITTSBURGH
RHODE ISLAND
SOUTH CAROLINA
SOUTH DAKOTA
TENNESSEE
NASHVILLE
TEXAS
HOUSTON
UNITED STATES
VERMONT
VIRGINIA
WASHINGTON D.C.
WASHINGTON (STATE)
WEST VIRGINIA
WISCONSIN
WYOMING

PHYSICAL LOCATIONS

AIRPORTS
BUILDINGS
GREENHOUSES
HIGHWAYS
NON-URBAN AREAS
FARM
RECREATION AREAS
STREETS
SUBWAYS
TUNNELS
URBAN AREAS
CAMPUS AREAS
INDUSTRIAL AREAS
RESIDENTIAL AREAS

TOPOGRAPHICAL LOCATIONS

FORESTS
HARBORS
LAKES
MOUNTAINS
OCEANS
POOLS
RIVERS
SOILS
VALLEYS
VOLCANOES

POLLUTANTS

POLLUTANTS (SEE ALSO CHEMICAL COMPOUNDS)

ACID SMUTS
AUTOMOTIVE EMISSIONS
AUXILIARY EMISSIONS
CRANKCASE EMISSIONS
BLOWBY
CRANKCASE VENTILATION AIR
CRANKCASE LUBRICATION FUMES
FUEL EVAPORATION
GASOLINE EVAPORATION
CARBURETOR EVAPORATION LOSSES
HOT SOAK
RUNNING EVAPORATIVE LOSSES

COAL TARS
COMBUSTION PRODUCTS
ASHES
COMBUSTION GASES
STACK GASES
MICROORGANISMS

BACTERIA
FUNGI
PROTOZOA
VIRUSES

ODORS
OXIDANTS
PARTICULATES

AEROSOLS
SETTLING PARTICLES
SEA SALTS

SOOT
SPRAYS
SUSPENDED PARTICULATES

DROPLETS
FUMES
MISTS

POLLENS
SMOG
SMOKES

PESTICIDES
PHYTOHORMONES
DEFOLIANTS

HERBICIDES
POLLUTION PRECURSORS
OXIDANT PRECURSORS

RAHWEE
SOLVENTS
STAINING SOLVENTS

PAINT REMOVERS

SOURCES

SOURCES

BOILERS
COOLING TOWERS
DIGESTERS
ENGINE OPERATING CYCLES
EVAPORATORS
EXHAUSTS
NUCLEAR EXPLOSIONS
FUELS

COAL
COAL CHARACTERISTICS
COAL RESOURCES
COKE GASES
FUEL OILS
NATURAL GAS

DISTILLATE OILS
RESIDUAL OILS
OIL RESOURCES
GASOLINES
KEROSENE
PEAT

PULVERIZED FUELS
FURNACES
BASIC OXYGEN FURNACES
BESSEMER CONVERTERS
BLAST FURNACES
COKING PLANTS
ELECTRIC FURNACES
OIL BURNERS
OPEN HEARTH FURNACES

INDUSTRIAL EMISSION SOURCES
BATTERY MANUFACTURING
CHEMICAL PROCESSING
CHAMBER PROCESSING
CORE PULPING
CORE OVENS

COTTON GINNING
DEGREASING
DETERGENT MANUFACTURING
DYE MANUFACTURING
ELECTRIC POWER PRODUCTION
MAGNETOHYDRODYNAMICS (MHD)
NUCLEAR POWER PLANTS
REACTORS (NUCLEAR)

STEEL MILL MANUFACTURING
FERTILIZER MANUFACTURING
FOOD AND FEED OPERATIONS
CANNING
COFFEE-MAKING
FLOUR PROCESSING
GRAIN PROCESSING
GLUE MANUFACTURING
GOSPILE BURNING
INCINERATION
MULTIPLE CHAMBER INCINERATORS
SINGLE CHAMBER INCINERATORS
KILNS

LAUNDRIES
METAL FABRICATING AND FINISHING
MINERAL PROCESSING
MINING
PAINT MANUFACTURING
PETROLEUM REFINING
PETROLEUM PRODUCTION
PLATING
PRIMARY CYCLES
PRIMARY METALLURGICAL PROCESSING
PRINTING
PULPING
RUBBER MANUFACTURING
SOAP MANUFACTURING
SURFACE COATING OPERATIONS
TEXTILE MANUFACTURING
TVA

NON-INDUSTRIAL EMISSION SOURCES

CROP SPRAYING
DOMESTIC HEATING
FEED LOTS
FERTILIZING
MISCELLANEOUS ROCKETS
OPEN BURNING
PEST CONTROL
SEWAGE
SEWAGE TREATMENT
SEWERS
SLURRIES
SOLID WASTE DISPOSAL
COMPOSTING
DUMPS
LANDFILLS

ORGANIC WASTES
SCRAP YARDS
WASTE POLLUTION
OPERATING VARIABLES
OXYGEN LANCING
PILOT PLANTS
SINTERING
STACKS
TRANSPORTATION

AIRPLANE
JET
PROPELLER AIRCRAFT
MASS TRANSPORTATION
POWER SOURCES
FUEL CELLS
INTERNAL COMBUSTION ENGINES
DIESEL ENGINES
ROTARY PISTON ENGINES
SPARK IGNITION ENGINES
STRATIFIED CHARGE ENGINES
NUCLEAR POWER SOURCES
SHIP ENGINES
VEHICLES
AUTOMOBILES
BUSES
TRAINS
TRUCKS

MEASUREMENT

AIR QUALITY MEASUREMENTS

CHEMICAL COMPOSITION
BENZENE-SOLUBLE ORGANIC MATTER
AEROSOLS
AROMATIC FRACTIONS
OXYGENATED FRACTIONS
BUILD-UP RATES
DISSIPATION RATES
EMISSION INVENTORIES
DUST FALL
SMOKE INDEX
RINGELMANN CHART
SOILING INDEX
SOOT FALL
VISIBILITY

ANALYTICAL METHODS
CHEMICAL METHODS
ELECTROCHEMICAL METHODS
POLAROGRAPHIC METHODS
POTENTIOMETRIC METHODS
IODIMETRIC METHODS
CHROMATOGRAPHY
COLUMN CHROMATOGRAPHY
GAS CHROMATOGRAPHY
PAPER CHROMATOGRAPHY
THIN-LAYER CHROMATOGRAPHY
COLORIMETRY
MBTH METHOD
SALTZMAN METHOD
NEUTRON ACTIVATION ANALYSIS
SPECTROPHOTOMETRY
AZO DYE
QUENCHING

SPOT TESTS
TITRATIONS
MEASUREMENT METHODS
AUTOMATIC METHODS
CUMULATIVE METHODS
LEAD PEROXIDE CANDLE
MONITORING
CONTINUOUS MONITORING
ELECTROCONDUCTIVITY ANALYZERS
INTERFEROMETRIC MONITORING
PARTICLE COUNTERS
ATKIN COUNTERS
ELECTROSTATIC COUNTERS
KONIMETERS
OWENS JET DUST COUNTERS
ODORIMETRY
ORSAT ANALYSIS
PHOTOMETRIC METHODS
RADIATION MEASURING SYSTEMS
SMOKEMETERS
TRANSMISSOMETERS
TURBIDIMETRY
TROLL COUNTER
PARTICULATE CLASSIFIERS
PARTICLE SHAPE
PARTICLE SIZE
SIEVE ANALYSIS
SAMPLING METHODS
GAS SAMPLING
THROWING (SAMPLING)
PARTICULATE SAMPLING
SAMPLERS
ASPIRATORS
CASCADE SAMPLERS
HEMICON AUTOMATIC SMOKE SAMPLERS
HI-VOL SAMPLERS
IMPACTORS
MEMBRANE FILTERS
POLLEN COLLECTORS
SAMPLING PROBES
SOURCE SAMPLING

CONTROL METHODS & EQUIPMENT

COMMERCIAL EQUIPMENT
CONTROL EQUIPMENT
AFTERBURNERS
CATALYTIC AFTERBURNERS
FLAME AFTERBURNERS
AIR CONDITIONING EQUIPMENT
COLLECTORS
CENTRIFUGAL SEPARATORS
SETTLING CHAMBERS
ELECTROSTATIC PRECIPITATORS
EXHAUST SYSTEMS
FANS (BLOWERS)
FILTERS
BUBBLERS
GLASS FABRICS
TREATED FABRICS
SCREEN FILTERS
FLARES
PROTECTIVE MASKS
GAS MASKS
SCRUBBERS
BUBBLE TOWERS
PACKED TOWERS
SPRAY TOWERS
VENTURI SCRUBBERS
WET CYCLONES
WASH TOWERS
VAPOR RECOVERY SYSTEMS
CONTROL METHODS
ABSORPTION
ADSORPTION
AUTOMOTIVE EMISSION CONTROL
ENGINE OPERATION MODIFICATION
AIR/FUEL RATIO
CARBURETOR
SPARK TIMING
TIMED FUEL INJECTION
ENGINE DESIGN MODIFICATION
BY-PRODUCT RECOVERY
CATALYTIC OXIDATION
BLACK LIQUOR OXIDATION
FUEL ADDITIVES
INSULATION
MAINTENANCE
ODOR COUNTERACTION
PROCESS MODIFICATION
FIRING METHODS
COMBUSTION AIR
EXHAUST AIR
SECONDARY AIR
UNDERFIRE AIR
FUEL CHARGING

RAPPING
SEDIMENTATION
GRAVITATION
INERTIAL SEPARATION
SULFUR OXIDES CONTROL
DESULFURATION OF FUELS
COAL PREPARATION
GASIFICATION (SYNTHESIS)
CCR PROCESSES
ELECTROLYTIC
FROTH FLOTATION
LAUNDERING (COAL)
MAGNETIC SEPARATION
SOLVENT REFINING (LOW ASH)
FUEL OIL PREPARATION
BLENDING
HYDRODESULFURATION
SO₂ REMOVAL (COMBUSTION PRODUCTS)
ABSORPTION (GENERAL)
ADSORPTION (GENERAL)
ALKALINE ADDITIVES
ALKALIZED ALUMINA (ADSORPTION)
MANGANESE DIOXIDE (JAPANESE)
PAPER WASTE PROCESS (U.S.)
PETER WASTE PROCESS (U.S.)
REINLUFT PROCESS (ADSORPTION)
TELLER (CHROMATOGRAPHIC)
VENTILATION

AEROSOL GENERATORS
ELECTROSTATIC AEROSOL GENERATORS
AUTOCULAVES
BREATHING APPARATUS
VENTILATION METHODS
CAMERAS
COMPUTERS
CONTROLLED ATMOSPHERES
DATA HANDLING SYSTEMS
COMPUTER PROGRAMS
DATA ANALYSIS
DESIGN CRITERIA
EXPOSURE CHAMBERS
ELECTRICAL MEASUREMENT DEVICES
VOLTMETERS
ELECTRON MICROSCOPY
EXPOSURE CHAMBERS
EXPERIMENTAL METHODS
EXPOSURE METHODS
LD TESTS
EXOMETERS
HEIGHT FINDING
INSTRUMENTATION
ASERS
DOAS
IMAGING
MATHEMATICAL ANALYSES
MATHEMATICAL MODELING
METEOROLOGICAL INSTRUMENTS
GALLOONS
SAROMETERS
HYGROMETERS
HYDROMETERS
RADIOSONDES
RADIOSONDES
MICROSCOPY
PLETHYSMOGRAPHY
RECORDING METHODS
DIGITAL METHODS
RESEARCH METHODOLOGIES
SAFETY EQUIPMENT
SIMULATION
INFRARED SPECTROMETRY
MASS SPECTROMETRY
ULTRAVIOLET SPECTROMETRY
MATHEMATICAL ANALYSES
TEMPERATURE SENSING INSTRUMENTS
THERMISTORS
THERMOCOUPLES
THERMOMETERS
THERMISTORS
EXPOSURE CHAMBERS
IONIZATION CHAMBERS
IRRADIATION CHAMBERS
LABORATORIES
WIND TUNNELS

ATMOSPHERIC PHENOMENA

AIR POLLUTION FORECASTING

ALTITUDE

GROUND LEVEL

MIDDLE ATMOSPHERE

UPPER ATMOSPHERE

DISPERSION

DIFFUSION MODELS

PLUME BEHAVIOR

CONING

FUMIGATION

LOFTING

TRAPPING

POLLUTANT SOURCES

TRANSPORT

ELECTRICITY (ATMOSPHERIC)

HYDROSPHERE

ATMOSPHERIC MOVEMENTS

ADVECTION

ANTICYCLONES

CONVECTION (ATMOSPHERIC)

CYCLONES (ATMOSPHERIC)

CYCLONES (ATMOSPHERIC)

WINDS

SEA BREEZE

SEA RISE

CONDENSATION (ATMOSPHERIC)

CLOUDS

FOG

HAZE

WINDY

MICROMETEOROLOGY

PRECIPITATION

RAIN

SNOW

DEBERTORMS

WASHOUT

PRESSURE (ATMOSPHERIC)

TEMPERATURE (ATMOSPHERIC)

WEATHER FORECASTING

WEATHER MODIFICATION

CLOUD SEEDING

SCATTERING (ATMOSPHERIC)

STABILITY (ATMOSPHERIC)

LARGE CONDITION

NEUTRAL CONDITION

STAGNATION

THERMAL GRADIENT

TURBULENCE (ATMOSPHERIC)

TURBULENCE (ATMOSPHERIC)

CHEMICAL COMPOUNDS ACIDS INORGANIC ACIDS HYDROCHLORIC ACID SULFURIC ACID NITRIC ACID NITROUS ACID PICRIC ACID PHOSPHORIC ACID HYDROFLUORIC ACID ORGANIC ACIDS ACETIC ACID BENZOIC ACID FORMIC ACID OXALIC ACID PHALIC ACID SULFONIC ACID ALCOHOLS ETHANOL PHENOL GLYCEROL ALDEHYDES ACETALDEHYDE GLYCOLALDEHYDE ACROLEIN GLUCONIC ACID FORMALDEHYDES PROPIONALDEHYDES AMMONIUM COMPOUNDS AMMONIA AMMONIUM CHLORIDE ARSENIC COMPOUNDS ARSENINE COMPOUNDS ARSENIC COMPOUNDS BROMATES BROMIDES CHLORIDES CARBONATES CARBONATES CARBONATES CHLORONITRILES CHLORIDES CYANIDES CYANIDES ESTERS FLUORINE COMPOUNDS FLUORIDES FLUORIDES HALOGEN GASES BROMINE CHLORINE FLUORINE IODINE HALOGENATED HYDROCARBONS CHLORINATED HYDROCARBONS CHLORINATED HYDROCARBONS CARBON TETRACHLORIDE CHLOROFORM FLUORINATED HYDROCARBONS FLUORINATED HYDROCARBONS FLUORINATED HYDROCARBONS HYDROAZIDES HYDROAZIDES	HYDROCARBONS BUTANES CYCLOALKANES HEPTANES HEXANES METHANES OCTANES OLEFINS ACETYLENES BUTYNES ETHYNES ANYLENES BUTENES TRANS-2-BUTENE DIOLEFINS ETHYLENES BUTADIENES ETHYLENE HEPTENES HEXENES PENTENES PROPENES PENTANES ISOPENTANES AROMATIC HYDROCARBONS BENZENES TRIMETHYLBENZENE PHENYL COMPOUNDS PHENOL STILBENE PHENYL STYRENES TERAPHENYLS TRIPHENYLS XYLENES POLYNUCLEAR COMPOUNDS ANTHRACENES ANTHRAZENES CHRYSENES FLUORANTHRENES FLUORENES NAPHTHACENES NAPHTHACENES PENTAPHENES PERYLENES PHENANTHRENES PHENANTHRENES PHENYNES BENZOPHYRENES BENZOTRIAPYRENE TRIPHENYLENES HYDROXIDES IODINE COMPOUNDS IODIDES KETONES QUINONES
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ACIDS
 INORGANIC ACIDS
 HYDROCHLORIC ACID
 HYDROFLUORIC ACID
 NITRIC ACID
 NITROUS ACID
 PHOSPHORIC ACID
 SULFURIC ACID
 ORGANIC ACIDS
 ACETIC ACID
 FORMIC ACID
 FORMALDEHYDE
 HYDROCYANIC ACID
 PHTHALIC ACID
 SULFONIC ACID
 ETHYL ALCOHOL
 PHENOLS
 ALDEHYDES
 ACETALDEHYDE
 BUTYRALDEHYDE
 FORMALDEHYDES
 PROPIONALDEHYDES
 MMONIUM COMPOUNDS
 AMMONIUM CHLORIDE
 ARSENIC COMPOUNDS
 ARSINE
 BROMINE COMPOUNDS
 BROMATES
 CARBIDES
 CARBONATES
 CARBONYLS
 CHLORINE COMPOUNDS
 CHLORIDES
 CYANATES
 IANIDES
 ESTERS
 FLUORINE COMPOUNDS
 FLUORIDES
 HALOGEN GASES
 BROMINE
 CHLORINE
 IODINE
 ALUMINATED HYDROCARBONS
 BROMINATED HYDROCARBONS
 CHLORINATED HYDROCARBONS
 CHLOROFORM
 CHLORINE
 FLUORINATED HYDROCARBONS
 IODINATED HYDROCARBONS
 HYDRAZINES
 HYDROXIDES

ALUMINUM SILICATES
ANTIMONY COMPOUNDS
BARIUM COMPOUNDS
BARIUM SULFATES
BERMUTH COMPOUNDS
BORON COMPOUNDS
BORIDES
CALCIUM COMPOUNDS
CALCIUM SULFATES
CERIUM COMPOUNDS
CESIUM COMPOUNDS
CHLORINE COMPOUNDS
CHROMATES
COBALT COMPOUNDS
COPPER COMPOUNDS
IRON COMPOUNDS
LITHIUM COMPOUNDS
LITHIUM TETRAETHYL LEAD
LITHIUM COMPOUNDS
MAGNESIUM COMPOUNDS
MANGANESE SULFATES
MANGANESE COMPOUNDS
MERCURY COMPOUNDS
MOLYBDENUM COMPOUNDS
NICKEL COMPOUNDS
NICKEL SULFATES
PLUTONIUM COMPOUNDS
SILVER COMPOUNDS
SILVER IODIDE
SODIUM COMPOUNDS
SODIUM HYDROXIDE
SODIUM CHLORIDE
SODIUM HYDROXIDE
SODIUM SULFITE
SODIUM SULFATE
STRONTIUM COMPOUNDS
STRONTIUM COMPOUNDS
TITANIUM COMPOUNDS
URANIUM COMPOUNDS
VANADIUM COMPOUNDS
VANADIUM COMPOUNDS
ZINC COMPOUNDS
ZINCORNIUM COMPOUNDS
NITRATES
NITROGEN
NITROETHANE
PEROXYACETYL NITRATES
PEROXYACETYL NITRATE
NITRILES
NITRILES
NITROGEN
NITROGEN
ORGANIC NITROGEN COMPOUNDS
ACRIDINES
AMIDES
AMINES
AZOLES
AZOLES
CARBAZOLES
NICOTINES
QUINOLINES
QUINOLINES
QUINOLALINE

SULPHHYDRYL COMPOUNDS
THIOPHENE
ORGANOMETALLICS
OXIDES
ALUMINUM OXIDES
BERYLLIUM OXIDES
CARBON DIOXIDE
CARBON MONOXIDE
CHLORINE OXIDES
IRON OXIDES
NITROGEN OXIDES
NITRIC ANHYDRIDE (N2O6)
NITRIC ACID (NO₃)
NITROGEN TRIOXIDE (NO₂)
NITROGEN DIOXIDE (NO₂)
NITROUS ANHYDRIDE (N2O3)
NITROUS ANHYDRIDE (N2O)
PEROXIDES
SILICON DIOXIDE
SULFUR DIOXIDE
SULFUR TRIOXIDE
OZONE
PHOSPHORUS COMPOUNDS
PHOSPHENES
PHOSPHINE
RADIUM
SELENIUM COMPOUNDS
SILICON COMPOUNDS
SULFUR COMPOUNDS
SULFATES
SULFIDES
CARBON DISULFIDE
HYDROGEN SULFIDE
SULFITES

PHENOMENA _____

AERODYNAMICS
BROWNIAN MOVEMENT
CATALYSIS
CATALYSTS
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CHEMICAL BONDS
CHEMICAL REACTIONS
DECOMPOSITION
DISPLACEMENT
ELECTROLYSIS
HYDROGEN ON
HYDROLYSIS
NITRATION
NITRATION
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PHOTOLOGY
PHOTOXYDIZATION
POLYMERIZATION
POLYMERIZATION
REDUCTION
REDUCTION
COMBUSTION
COMPRESSION
CONDENSATION
DIFFUSION
DRYING
ELECTROLYSIS
EMISSIVITY
EVALUATION
FLOW FLOW
FLOW FLOW

CRYSTAL STRUCTURE
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ELECTROLYTIC PROPERTIES
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VAPOR PRESSURE
VOLATILITY

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