

OTS Manual for Preparing Documents

July 29, 1981



Office of
Toxic
Substances

TRANSMITTAL

2220.1

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PUBLICATION AND COMMUNICATION MATERIALS: STYLE, FORMAT,
AND EDITORIAL POLICY REVIEW

MATERIAL TRANSMITTED:

OTS Manual for Preparing Documents

OTS Manual 2220.1

MATERIAL SUPERSEDED OR CANCELLED:

This revised manual supersedes the draft Manual for Preparing
OTS Documents.

FILING INSTRUCTIONS:

File the attached material in a three-ring binder in the
classification code shown. Post receipt on the checklist.



Office of
Toxic
Substances

Manual

2220.1

CONTENTS

	Page
1 PURPOSE	1
2 POLICY	1
3 BACKGROUND	1
4 OBJECTIVES	1
5 APPLICABILITY	1
6 DISCLAIMERS FOR OTS REPORTS	3
6.1 In-house Reports	3
6.2 Intramural Reports	3
7 OTS DOCUMENT REVIEW OF PUBLICATION PROCEDURES	5
7.1 Document Clearance Form	5
7.2 EPA Report Number	5
7.3 Report Documentation Page	6
7.4 Review Cover Sheet	6
7.5 Confidential Business Information (CBI)	6
7.6 Federal Register Notice Availability	7
8 PRINTING PROCEDURES	8
8.1 IAO and the Printing Contract	8
8.2 Covers	8
8.3 TSCA Chemical Assessment Series	9
8.4 Toxics Information Integration Series	10
8.5 Cover Colors	10
8.6 IAO Checklist for Printing	10
9 HOW TO DOCUMENT SOURCES OF INFORMATION	12
9.1 Copyright	12
9.2 Limitations to Exclusive Rights: Fair Use	12
9.3 Alternatives to Using Copyrighted Material	12
9.4 When To Give Acknowledgment	12

OTS MANUAL FOR PREPARING DOCUMENTS

9.5	When Not To Give Acknowledgment	13
9.6	Using Copyrighted Material	13
10	REFERENCES	16
10.1	General Rules	16
10.2	Citations in the Text	18
10.3	Abbreviations Acceptable for Use in References	18
10.4	Model Reference Formats	19
10.5	Books	
10.6	Books Better Known by Their Titles	20
10.7	Computer Printouts	20
10.8	Conferences, Proceedings, and Symposia (Published and Unpublished).	20
10.9	Congressional Documents	21
10.10	Contractor Reports	21
10.11	Data Sheet	21
10.12	Federal Agency as Author	21
10.13	Federal Agency as Publisher	22
10.14	Federal Register	22
10.15	Fiche	23
10.16	Journal Articles and Monographs	23
10.17	Manufacturers' Literature	24
10.18	Memorandums and Letters	24
10.19	Patents	25
10.20	Report Series	25
10.21	Secondary References	25
10.22	Submissions Under TSCA	25
10.23	Thesis	26
10.24	Translations	26
11	SOURCES OF INFORMATION ON STYLE	27
11.1	Metric Units of Measure	28
11.2	Abbreviations and Symbols	28
11.3	Trade and Manufacturers' Name	29
12	STANDARD COMPONENTS IS A DOCUMENT	30
12.1	Front Matter	30
12.2	Text	31
12.3	Back Matter	32

Manual
2220.1

OTS MANUAL FOR PREPARING DOCUMENTS

13	FORMAT SPECIFICATIONS FOR DRAFT AND FINAL DRAFT REPORTS	33
13.1	Typing	33
13.2	Page Numbering	33
13.3	Order of Headings	34
13.4	Footnotes	34
13.5	Lists	34
13.6	Mathematical and Chemical Formulas	35
14	FIGURES	36
	Sample Figures	38
15	TABLES	39
	Sample Table	41
16	SAMPLE TITLE PAGE	42
17	SAMPLE OTS FORMS	43
17.1	OTS Document Clearance Form	43
17.2	Instructions for Completing OTS Clearance Forms	44
17.3	Report Documentation Page	46
17.4	Instructions for Completing the Report Documentation Page	46
17.5	Review Cover Sheet	47
17.6	Review Cover Sheet Instructions	48
17.7	Sample Permission Form, Journal	49
17.8	Sample Permission Form, Book	49
17.9	Directions for Preparing OTS Copyright Permission Forms	50
17.10	Sample Receipt of Manuscript for Printing	51
17.11	Translation Service Request	51
18	ADDITIONAL STYLE AIDS FOR AUTHORS	52
18.1	Abbreviations and Symbols Used in CAS Publications	52
18.2	Abbreviations for States and Territories in the United States	53
18.3	Proofreader's Marks	53



Office of Toxic Substances

Manual

2220.1

PUBLICATION AND COMMUNICATION MATERIALS: STYLE, FORMAT, AND EDITORIAL POLICY REVIEW

1 PURPOSE

Technical reports in a regulatory agency must maintain a high level of standardization in style, format, and reference citation in order to be of use to regulatory and scientific communities.

2 POLICY

The OTS Manual for Preparing Documents and EPA's Scientific and Technical Publications manual are the standards to be used for preparing documents in the Office of Toxic Substances (OTS). The procedures described in this manual apply to all documents prepared and printed as a result of OTS's intra- and extramural scientific activities. The Industry Assistance Office (IAO) in OTS holds the program's printing contract. Authors and project officers are responsible for delivering complete packages of camera-ready copy to IAO. Assistance in using this manual is available to authors and contractors in the OPTS Publications Office, Information Services Support Branch (ISSB), Management Support Division (MSD).

3 BACKGROUND

This manual describes review procedures for final draft documents; guidelines for writing documents, ranging from first draft to camera-ready final copy; the OTS reference style; and traditional elements in documents. The clearance, review, copyright, and other forms required by this manual (see section 17) are available from branch secretaries.

4 OBJECTIVES

Use of the OTS and EPA manuals will ensure that reports, speeches, journal articles, and proceedings and conference papers are prepared and printed in a correct, uniform, and cost-effective manner.

5 APPLICABILITY

This manual is to be used by project officers and other personnel, contractors, and other organizations in preparing documents for the Office of Toxic Substances (OTS) in the Office of Pesticides and Toxic Substances (OPTS).

Manual
2220.1

OTS MANUAL FOR PREPARING DOCUMENTS

The following statement should appear in all OTS interagency or contract agreements:

The final report will conform to the
OTS Manual for Preparing Documents.



Office of Toxic Substances

Manual

2220.1

DISCLAIMERS FOR OTS REPORTS

6 DISCLAIMERS FOR OTS REPORTS

6.1 IN-HOUSE REPORTS

Draft Reports. As a result of provisions contained in the Freedom of Information Act and OTS's commitment to public participation, draft copies of OTS reports are often distributed outside the Agency. To prevent misinterpretation of their contents, the following notice must appear on a separate page, preceding the acknowledgment, in all draft documents.

This document is a preliminary draft. It has not been released formally by the Office of Toxic Substances, Office of Pesticides and Toxic Substances, U.S. Environmental Protection Agency. It is being circulated for comments on its technical merit and policy implications.

Final Reports. All final reports must contain one of the following disclaimer notices on the reverse side of the title page.

This document has been reviewed and approved for publication by the Office of Toxic Substances, Office of Pesticides and Toxic Substances, U.S. Environmental Protection Agency. The use of trade names or commercial products does not constitute Agency endorsement or recommendation for use.

6.2 EXTRAMURAL REPORTS

This report was prepared under contract to an agency of the United States Government. Neither the United States Government nor any of its employees, contractors, subcontractors, or their employees makes any warranty,

OTS MANUAL FOR PREPARING DOCUMENTS

expressed or implied, or assumes any legal liability or responsibility for any third party's use or the results of such use of any information, apparatus, product, or process disclosed in this report, or represents that its use by such third party would not infringe on privately owned rights.

Publication of the data in this document does not signify that the contents necessarily reflect the joint or separate views and policies of each sponsoring agency. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.



Office of Toxic Substances

Manual

2220.1

OTS DOCUMENT REVIEW AND PUBLICATION PROCEDURES

Before a report can be printed by EPA or a contractor, the author or project officer must complete an OTS Document Clearance Form, receive an EPA Report Number from the OPTS Publications Office in the Information Support Service Branch (ISSB), and complete the Report Documentation Page. (See the EPA Scientific and Technical Publications manual for additional details.)

Samples of the forms required by OTS appear in this manual in section 17.

7 OTS REVIEW AND PUBLICATION PROCEDURES

7.1 DOCUMENT CLEARANCE FORM

The OTS Document Clearance Form is to be completed by authors or other originators of documents (see instructions following the sample). The form ensures adequate preparation and peer review of documents at the final draft stage.

The form also must be completed for any speeches and conference papers prepared for audiences outside EPA.

The original form and a manuscript copy of the final report are to be delivered to the Publications Office in ISSB for placement in the OPTS Report File.

7.2 EPA REPORT NUMBER

The OPTS Publications Office assigns an EPA Report Number to each final OTS document. The Report Number assures that a document is properly identified for reference and filing purposes, that it will be cited in the EPA Publications Bibliography, and that it can be flagged for submission to NTIS.*

*The National Technical Information Service (NTIS) of the U.S. Department of Commerce announces the availability of and sells technical documents produced by the Federal Government. Documents are available in paper and microfiche form. See p. 9 for information about submitting reports to NTIS.

OTS MANUAL FOR PREPARING DOCUMENTS

A copy of all final documents and their completed Document Clearance Forms will be kept on file in the Publications Office.

All changes (errata and addenda) in documents printed and/or listed with NTIS must bear the same EPA number and issuance date that appear on the original document.

7.3 REPORT DOCUMENTATION PAGE

A Report Documentation Page (Optional Form 272, Department of Commerce) is to be completed and inserted by the author or project officer as the last page of a final document. It replaces the Technical Data Sheet. The form is available from branch secretaries (see p. 46 of this manual).

Note the following additional instructions for filling out the form: you do not need to answer items 17b and 17c. For item 17b, use the DDC Retrieval and Indexing Terminology, Environmental/Chemical Thesaurus, and/or Environmental Microthesaurus manuals to determine descriptors. These manuals are available in the Technical Information Center (TIC). For item 21, count all pages, including cover, introductory pages, Report Documentation Page, mailer, etc., to get a correct page count. See section 17.4 of this manual for additional directions.

7.4 REVIEW COVER SHEET

The author fills out items 1 through 8 of the Review Cover Sheet (see p. 47) and sends a copy of it, along with the document, to each reviewer. The cover sheet is to be returned by the reviewer to the author for filing by the branch secretary.

The number of reviewers and whether review will take place in OTS or beyond are at the discretion of the division director.

7.5 CONFIDENTIAL BUSINESS INFORMATION (CBI)

CBI is trade secrets or commercial or financial information considered confidential by the person submitting it or information that has been determined to be confidential according to the procedures in the Code of Federal Regulations (CFR) (40 CFR Part 2).

OTS MANUAL FOR PREPARING DOCUMENTS

OTS staff who draft and review documents that contain CBI and staff who type or otherwise have access to these documents must have CBI clearance and must handle classified documents in accordance with established CBI procedures. These requirements also apply to contractors whose tasks require access to CBI. Anyone with access to CBI should periodically review the CBI procedures manuals.* The mishandling of CBI could harm the chemical company that submitted it in compliance with TSCA and jeopardize the ability of OPTS to carry out its legal mandate.

7.6 FEDERAL REGISTER NOTICE OF AVAILABILITY

Material developed in OTS and being made available to the general public through the Industry Assistance Office (IAO) must be announced in a notice of availability in the Federal Register. Guidance for writing the notice can be obtained from the OPTS Federal Register Office. (See a reference to the notice on p. 8 of this manual.)

How to prepare documents for publication in the Federal Register is not discussed in this manual. Readers should use the FRS Document Drafting Guide, which is available in the OPTS Federal Register Office. Queries should be directed to that office.

*For a thorough discussion of CBI procedures, consult the following manuals: TSCA Confidential Business Information Security Manual or its shorter version, the TSCA Confidential Business Information Briefing Booklet, the OTS Procedures Manual: TSCA Confidential Business Information, and the Contractor Requirements for the Control and Security of TSCA Confidential Business Information. All are available in the OPTS TIC in ISSB.



Office of Toxic Substances

Manual

2220.1

PRINTING PROCEDURES

8 PRINTING PROCEDURES

8.1 IAO AND THE PRINTING CONTRACT

The Industry Assistance Office (IAO) coordinates all OTS printing. This includes in-house printing and that done by GPO through contractors. It also includes local duplication services of small quantities of lengthy documents or large quantities of brief documents. The author or project officer provides camera-ready manuscript copy and artwork. IAO will obtain a cover and spine from the EPA graphics facility.

The appropriate form for printing, EPA Form 2340-1, will be completed by IAO. The form for local duplicating service, EPA Form 1750-3, will be prepared initially in the branch and signed by the branch chief and appropriations officer, with the chargeable branch appropriations number cited. Bring this form to the IAO with the document to be duplicated. IAO does not accept small in-house duplicating jobs; take those directly to the duplicating facilities on the various floors in the East Tower. Small in-house duplicating jobs are defined as those documents with an aggregate total of 100 or fewer pages.

Federal Register Notices. When a Federal Register notice is to be published, the author must coordinate the final notice with the IAO to allow IAO time to arrange with GPO for reprints of the notice. It is imperative to coordinate with IAO before the notice goes to the Federal Register Office in OTS. A copy of the notice suitable for reproduction should be left in IAO. (Models of a notice are available from the OTS Federal Register Office.)

Contractor Printing. A project officer may assign the task of printing to the contractor preparing the document. The contractor may reproduce up to 25,000 page impressions from the camera-ready copy. This limit is determined by law. Therefore, the number of copies that can be duplicated depends on the total page count of the document. See IAO if the number of copies needed by the project officer is greater than the contractor's limit.

Manual
2220.1

OTS MANUAL FOR PREPARING DOCUMENTS

NTIS. The author or project officer provides 11 bound copies of each final report to the Publications Office in ISSB for the following distribution: 1 copy for the Technical Information Center (TIC) and 10 copies for NTIS (the package to NTIS must include a copy of each signed form in the Copyright Permission File; see the forms on p. 49 in this manual).

Publisher Printing (Journal, Book, etc.). The author or project officer must ensure, as part of the clearance procedure, that the intended publisher of a document is identified on the OTS Document Clearance Form.

8.2 COVERS

The following cover colors have been designated in order to distinguish among the variety of reports published by OTS.

Cover requirements for other in-house and extramural final draft documents are specified in EPA's Graphic Standards System Manual and in this manual. The manuals are available in the OTS Publications Office in ISSB.

8.3 TSCA CHEMICAL ASSESSMENT SERIES

<u>TSCA Chemical Assessment Series</u>	<u>Cover Color</u>	<u>Lettering</u>
Chemical Screening: Initial Evaluations of Substantial Risk Notices, TSCA Section 8(e), ____ (date) to ____ (date)	Medium blue	Black
Chemical Screening: Initial Evaluations of Published or Submitted Data, ____ (date) to ____ (date)	Light blue	Black
Chemical Screening: Exposure and Hazard Scoring of Chemicals	Yellow	Black
Chemical Hazard Information Profiles (CHIPS), ____ (date) to ____ (date)	Green	Black
Assessment of Testing Needs: (Name of Chemical)	Toxic orange	Black
Chemical Problem Assessment: Priority Review Level 1 (Name of Chemical)	Peach tan	Black
Chemical Problem Assessment: Priority Review Level 2 (Name of Chemical)	Saddle tan	Black

Manual
2220.1

OTS MANUAL FOR PREPARING DOCUMENTS

Preliminary Risk Assessment, Phase I: (Name of Chemical)	Cane green	Black
Risk Assessment in Support of Regulatory Decision Making, Phase II: (Name of Chemical)	Red	Black

8.4 The Toxics Information Integration Series carries a gray cover with black lettering.

8.5 Support Documents and Economic Analyses carry the cover color of the section of TSCA that they support:

<u>Section</u>	<u>Cover Color</u>	<u>Lettering</u>
4	Toxic orange	Black
5	White	Black
6	Toxic orange	White
8,12,13	Black	White

8.6 Extramural (contractor) reports carry white covers with orange lettering.

Divider Pages and Fold-ins. Do not use divider pages (pages that separate the document into parts). The excess paper, printing, binding efforts, and costs normally incurred by using fold-ins can be avoided by separating oversized material into parts, reducing oversized materials, or having lengthy tables fall on successive pages.

IAO Checklist for Printing. Deliver your camera-ready manuscript and artwork to IAO for printing. Be sure your package contains the following pieces:

- o title page (see sample, p. 42 in this manual)*
- o Report Documentation Page (see sample, p. 46)
- o sample cover and spine

*Be sure that the title, author(s), and EPA Report Number on the title page and the cover are identical.

Manual
2220.1

OTS MANUAL FOR PREPARING DOCUMENTS

- o copy of the Federal Register notice of availability if the report will be distributed to the public. (Models of this notice are available in the OPTS Federal Register Office.)
- o Receipt of Manuscript for Printing form (see sample, p. 51), to be signed and dated in IAO



Office of Toxic Substances

Manual

2220.1

HOW TO DOCUMENT SOURCES OF INFORMATION

9 HOW TO DOCUMENT SOURCES OF INFORMATION

9.1 COPYRIGHT

9.2 LIMITATIONS TO EXCLUSIVE RIGHTS: FAIR USE

Fair use of copyrighted work, including reproduction for purposes of criticism, comment, news reporting, scholarship, or research, is not an infringement of copyright.

What Is Fair Use? To determine whether the use you are making of a work is a fair use, carefully consider the following questions:

- o What are the purpose and character of the use (that is, will the use be commercial or nonprofit)?
- o How substantial is the portion you want to use in relation to the copyrighted work as a whole (whether borrowing one line or several, are you in fact appropriating the essence of someone else's work)?
- o Will this use affect the potential market for or value of the copyrighted work?

9.3 ALTERNATIVES TO USING COPYRIGHTED MATERIAL

Avoid overloading your document with material quoted from other sources. The following measures are recommended:

- o Paraphrase any material lengthier than a paragraph. Be sure, however, that you convey the intent of the author.
- o Instead of reproducing diagrams, figures, tables, and schematics (chemical reactions and metabolic pathways), summarize them in the text.

9.4 WHEN TO GIVE ACKNOWLEDGMENT

Remember that even paraphrased statements of fact or opinion and reworked tables, figures, etc., from a published or other

OTS MANUAL FOR PREPARING DOCUMENTS

outside source need an acknowledgment. Courtesy requires credit to be given (by footnote, on-line reference citation, or a statement in the text) for use of the material and for assistance rendered by someone else, even though no copyright notice is involved. .

9.5 WHEN NOT TO GIVE ACKNOWLEDGMENT

It is not necessary to use a credit line for information purchased by a department or for work done by non-Government designers, typographers, and layout artists and Government art directors, designers, typographers, layout artists, and photographers.

It is not necessary to cite the source of information that is common knowledge: for example,

Chemical X, a β -lactam, can be expected to have antimicrobial activity because of its structural relationship to penicillin, a well-known antibiotic.

9.6 USING COPYRIGHTED MATERIAL

The Government is liable for any misuse of the literary or intellectual property (patents, trademarks, copyrighted material, "proprietary information") of others. Therefore, a use of copyrighted material to which "fair use"* does not apply requires the written permission of the copyright owner (author or publisher). To do otherwise may leave the Government liable for copyright infringement. (See copyright permission forms, p. 49).

Prior use of copyrighted material in a Government publication does not necessarily constitute permission to use that material in an EPA document. However, written and illustrative material originally prepared by an employee of the Government as part of that person's official duties is in the public domain and cannot be copyrighted.

Unpublished Work. Unpublished work also may be subject to copyright protection, even though there is no copyright notice. Refer questions about protection of unpublished work to EPA's Office of General Counsel.

*See the guide on p. 12 for determining what is fair use.

OTS MANUAL FOR PREPARING DOCUMENTS

Direct Quotations. Direct lengthy quotations of material from a published or printed source (books, journals, correspondence from industry or other groups and individuals) may be used only with the permission of the copyright owner (or the author, if there is no copyright).

When you quote verbatim from published or unpublished material, reproduce exactly all spelling, italics, and punctuation used by the original author. If you alter the text to clarify the author's meaning, insert brackets around your clarification: "Acrylamide is a solid at ordinary temperature [20°C] and has a very low vapor pressure."

If there is a factual, grammatical, or spelling error in the material, do not disturb it, but acknowledge it for the reader by using [sic] following the error.

If you omit a word or group of words from a quotation, indicate the omission with an ellipsis, without altering the author's intent: "Acrylamide . . . has a very low vapor pressure."

Diagrams, Figures, Tables. Diagrams, figures, tables, and schematics (chemical reactions or metabolic pathways) may not be reproduced without the written permission of the copyright owner. Some publications, such as the Chemical Economics Handbook (CEH), have rigid guidelines for use of their material. (See "Conditions Governing the Use of the CEH by Public Agencies" in the CEH, available in the TIC.)

Source Footnote. Unless the copyright holder requests a specific copyright notice, insert the following source footnote on the same page as the information quoted, immediately below the body of a borrowed table, and below the caption of a borrowed figure:

Source: Reprinted from (article and journal or book title; date of publication; volume and page numbers for the borrowed material) by (name of author) with permission of (name of copyright owner, if different from author).

Report Plagiarism. In-house drafts or contract reports that you know or suspect contain inadequately acknowledged (plagiarized) information should be brought immediately to the attention of the project officer. It is the responsibility of the contractor to acknowledge contributed material; this responsibility is part of the contract language in the EPA

Manual
2220.1

OTS MANUAL FOR PREPARING DOCUMENTS

Scientific and Technical Publications manual. Notify your branch chief and the Procurement and Contracts Management Division if a contractor is unwilling to comply.

Permission Forms. OTS's Copyright Permission forms (see p. 49) request broad permission for use of material by the U.S. Government. The project officer is responsible for supplying the contractor with these forms. Keep a list of the forms you send out and a copy of each signed form.

Copyright Permission File. The Copyright Permission File must accompany each OTS document from draft to final stage. Attach copies of the signed forms to the Document Clearance Form accompanying the final draft. The original forms will be kept in the branch files. Copies of permission forms also must accompany reports going to NTIS.

Note: Send out permission forms during the early stages of document preparation. If you postpone sending the forms, you risk having permission refused when you are close to the due date for your draft.



Office of Toxic Substances

Manual

2220.1

REFERENCES

The reference style for OTS documents is an adaptation of the Vancouver Style, which has been approved by the International Steering Committee of Medical Editors. This form of reference is used by the U.S. National Library of Medicine, and its adoption by scientific journals in the United States and abroad is expected. For this reason and for the simplicity of the style itself, it is being used in OTS for traditional references.

Many of the reference materials used by OTS authors are unique and nontraditional; that is, they are not limited to standard textbooks or journal articles. The following models have been created to illustrate the kind and amount of information a reader must have in order to understand and retrieve both traditional and unique sources of information.

This section is divided into four parts: General Rules, Citations in the Text, Abbreviations Acceptable for Use in References, and Model Reference Formats.

10 REFERENCES

10.1 GENERAL RULES

1. List all references in a separate section at the end of a document, in alphabetical order, by author.
2. If a reference does not have an author, which is common in many trade journals, use the source as author: Chem Eng News.
3. Where there are more than six authors, cite the first three and use et al.
4. If a reference does not have a date of publication, insert (n.d.), in parentheses, following the author's name.
5. When you quote material, include in the on-line citation the page number(s) in the source on which the borrowed material appears: (Brill 1970, pp. 380-381).

OTS MANUAL FOR PREPARING DOCUMENTS

6. When citing documents that have an identifying publication number, provide that number as the last item in the reference citation:

USEPA. 1976. U.S. Environmental Protection Agency. National water quality inventory: 1976 report to Congress. Washington, DC: USEPA. EPA 440/9-76-024.

7. If you are using as a source a manuscript accepted for publication but not yet printed, insert the words "in press" in parentheses following the name of the publisher or journal in your citation.

IARC. Internatl. Agency for Research on Cancer. Cadmium and cadmium compounds. IARC Monogr (in press).

8. Use the short form of a publisher's name for references.

Cairns J, Dickson KL. 1979. Biological methods for the assessment of water quality. New York: Academic.

9. Information from a manuscript that has been submitted but not yet accepted for publication should be cited in the text by the author's name and as an unpublished observation: (Cairns J, Dickson KL, unpublished observations).

10. Citing secondary sources is risky and is discouraged; however, if information must be taken from a review, abstract, or other secondary source, cite the secondary and primary sources at the end of the sentence that introduces the information: (Jones et al. 1977, as reported in Smith 1980). Alternatively, cite the secondary source first and, in your discussion, identify the author(s) of the primary source and the year in which it was published. Use the following form in the References:

Higashi LS, Lundeen M, Hilti E, Seff K. 1977. Crystal and molecular structure of bis(2-pyridine-sulfinato)copper(II). Inorg Chem 16:310-313. Reviewed in Chem Abstr 90:22-31, 63920d.

11. Telephone communications are not acceptable as references unless a follow-up letter, memo, or transcript of the details of the conversation is available. (See p. 24 for model citations.)

OTS MANUAL FOR PREPARING DOCUMENTS

10.2 CITATIONS IN THE TEXT

1. Citations in the text are made by author and date of publication: (Brill 1977). Do not use a comma between author and date. If the author's name is a part of the sentence, give the date in parentheses: Brill (1977) states
2. For citations in which the author is an agency or other organization, use acronyms with the date: (USEPA 1976).
3. To cite the Federal Register, use the following format: ". . . published in the FEDERAL REGISTER (43 FR 12661)."
4. For dual authorship, use the names of both authors and the date: (Brill and Smith 1978). For more than two authors, cite the first author and use et al.
5. If you are citing documents published in the same year by the same author, use "a," "b," etc., immediately after the date, both in the References and in the text citation: (Brill 1977a) (Brill 1977b), and (Brill 1976a, 1977b). Use the first word of the title, not an article (the, a), to alphabetize such references.
6. For secondary references, cite the author and date of both sources in this order: (DuBois 1961, as reported in Doull et al. 1980).

10.3 ABBREVIATIONS ACCEPTABLE FOR USE IN REFERENCES

The following abbreviations are acceptable for use in reference citations:

Admin.	Coll.	Govt.	No.
Am.	Corp.	Inc.	Natl.
Assoc.	Dept.	Inst.	Proc.
Bur.	Div.	Internatl.	Sch.
Chap.	Doc.	Lab. (Labs.)	Univ.
Co.	Ed.	Ltd.	Vol.

10.4 MODEL REFERENCE FORMATS

10.5 BOOKS*

APHA. 1971. Am. Public Health Assoc. Standard methods for the examination of water and wastewater, 13th ed. Washington, DC: Am. Public Health Assoc.

Colowick SP, Kaplan NO. 1955-1963. Methods in enzymology. 6 Vols. New York: Academic.

Doull J, Klaassen DC, Amdur MO, eds. 1980. Casarett and Doull's toxicology. The basic science of poisons, 2nd ed. New York: Macmillan.

Gehring PJ, Watanabe PG, Young JD. 1977. The relevance of dose-dependent pharmacokinetics in the assessment of carcinogenic hazards of chemicals. In: Origins of human cancer. Book A: Incidence of cancer in humans. Hiatt HH, Watson JD, Winsten JA, eds. Cold Spring Harbor, NY: Cold Spring Harbor Lab.

Glass GE. 1973. Bioassay techniques and environmental chemistry. Ann Arbor, MI: Ann Arbor Science, 377 pp.

Hamaker JW. 1972. Decomposition: quantitative aspects. In: Organic chemicals in the soil environment. Goring CAI, Hamaker JW, eds. New York: Dekker, pp. 250-340.

IARC. Internatl. Agency for Research on Cancer. Cadmium and cadmium compounds. IARC Monogr (in press).

NCHS. 1978. Natl. Center Health Statistics. Life tables. Vital statistics of the United States, 1976, Vol. II, Sect. 5, Table 5-2. Rockville, MD: NCHS, U.S. Dept. Health, Education, and Welfare.

SRI. 1975. Stanford Research Institute. 1,1,1-Trichloroethane (methyl-chloroform). In: Chemical economics handbook, 1975. Menlo Park, CA: SRI, pp. 44-62.

Wilson JG, Fraser F. 1977. Handbook of teratology, Vol. 3. New York: Plenum, pp. 21-26, 107-115.

*Use the short form of a publisher's name.

OTS MANUAL FOR PREPARING DOCUMENTS

10.6 BOOKS BETTER KNOWN BY THEIR TITLE

Merck Index. 1976. An encyclopedia of chemicals and drugs, 9th ed. Rahway, NJ: Merck. Monograph No. 3643.

10.7 COMPUTER PRINTOUT

USEPA. 1979. U.S. Environmental Protection Agency. Computer printout (CICIS): production statistics for chemicals in the nonconfidential initial TSCA inventory. Retrieved Dec. 11, 1979. Washington, DC: Office of Pesticides and Toxic Substances, USEPA.

USOSHA. 1979. U.S. Occupational Safety and Health Admin. Computer printout: establishment report, where certain hazardous substances were sampled since inception. Washington, DC: USOSHA, U.S. Dept. Labor. File No. IN 31909T.

10.8 CONFERENCES, PROCEEDINGS, AND SYMPOSIUMS (PUBLISHED AND UNPUBLISHED)

Awad L, DiMenza L, Lazar P, Bonnaud G, Bignon J. 1979. An attempt to determine a medium-term, low-dose exposure indicator based on clinical and radiological lung modifications. Symposium on the Biological Effects of Mineral Fibres,* Brussels, Sept. 25-27, 1979. Sponsor: Internatl. Agency for Res. on Cancer, Lyon, France.

Lloyd JW. 1979. Cancer epidemiology. Paper presented at the 18th Annual Medical-Legal-Industrial Symposium, Des Moines, IA, Nov. 9, 1979. Sponsor: Mount Sinai Medical Center, Milwaukee, WI.

Wagner JC, Berry G, Skidmore JW. 1977. Studies of the carcinogenic effect of fiber glass of different diameters following intrapleural inoculation of experimental animals. NIOSH symposium on occupational exposure to fibrous glass. Univ. Maryland, College Park, June 24-26, 1974. Washington, DC: Natl. Inst. Occupational Safety and Health. DHEW Pub. NIOSH 76-151.

Wagoner J, Johnson WM, Lemen R. 1973. Malignant and nonmalignant respiratory disease mortality patterns among

*Initial caps are used here to indicate that this is the official title of the symposium as well as the subject area.

OTS MANUAL FOR PREPARING DOCUMENTS

asbestos production workers. In: Congressional Record, Senate Proceedings and Debates of the 93rd Congress, 1st sess., 119, pt. 6. Washington, DC: U.S. Govt. Printing Office Pub. S-4660-S-4662.

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U.S. Congress. 1964. Senate Committee on Commerce. Conversion to metric system: hearing on S. 1278, 88th Cong., 2d sess., 7 Jan. 1964, p. 58.

U.S. Congress. 1941. Senate, Congressional Record, 77th Cong., 1st sess., 1941, 87, pt. 9: 9505.

10.10 CONTRACTOR REPORTS

Conway EJ, Petersen RJ, Colingsworth RF, Craca JG, Carter JW. 1979. SRI Internat. Assessment of the need for and character of limitations on acrylamide and its compounds. Draft report. Washington, DC: Office of Pesticides and Toxic Substances, U.S. Environmental Protection Agency. Contract 68-01-4308.

Simmon VF, Riccio ES, Peirce MV. 1979. SRI Internat. In vitro microbiological genotoxicity assays of chlorobenzene. Draft final report. SRI Project LSU-7558. Washington, DC: Office of Pesticides and Toxic Substances, U.S. Environmental Protection Agency. Contract 68-02-2947.

10.11 DATA SHEET

Biographics, Inc. 1965. Data sheet: p-dichlorobenzene. Princeton, NJ: Biographics, Inc., p. 10. AME 20-080.

10.12 FEDERAL AGENCY AS AUTHOR

NIOSH. 1976. Natl. Inst. Occupational Safety and Health. Criteria for a recommended standard: occupational exposure to cadmium. Washington, DC: NIOSH, U.S. Dept. Health, Education, and Welfare. DHEW Pub. NIOSH 76-192.

OSHA. 1976. Occupational Safety and Health Admin. General industry standards. Washington, DC: OSHA, U.S. Dept. Labor. OSHA Pub. 2206.

OTS MANUAL FOR PREPARING DOCUMENTS

TSCA/ITC. 1978. Toxic Substances Control Act, Interagency Testing Committee. Third report of the TSCA Interagency Testing Committee to the Administrator, U.S. Environmental Protection Agency. Washington, DC: U.S. Environmental Protection Agency. EPA 560/10-79-001. PB 293 378.*

USEPA. 1978 (Oct. 30). U.S. Environmental Protection Agency. Office of Toxic Substances. Second report of the Interagency Testing Committee; receipt and request for comments. 43 FR 50630.

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USEPA. 1979. U.S. Environmental Protection Agency. Toxic Substances Control Act chemical substance inventory, Vol. 3. Washington, DC: Office of Toxic Substances, USEPA.

10.13 FEDERAL AGENCY AS PUBLISHER

Dement JM, Harris RL. 1979. Estimates of pulmonary and gastrointestinal deposition for occupational fiber exposures. Washington, DC: Natl. Inst. Occupational Safety and Health, Dept. Health, Education, and Welfare. DHEW Pub. NIOSH 79-135.

Marking LL, Dawson VK. 1975. Method for assessment of toxicity or efficacy of mixtures and chemicals. Investigations in fish control No. 67. Washington, DC: U.S. Fish and Wildlife Service, Dept. of the Interior.

10.14 FEDERAL REGISTER

USCPSC. 1977. U.S. Consumer Product Safety Commission. Children's wearing apparel containing TRIS: interpretation as banned hazardous substance. (42 FR 18850).

USEPA. 1975. U.S. Environmental Protection Agency. Office of Pesticide Programs. Proposed guidelines for registering pesticides in the United States. (43 FR 50367).

*A PB number is given to a report when it is entered in the NTIS system.

OTS MANUAL FOR PREPARING DOCUMENTS

USEPA. 1979. U.S. Environmental Protection Agency. Office of Toxic Substances. Proposed health effects test standards (chronic). (44 FR 27334).

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10.15 FICHE

Baner FT, Williams JH. 1968. Research on automatic classification, indexing and extracting; annual report [microfiche]. Washington, DC: Information Systems Branch, U.S. Office of Naval Research, NONR 4456(00).

10.16 JOURNAL ARTICLES AND MONOGRAPHS*

Chem Eng News 1977. Outlook for coal: bright, but with problems. 55(7):24.

Armstrong RD, Leach LJ, Belluscio PR, et al. 1963. Behavioral changes in the pigeon following inhalation of mercury vapor. Am Ind Hyg Assoc J 24:366-375.

Hammond EC. 1966. Smoking in relation to the death rates of one million men and women. In: Epidemiologic study of cancer and other chronic diseases. NCI Monograph 19. Bethesda, MD: Natl. Cancer Inst.

IARC. 1978. Internat. Agency for Research on Cancer. Monographs on the evaluation of the carcinogenic risk of chemicals to humans. Some N-nitroso compounds. IARC Monogr Eval Carcinog Risk Chem Man 17:77-78.

Knight BAG, Coutts J, Tomlinson TE. 1970. Sorption of ionized pesticides by soil. Soc Chem Ind (London) 37:54-62.

Koller PC. 1953. Dicentric chromosomes in a rat tumour induced by an aromatic nitrogen mustard. Heredity 6(Suppl): 181-196.

*Abbreviate names of journals according to the style in the Chemical Abstracts Service Source Index (CASSI), available in the TIC.

Where there are more than six authors, cite the first three and use et al.

OTS MANUAL FOR PREPARING DOCUMENTS

10.17 MANUFACTURERS' LITERATURE

FMC Corp. 1977. Product literature. Technical data sheets D3-25 on Kronitex TXP, trixylenyl phosphate. Effective March 1977. Industrial Chemical Group, 2000 Market St., Philadelphia, PA 19103.

Monsanto Industrial Chemicals Co. (n.d.)* Product bulletin: Santicizer 141, 2-ethylhexyl diphenyl phosphate. 800 N. Lindbergh Blvd., St. Louis, MO 62166.

Monsanto Industrial Chemicals Co. (n.d.)* Technical bulletin: Skydrol 500B LD: fire resistant aircraft hydraulic fluids. IC/ETP-6. 800 N. Lindbergh Blvd., St. Louis, MO 62166.

10.18 MEMORANDUMS AND LETTERS

Levy R. 1980 (May 22). Survey and Analysis Div., Office of Pesticides and Toxic Substances, U.S. Environmental Protection Agency, Washington, DC 20460. Comparison of building asbestos levels grouped by surface material. Intra-agency memorandum to H. Teitelbaum, Assessment Div.

Logue E. 1980 (Mar. 20). Center for Health Studies, Research Triangle Park, NC 43360. Similarity of L. Sebastien's asbestos air levels in building data and the data included in J. Nicholson's report to NIEHS. Memorandum to C. Stroup, Survey and Analysis Div., Office of Pesticides and Toxic Substances, U.S. Environmental Protection Agency, Washington, DC.

Gordon M. 1980 (Oct. 20). XYZ Chemical Corp., City, State, ZIP. Transcribed telephone conversation with G. Smith, Assessment Div., Office of Pesticides and Toxic Substances, U.S. Environmental Protection Agency, Washington, DC. EPA CBI Doc. Control No. 50-6789403.

XYZ Chemical Corp. 1980 (Feb. 10). City, State, ZIP. Letter to G. Smith, Assessment Div., Office of Pesticides and Toxic Substances, U.S. Environmental Protection Agency, Washington, DC 20460. EPA CBI Doc. Control No. 50-1234456.

*n.d. = No date -----

Manual
2220.1

OTS MANUAL FOR PREPARING DOCUMENTS

10.19 PATENTS

U.S. Patent

Harred FJ, Knight AR, McIntyre JS (inventors), Dow Chemical Co. (assignee). 1972 (Apr. 4). Epoxidation process. U.S. patent 3,654,317.

Foreign Patent

Cooke AN (inventor), New Zealand Inventions Development Authority (assignee). 1977 (Mar. 3). Blood albumin from blood, blood serum, or blood plasma. German (Fed. Rep.) Offenlegungsschrift 2,537,123.

10.20 REPORT SERIES

NCI. 1976. Natl. Cancer Inst. Carcinogenesis bioassay of trichloroethane. Technical Report Series No. 2. Washington, DC: NCI, U.S. Dept. Health, Education, and Welfare.

10.21 SECONDARY REFERENCES

Du Bois KP. 1961. Potentiation of the toxicity of organophosphorus compounds. Adv Pest Control Res 4:117-151. (As reported in Doull et al. 1980)*

Higashi LS, Lundeen M, Hilti E, Seff K. 1977. Crystal and molecular structure of bis(2-pyridinesulfinato)copper(II). Inorg Chem 16:310-313. (As reported in Chem Abstr 90: 22-31, 63920d)

10.22 SUBMISSIONS UNDER TSCA

Diamond Shamrock Chemical Co. 1978. TSCA sec. 8(d) submission 8DHQ-0978-0297. Bio/Tox data on chloromethane, 1975. Washington, DC: Office of Toxic Substances, U.S. Environmental Protection Agency. EPA Doc. Control No. 50-780-000.

*Note that the primary reference also is part of the reference list.

Manual
2220.1

OTS MANUAL FOR PREPARING DOCUMENTS

XYZ Chemical Co., City, State, ZIP. 1981. TSCA sec. 5(a) submission PMN 81-00. Washington, DC: Office of Toxic Substances, U.S. Environmental Protection Agency. EPA CBI Doc. Control No. 50-810-000.*

10.23 THESIS

Rafferty NS. 1958. A study of the relationship between the pronephros and the haploid syndrome in frog larvae. Ph.D. dissertation, Univ. of Illinois, Urbana.

10.24 TRANSLATIONS

Translations of foreign language publications are available from the TIC in ISSB. Fill out a copy of the Translation Service Request, p. 51, and take it to the translations clerk in the TIC.

Citations to translated material take one of two forms. If you are citing information from the English translation, use the following format:

Degonski IA. 1977. A role of adrenergic structures of the central nervous system in altering the function of the hypothalamohypophyseal-adrenal system in exogenous hyperthermia. Bull Eksp Biol Med 83:264-266. (In Russian; English trans.)

If you are citing information from a summary of the material in English, use the following model:

Frada G, Cali V. 1958. Azione tossica del p-dichlorobenzene. Folia Medica (Naples) 41:349-355. (In Italian; summary in English)

*CBI = confidential business information



Office of Toxic Substances

Manual

2220.1

SOURCES OF INFORMATION ON STYLE

11 SOURCES OF INFORMATION ON STYLE

The following supplemental sources of information on style for writers of scientific documents are available in the TIC. Other guides from scientific societies and journals can be used, to the extent that they do not conflict with EPA or OTS specifications.

Style Manual, U.S. Government Printing Office, Washington, DC. This manual contains general editorial advice and the Federal Government's recommended style for nontechnical abbreviations, capitalization, punctuation, use of numerals, hyphenation, etc. It can be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Handbook for Authors of ACS Publications. This manual's style is recommended for technical symbols and abbreviations and for its preferred spelling list, where you will find, for example, that "analogue" is preferred over "analog." It is available from the American Chemical Society, 1155 16th St. NW, Washington, DC 20036.

CBE Style Manual, 4th ed., 1978. This manual is published for the Council of Biology Editors by the American Institute of Biological Sciences, 1401 Wilson Blvd., Arlington, VA 22209. The manual offers copyediting information for various science disciplines, as well as traditional grammar and usage.

Chemical Abstracts Service Source Index (CASSI). This index gives abbreviations for more than 80,000 journals in the chemical, biological, engineering, and physical sciences. It also provides other detailed and accurate bibliographic data. CASSI is available from the National Technical Information Service (NTIS), Springfield, VA 22161, as order number AD 612 200.

ASTM Standard for Metric Practice, ASTM E 380-79, 1980. This guide deals with conversion of quantities in various measurement systems to the International System of Units (officially abbreviated as SI in all languages). It is available from the American Society for Testing and Materials (ASTM), 1961 Race St., Philadelphia, PA 19103.

OTS MANUAL FOR PREPARING DOCUMENTS

The Metric System of Measurement (SI), LC 1078, and Preferred Metric Units for General Use by the Federal Government, LC 1098, are available from the National Bureau of Standards, U.S. Department of Commerce, Washington, DC 20234.

Webster's New Collegiate Dictionary. 1977. Springfield, MA: G. C. Merriam Company.

EPA Graphic Standards System, 1978. This document establishes and delineates the graphic standards that EPA will adhere to in all its visual communications. Copies are available from EPA's Printing Management shop and the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, stock number 055-000-00169-3.

Government Printing and Binding Regulations, Joint Committee on Printing, Congress of the United States, No. 24, April 1977. This pamphlet provides background information on Government Printing Office requirements concerning the use of color printing and self-mailers and printing requirements resulting from grants or contracts, etc. Copies are available from the U.S. Environmental Protection Agency, Printing Management and Distribution Section, Washington, DC 20460.

11.1 METRIC UNITS OF MEASURE

Use the modernized metric system, i.e., the International System of Units (SI), unless the project officer specifies otherwise. These units are given in the Handbook for Authors of ACS Publications and the Metric Practice Guide. Equivalent units can be expressed parenthetically. If other than metric units are used, state the reason for doing so in a footnote at the first nonmetric measure and include a conversion table in the document. Units of measure must be consistent throughout a document (i.e., do not use °F and °C, or kilograms and pounds, interchangeably in the same document.

11.2 ABBREVIATIONS AND SYMBOLS

Acceptable general abbreviations can be found in the Government Printing Office Style Manual; technical abbreviations can be found in the appropriate reference documents for the particular subject area involved. (See also section 18.2 in this manual.)

Manual
2220.1

OTS MANUAL FOR PREPARING DOCUMENTS

Give the abbreviation or symbol for an uncommon or specialized term in parentheses where it first appears in the text. Thereafter, use only the abbreviation or symbol.

Define the audience for each document. Consider the difficulty the audience may have in defining or understanding the abbreviations and symbols used. If listing them alphabetically and defining them in an appendix will aid the audience, do so. Arrange abbreviations in two columns when the list exceeds more than one page.

See the list of abbreviations acceptable in reference citations on p. 18 of this manual.

11.3 TRADE AND MANUFACTURERS' NAMES

Any use of trade or manufacturers' names in a document should be brought to the attention of the project officer and the approving official before a document is cleared for publication.

Trade names (Cellosolve, Vaseline) and variety names (Red Radiance rose) are capitalized. The common nouns that follow trade names are not capitalized (rose). Consult the reference materials cited in this manual for trade names.



STANDARD COMPONENTS IN A DOCUMENT

12 STANDARD COMPONENTS IN A DOCUMENT

Guidelines for writing and using traditional elements in documents are provided in this section. Those elements that pertain to your document should appear in the order given here:

<u>Front Matter.</u>	Title page (see sample, p. 42) Back of title page (disclaimer page) Foreword Preface Contents List of figures List of tables Acknowledgment Abstract or Executive Summary
<u>Text.</u>	Introduction Body of document
<u>Back Matter.</u>	References Appendix(es) Documentation Page

12.1 FRONT MATTER

Front matter is a document's opening, or preliminary, pages. It includes the title page and other pages that explain the content and purpose of the text. These pages are numbered with lower-case Roman numerals; the title page is always page i. OTS reports with a special format may not need this traditional front matter material.

Foreword. A foreword is an introductory statement that points out the value, significance, and impact of a document. A foreword is written and signed by someone other than the author.

When a foreword is used, it appears on a new right-hand page.

OTS MANUAL FOR PREPARING DOCUMENTS

Preface. The preface, which is written by the author, should include the reasons the document was prepared and any limitations encountered in studying its subject. Because the preface is written by the author, it is unsigned.

When a preface is used, it follows the foreword on a new right-hand page.

Contents Page. The contents page begins on a new right-hand page. Although front matter is not part of the text, it is part of the document and should be included in the contents page.

The contents page also contains the main headings of the document and the pages on which they appear (use dot leaders). Significant subheads (indented and subordinated) can be included.

A short overrun onto the following page can be avoided by using a single space between major headings. Omit a contents page in a document that has fewer than 50 pages.

Acknowledgment. Limit the acknowledgment to key personnel and organizations that have aided or contributed to the document in a major way. Use simple, formal, and concise language. Avoid such expressions as "wish to thank"; simply do so. Ordinarily, supporting staff work is not included in the acknowledgment.

Abstract/Executive Summary. The abstract and/or executive summary is a synopsis of the contents in a document that gives a reader the essence and significance of the material in the document. There are two abstract, or summary, styles. The informative abstract is a concise summary of all significant points in the text; it gives conclusions. (The informative style is required on the OTS Document Clearance Form and is the style recommended for use in OTS.)

The indicative (descriptive) abstract generally is limited to between 200 and 250 words; it gives, in a narrative, facts about what will be read in the text. The abstract used as front matter may contain up to 450 words.

12.2 TEXT

Introduction. In the introduction the author gives background information necessary to understanding the document and describes its purpose and scope. The introduction sets the stage for the text proper and for conclusions and recommendations.

OTS MANUAL FOR PREPARING DOCUMENTS

A formal introduction may not be part of all OTS documents; in some cases, this information, along with conclusions and recommendations, will be part of a document's special format.

Body of Document. The text and format of the documents prepared in OTS vary. General format specifications are given on p. 33.

12.3 BACK MATTER

References. The references immediately follow the text, and the page numbers follow the text consecutively. (The OTS reference style appears on pp. 16-26 in this manual.)

Appendix. An appendix begins on a new right-hand page. An appendix can contain supplementary illustrative material, original data, or quoted material (a Federal Register notice, for example) that is too lengthy to be incorporated into the text or that is generally relevant but not essential to understanding the text.

The title and subtitle of an appendix should follow the appendix designation (for example, "Appendix A. Abbreviations and Symbols Used in CAS Publications").

List all appendixes in the contents page and number their pages consecutively following the text.

Report Documentation Page. The Report Documentation Page (Optional Form 272, Department of Commerce) is the last page in all EPA published reports. (See p. 46 in this manual.)



Office of Toxic Substances

Manual

2220.1

FORMAT SPECIFICATIONS FOR DRAFT AND FINAL DRAFT REPORTS

13 FORMAT SPECIFICATIONS FOR DRAFT AND FINAL DRAFT REPORTS

13.1 TYPING

Draft manuscripts must be typed double spaced, on one side only, on 8 1/2- by 11-inch heavy-duty white bond paper. The recommended typeface is 10-pitch Courier. Double space all copy. Leave a liberal margin of at least 1 inch, allowing an image area of 6 1/2 by 8 7/8 inches, not including the page numbers.

Final draft documents must be typed single spaced as camera-ready copy for the printer. Use a new carbon ribbon for the text and black ink for signatures and other markings. The copy should be dark enough so that it can be reproduced but not so heavy that the letters will fill in.

The type size for tabular material, callouts, illustrations, charts, graphs, tables, etc., must be no smaller than 6 points (approximately 1/16 of an inch) and no larger than 10 points (approximately 1/9 of an inch).

13.2 PAGE NUMBERING

Always number the pages in a document. Except for the title page, counted as page i but not indicated, number all front matter (the material that precedes the Introduction) consecutively, with lower-case Roman numerals. Page numbers always are centered at the bottom of the page.

The first page of the body of the document (usually the Introduction) begins on a right-hand page and is numbered page 1. Except where space is a consideration, the first page of each major section also begins on a new right-hand page and is assigned the next odd-number in the numbering sequence.

OTS MANUAL FOR PREPARING DOCUMENTS

13.3 ORDER OF HEADINGS

I. ALL CAPS UNDERLINEDA. Indented, Initial Cap, Underlined1. Same as A, indented further

a. Same as 1, indented further

(1) Same as 1, indented further

Fifth-Order Heading. Initial cap, underlined, runs into the text.

13.4 FOOTNOTES

Insert footnotes at the bottom of the page of text to which they refer. Type footnotes flush with the left margin, at the bottom of the page; separate them from the text with a 2-inch horizontal line. Use the asterisk series of footnotes: *, †, ‡, §. Footnotes are typed single spaced.

13.5 LISTS

Displayed List. Information that needs to be set apart from the text because it is of special significance to a discussion can be arranged in a numbered, displayed list. Do not use a displayed list for fewer than three items.

Each item in a displayed list is followed by a semicolon, a semicolon and the word "and" follow the penultimate item in the list, and a period follows the final item:

- (1) _____;
- (2) _____;
- (3) _____;
- (4) _____; and
- (5) _____.

Bullets can be used in place of numbers if desired.

OTS MANUAL FOR PREPARING DOCUMENTS

Run-In List. Number and run into a sentence of text no more than four items of information that need particular emphasis but that do not need the special visibility of a displayed list. When there are more than four items, use a displayed list.

A run-in list is not suitable for items of length.

13.6 MATHEMATICAL AND CHEMICAL FORMULAS

Prepare mathematical or chemical formulas with care, using a machine or transfer-type composition when available. Chemical structures should be drawn with a template.

Treat short, simple, and unnumbered equations as part of the text. When possible, type simple fractions on the line: e.g., $1/(a + b)$, not $1/a + b$ or $\frac{1}{a+b}$; the diagonal line and parentheses eliminate ambiguity. An equation (or formula) that requires special symbols, positioning, or brackets should be centered on a line by itself, with equal spacing (e.g., 1 1/2 lines) above and below.

Define, the first time it is used, each term in a mathematical expression. Equations that are a part of a series or are referred to in the text are given consecutive Arabic numerals. Each equation number is enclosed in parentheses at the right-hand margin on the last line of the equation. Equations within appendixes are numbered in a manner consistent with the appendix letter, such as A-1, B-2, etc.

MATERIAL BELONGS TO
US EPA TOXICOLOGY
401 P.O. BOX 115
WASHINGTON DC 20460
(202) 260-3944



Office of Toxic Substances

Manual

2220.1

FIGURES

14 FIGURES

Figures contribute to the text when they emphasize, clarify, or summarize data. In selecting figures for your document, ask yourself whether a figure is really needed, is in the medium best suited to your purpose, and will survive any necessary reduction in size and still reproduce well.

When a figure explains the text, insert the figure on a separate page following the text where it is first mentioned. If a figure is merely a collection of data, insert it at the end of the text in an appendix.

Numbering. Use consecutive Arabic numerals to number figures (i.e., Figure 1, Figure 2, etc.). To designate figures in an appendix, use the appendix letter with the appendix figure number (i.e., Figure A-1, Figure B-5). When referring to a figure in the text, spell out the word "Figure" and use its numerical designation, e.g., Figure 1. (See sample, p. 38.)

Labeling. Labels on the abscissa and ordinate in graphs should be consistent with the wording in the text. Capitalize only the first letter of the first word in the label. As far as it is practical to do so, place wording horizontally within a figure and near the component being identified. Avoid using excessive wording in a figure; for example, in a diagram of apparatus, use abbreviations or a code of letters or numbers for descriptors and identify them in a subcaption (see Figure 2 in Sample K). Lettering should be done with a lettering set and in high contrast to the figure.

Captions. Use a brief, descriptive caption for each figure. A caption should be typed single spaced in 10-pitch Courier and centered beneath the figure, following the figure number. The caption should give sufficient information to make each figure intelligible when it is isolated from the text. Capitalize the first letter of the first word and any proper nouns and chemical or mathematical symbols that usually are capped. Close the caption with a period.

Figure Placement. When a figure is wider than the manuscript page, place it sideways, centering it within the image area so that the top of the figure is to the reader's left. Reduce oversized illustrations horizontally or vertically within the image area. Crop or mask photographs to eliminate insignificant details. Do not tape, glue, or staple figures to a page.

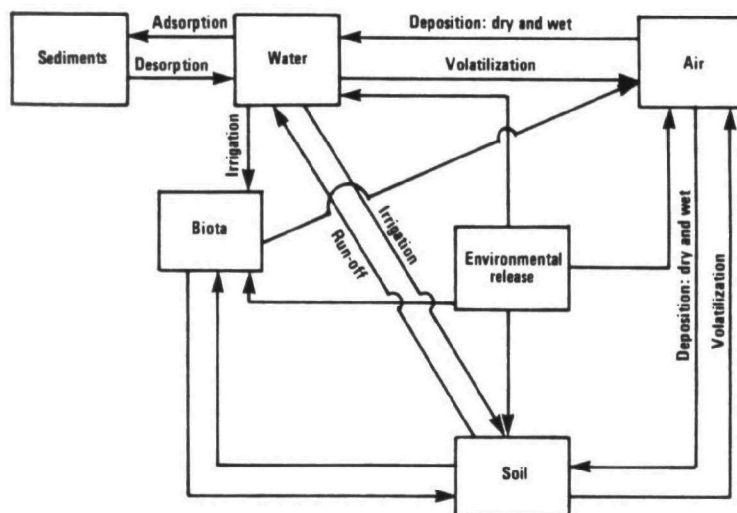


Figure 1. Components of a partition analysis.

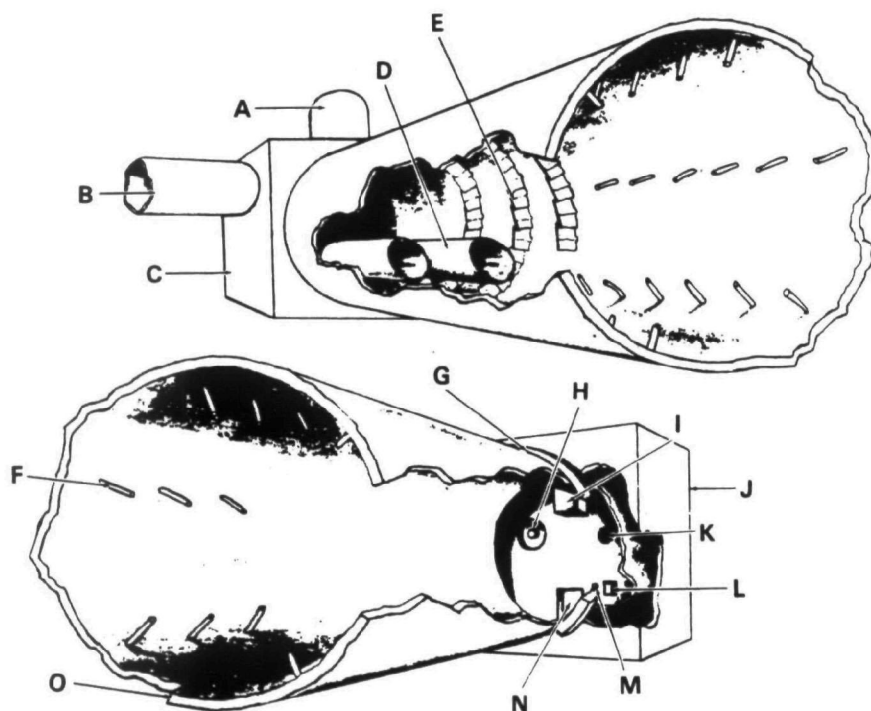


Figure 2. Schematic diagram of a kiln. A, Emergency stack; B, crossover duct; C, feed hood; D, ram snouts; E, kiln flights; F, kiln spikes; G, combustion air bustle; H, kiln lead burner and combustion fan inlet; I, refuse combustion air fan inlet; J, fire hood; K, kiln heatup burner and combustion fan inlet; L, sight port; M, optical pyrometer; N, access door; O, 9-inch castable refractory. (Source: Helmsetter and Haverland 1978, p. 10.)



Office of Toxic Substances

Manual

2220.1

TABLES

15 TABLES

For ease in reading and consistency of format, simplify tables as much as possible. The Government Printing Office Style Manual or the CBE Style Manual can be helpful to writers preparing tables.

Format. When a table explains the text, insert the table on a separate page following the text where it is first mentioned. If a table is an assembly of data, insert it at the end of the text, in an appendix. Use 10-pitch Courier.

Numbering. Use consecutive Arabic numerals to number tables (i.e., Table 1, Table 2). To designate tables in appendixes, include the appendix letter with the table number (e.g., Table A-1, Table B-2).

Captions. Place a brief, descriptive caption above each table after its number; center the caption over the table. Use upper- and lower-case letters in the caption (capitalize prepositions of five or more letters). Do not use a closing period unless the caption is a complete sentence.

When a table is wider than the manuscript page, place it sideways (see sample, p. 41). When a table is continued on two or more pages, insert the word "Table," the table number, and the word "(continued)," but not the table caption, on subsequent pages: e.g., Table 4 (continued). Repeat the column headings, with rules, on each page; close the table on its last page with a solid bottom rule.

Column Heads. Capitalize the first word of each column and insert units of measurement, when applicable, in parentheses, at the end of the heading (see sample, p. 41). To keep space to a minimum, abbreviate words in column headings according to "Abbreviations and Symbols Used in CAS Publications," section 18.2 in this manual.

Blank Entries in a Column. When data are not given, insert "NG" in the column entry place. Define NG in a footnote to the

Manual
2220.1

OTS MANUAL FOR PREPARING DOCUMENTS

table: *NG = not given. Use the same technique for data that are not available (NA) or not applicable (NA), or if a certain animal or dose was not tested (NT).

Footnotes. Use lower-case superscript letters for table footnotes. Assign them consecutively, in normal reading order (across the table and from top to bottom). Place any footnotes below the solid rule that ends the body of the table.

Printouts. Computer printouts for electronically tabulated data must show a clear, black-white contrast and not contain any gray or broken type or horizontal print bars.

15.1 SAMPLE TABLE

Table 1. Acute LD₅₀ After Ip Administration of 1,1,1-Trichloroethane to Mice and Rats

Species	Strain	No./group and sex	Composition of test material	Vehicle	LD ₅₀ (moles/kg) ^a	Reference
Mouse	Albino (Princeton)	10, M ^b	Commercial grade	Peanut oil	0.12 ^c (0.095-0.016)	Plaa et al. (1958)
Mouse	Swiss- Webster	10, M	Analytical grade ^d	Corn oil	0.038 ^e (0.031-0.045)	Klaassen and Plaa (1966)
Mouse	Swiss- Webster		>99% pure	Corn oil	0.019	Takeuchi (cited in NIOSH 1976)
Mouse	Swiss- Webster	50, F (total)	Center cut fraction (<0.5% impurities)	Corn oil	0.035 ^e (0.032-0.038)	Gehring (1968)
41 Mouse	CP-1 Swiss derived	Not given, M	Not given	Corn oil	0.03 ^e (0.026-0.034)	Priestley and Plaa (1976)
Rat	Sprague- Dawley	5-10, M	Analytical grade ^{d,f}	Corn oil	0.038 ^e (0.033-0.042)	Klaassen and Plaa (1969)
Dog	Mongrel	2-3, M,F	Analytical grade ^{d,f}	Corn oil	0.031 ^e	Klaassen and Plaa (1967)

^aIn the reference, values were given in milliliters/kilogram.

^bThe compound was administered subcutaneously to this group of mice.

^c10-day observation period.

^dImpurities: 0.5% nitromethane, 0.2% trichloroethylene, 0.2% tetrachloroethylene by weight. Inhibited with 1.8% dioxane by weight.

^e24 hr after dosing.

^fThe composition is not stated explicitly in the report. It is assumed that it was the same material tested in the 1966 report with mice because these are essentially species-comparison studies.

16 SAMPLE TITLE PAGE

Supplied by the OPTS Publications
Office (ISSB)

Limit title to 10 or fewer words

For in-house documents, list author
(without degrees or titles) and division

For IAGS, list authors (without
degrees or titles) as they appear on
Optional Form 272, Department
of Commerce, block 7, together with
their organizational name and location

For IAGS or contracts, add appropriate
extramural or contract number

For contract reports, list authors
(without degrees or titles), as they
appear on Optional Form 272,
Department of Commerce, block 7
Do not use a contractor's
organizational name or location,
except for reports to the Congress *

For contract or IAG, give project officer
(without degree or title), the division,
and the office name and address

When a public organization originates
the document in cooperation with EPA,
give that information several spaces
below the project officer's name
and address

This study was conducted
in cooperation with

Occupational Safety and
Health Administration
200 Constitution Ave , NW
Washington, DC 20210

If an EPA study was performed
for another governmental agency,
add

Prepared for
Consumer Product Safety
Commission
5401 Westbard Ave
Bethesda, MD 20207

Publisher's full name always appears
on title page, with city, state, and
zip code

EPA Report Number
Month and Year of Publication

TITLE (ALL CAPS, CENTERED)
Subtitle (if applicable)

by

Author(s)
Division
Oak Ridge National Laboratory
Oak Ridge, TN 37830

Number

Project Officer(s)
Division
Office of Toxic Substances
Washington, DC 20460

OFFICE OF PESTICIDES AND TOXIC SUBSTANCES
U.S. ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

*New OMB guidelines require the provision of the following information on the cover page of reports
to the Congress: name and business address of the contractor, contract number, contract dollar amount,
whether the contract was awarded competitively, and the name of the sponsoring program
individual or that person's office identification and location.

17 SAMPLE OTS FORMS USED IN PREPARING DOCUMENTS FOR REVIEW AND DISTRIBUTION

17.1 OTS DOCUMENT CLEARANCE FORM

1. Title of Document		No. pages _____		2. OTS Author/Project Officer (PO)			3. Date of Draft / /										
4. Type of Document				2a. Signature of Author/PO			2b. OTS Branch/Division										
				2c. Telephone Number			2d. Extramural Originator										
5. Does the document contain copyrighted material? Yes <input type="checkbox"/> No <input type="checkbox"/>				2e. Document Completion Date / /			2f. Extramural I.D No										
5a. If yes, has permission been granted for use of <u>all</u> copyrighted or otherwise restricted material?*				6. Publisher			7. Distribution										
Yes <input type="checkbox"/> No <input type="checkbox"/>				8. Abstract Overview, list of principal findings and/or conclusions, relationship of document to EPA activity													
*Attach <u>copies</u> of permission letters to this form.																	
9. Reviewer(s)			Affiliation		Date		11. Approvals										
							11a. OTS Branch Chief		Signature		Date / /						
							11b. OTS Division Director		Signature		Date / /						
							12. Policy Issues		13. Impact Issues		14. Press Release						
							15. Office Manager, OTS, Signature (if appropriate)						Date / /				
10. Editor					16. EPA Report Number												

OTS MANUAL FOR PREPARING DOCUMENTS

17.2 INSTRUCTIONS FOR COMPLETING BLOCKS 1-15 OF OTS CLEARANCE FORM

Block

1. Type or print the document's full title, which is not to exceed 10 words. Include a subtitle, if applicable, and the number of pages.
2. Type or print the name of the document's in-house author or the name of the project officer (PO) on the contract. If a document has more than one author, use the name of the first author.
 - 2a. Signature of author or PO.
 - 2b. Use acronyms, e.g., TRDB/AD.
 - 2c. Your office telephone number.
 - 2d. If you are the PO, give the name of the contractor or the agent of cooperative agreement, interagency agreement (IAG), or memorandum of understanding.
 - 2e. The month and year the final draft of the document was completed. This date appears on the title page.
 - 2f. For example, a contract or IAG number. This number generally appears on the title page.
3. The date the draft was submitted to the branch chief.
4. For example, a support document, a Phase I report. Was the document prepared in-house or extramurally? Check one.

Routine documents include those prepared for comprehensive assessment and priority assessment plans, support documents, rules, preambles, transcripts of public meetings, reports from cooperative agreements and IAGs, memorandums of understanding, and contractors' reports.

Special documents include those prepared for a specific user audience, usually at the request of a high-level agency official (e.g., problem-oriented reports, operations manuals).

OTS MANUAL FOR PREPARING DOCUMENTS

Other documents include bibliographies, conference or workshop proceedings, and papers for journals, books, oral presentations, and/or conferences.

5. If the document contains information requiring permission for use, check "yes." Attach all permission letters to the Document Clearance Form. For guidance, consult the discussion of copyright in this manual beginning on p. 12.
- 5a. If permission has been granted for all copyrighted and otherwise restricted materials, check "yes."
6. Is the document to be published by EPA or a contractor; is it to appear in a book or journal?
7. Who will distribute the published material and in what quantity?
8. Summarize the topic of the document, highlighting the key concepts. List the principal findings and/or conclusions and, when possible, explain their bearing on specific OTS policy, action, or other areas of responsibility. (Attach any additional abstract pages to the Document Clearance Form.) The same abstract can be used on the Report Documentation Page (See sample, section 17.3, p. 46).
- 9-10. Type or print the name and affiliation of each reviewer and the editor and the date of review.
- 11-15. Type or print the names of the branch chief and division director in the appropriate slots; they are to sign and date the form when they complete their review. The division director, after deciding (a) whether a document reflects policy and/or impact issues and thus should go on to the DAA and (b) whether a press release would be in the public interest, will check the appropriate boxes.
16. The Publications Office staff in ISSB will assign an EPA Report Number upon receipt of a completed OTS Document Clearance Form.

17.3 REPORT DOCUMENTATION PAGE

17.3 REPORT DOCUMENTATION PAGE			
50272-101			
REPORT DOCUMENTATION PAGE	1. REPORT NO.	2.	3. Recipient's Accession No.
4. Title and Subtitle	5. Report Date		
6. Author(s)	7. Performing Organization Report No.		
8. Performing Organization Name and Address	9. Project/Task/Work Unit No.		
10. Sponsoring Organization Name and Address	11. Contract/Grant No.		
12. Supplementary Notes	13. Type of Report & Period Covered		
14. Abstract (Limit 200 words)	15.		
16. Document Analysis & Descriptors	17. Identifiers/Open Ended Terms		
18. Availability Statement	19. Security Class (This Report)	20. No. of Pages	
	21. Security Class (This Page)	22. Price	

(See ANSI Z39.18) See last section on Reverse

OPTIONAL FORM 272 (4-75)
(Formerly NITS 38)
Department of Commerce

17.4 INSTRUCTIONS FOR COMPLETING THE REPORT DOCUMENTATION PAGE

17.4 INSTRUCTIONS FOR COMPLETING THE REPORT DOCUMENTATION PAGE DO NOT PRINT THESE INSTRUCTIONS AS A PAGE IN A REPORT

INSTRUCTIONS

Optional Form 272, Report Documentation Page is based on Guidelines for Format and Production of Scientific and Technical Reports ANSI Z39.18-1974 available from American National Standards Institute, 1430 Broadway, New York, New York 10018. Each separately bound report — for example, each volume in a multivolume set — shall have its unique Report Documentation Page.

- Report Number: Each individually bound report shall carry a unique alphanumeric designation assigned by the performing organization or provided by the sponsoring organization in accordance with American National Standard ANSI Z39.23-1974 Technical Report Number (STRN). For registration of report code contact NITS Report Number Clearinghouse, Springfield, VA 22161. Use uppercase letters, Arabic numerals, slashes, and hyphens only as in the following examples: FASEB/NS-75/87 and FAARD-75/08.
- Leave blank.
- Recipient's Accession Number: Reserved for use by each report recipient.
- Title and Subtitle: Title should indicate clearly and briefly the subject coverage of the report; subordinate subtitle to the main title. When a report is prepared in more than one volume, repeat the primary title, add volume number and include subtitle for the specific volume.
- Report Date: Each report shall carry a date indicating at least month and year. Indicate the basis on which it was selected (e.g., date of issue, date of approval, date of preparation, date published).
- Sponsoring Agency Code: Leave blank.
- Author(s): Give name(s) in conventional order (e.g., John R. Doe or J. Robert Doe). List author's affiliation if it differs from the performing organization.
- Performing Organization Report Number: Insert if performing organization wishes to assign this number.
- Performing Organization Name and Mailing Address: Give name, street, city, state, and ZIP code. List no more than two levels of an organizational hierarchy. Display the name of the organization exactly as it should appear in Government indexes such as Government Reports Announcements & Index (GRA & I).
- Project/Task/Work Unit Number: Use the project, task, and work unit numbers under which the report was prepared.
- Contract/Grant Number: Insert contract or grant number under which report was prepared.
- Sponsoring Agency Name and Mailing Address: Include ZIP code. Cite main sponsors.
- Type of Report and Period Covered: State interim, final, etc., and if applicable, inclusive dates.
- Performing Organization Code: Leave blank.
- Supplementary Notes: Enter information not included elsewhere but useful, such as: Prepared in cooperation with; Translation of; Presented at conference of; To be published in; When a report is revised, include a statement whether the new report supersedes or supplements the older report.
- Abstract: Include a brief (200 words or less) factual summary of the most significant information contained in the report. If the report contains a significant bibliography or literature survey, mention it here.
- Document Analysis (a) Descriptors: Select from the Thesaurus of Engineering and Scientific Terms the proper authorized terms that identify the major concept of the research and are sufficiently specific and precise to be used as index entries for cataloging.
(b) Identifiers and Open Ended Terms: Use identifiers for project names, code names, equipment designators, etc. Use open ended terms written in descriptor form for those subjects for which no descriptor exists.
(c) COSATI Field/Group: Field and Group assignments are to be taken from the 1984 COSATI Subject Category List. Since the majority of documents are multidisciplinary in nature, the primary Field/Group assignment(s) will be the specific discipline, area of human endeavor, or type of physical object. The application(s) will be cross referenced with secondary Field/Group assignments that will follow the primary posting(s).
- Distribution Statement: Denote public releasability for example: Release unlimited, or limitation for reasons other than security. Cite any availability to the public with address, order number, and price if known.
- Security Classification: Enter U.S. Security Classification in accordance with U.S. Security Regulations (i.e., UNCLASSIFIED).
- Number of pages: Insert the total number of pages, including introductory pages, but excluding distribution list, if any.
- Price: Enter price in paper copy (PC) and/or microfiche (MF) if known.

OPTIONAL FORM 272 (4-75)

17.5 REVIEW COVER SHEET



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D C 20460

OFFICE OF PESTICIDES AND TOXIC SUBS

Date sent to reviewer _____

1 Reviewer _____ Tel no _____

2 Document title _____

3 OTS author/project officer _____ Tel no _____

4 OTS branch and division _____

5 Type of document _____

6 Status of draft _____ Date of draft _____

7 OTS information coordinator _____ Tel no _____

8 Any specific instructions to reviewer _____

9 Reviewer's general comments (attach additional sheets if necessary)

10 Reviewer's signature _____ Date _____

OTS MANUAL FOR PREPARING DOCUMENTS

17.6 INSTRUCTIONS FOR USING THE REVIEW COVER SHEET

Date sent to reviewer:

The author of a document dates this cover sheet on the day the manuscript goes to a reviewer.

Author:

1. Print or type the name of the reviewer and the daytime number at which he/she can be reached.
2. Print or type the title of the document to be reviewed.
- 3-4. Print or type your name, office telephone number, and branch and division in OTS.
5. Examples of types of documents are a Phase I report, the bibliography for a literature search, a speech.
6. Is the document a preliminary draft or a final report? When was this version of the document completed?
7. Print or type the name of your branch information coordinator.
8. Use this space for instructions to the reviewer: e.g., any areas in a report to which you want a particular reviewer to give special attention; the date by which you need the document reviewed.

Reviewer:

9. The reviewer uses this space for comments, which may run onto additional pages.
10. Reviewer's signature and the date of his/her review.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON DC 20460

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17.8 PERMISSION FORM, BOOK

OTS MANUAL FOR PREPARING DOCUMENTS**17.9 DIRECTIONS FOR PREPARING OTS COPYRIGHT PERMISSION FORMS**



Complete items 1-3 before you send a permission form to a copyright owner:

- (1) Describe the type of document in which the requested material will appear: e.g., Phase I report or support document, and its title.
- (2) Specify the parts of the text you want to quote. Provide the opening and closing phrases of the quoted text, inserting an ellipsis between the phrases. The page number(s) for each quote should follow the closing phrase.

If you are asking permission to reproduce a figure, table, or other illustration, give the numerical designation and caption or title used in the original text (e.g., Figure 1. Metabolic pathway.).

- (3) The information requested here is self-explanatory.
- (4) The copyright owner will sign and date the form (and reproduce it for his or her files). The copyright holder can indicate on the form any fee that is involved.

17.10 RECEIPT OF MANUSCRIPT FOR PRINTING

	<h3 style="margin: 0;">Receipt of Manuscript for Printing</h3>	
<p><i>Title</i> _____</p>		
<p><i>EPA no</i> _____</p>		
<p><i>Project officer</i> _____</p>		
<p><i>No pages</i> _____</p>		
<p><i>No pieces original art</i> _____</p>		
<p><i>Cover art</i> <input type="checkbox"/> <i>Spine</i> <input type="checkbox"/></p>		
<p><i>Received by</i> _____ <i>Date of receipt</i> _____</p>		

17.11 TRANSLATION SERVICE REQUEST

TRANSLATION SERVICE REQUEST <small>(Please read the instructions below)</small>							
FROM: (Name, Organization, Address, and Phone No.)		AUTHOR:					
ENGLISH TITLE (if known) OR SUBJECT AREA:		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%; padding: 2px;">LANGUAGE</td> <td style="width: 40%; padding: 2px;">PAGES</td> </tr> </table>		LANGUAGE	PAGES		
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SPECIAL REQUIREMENTS:							
<p style="text-align: center;">INSTRUCTIONS</p> <ol style="list-style-type: none"> 1. Complete a separate Request Form for each item submitted to be translated. Attach EPA Form 1900-8/Procurement Request with a funds certification to cover the estimated cost of the translation requested. 2. The foreign original should be submitted in duplicate. Originals will not be returned unless specifically requested. 3. Forward the Request Forms, the Procurement Request and the originals to be translated to: <p style="text-align: center;"> U.S. Environmental Protection Agency Central Translation Program Library Systems Branch Washington, D.C. 20460 </p>							
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EPA Form 2150-1 (Rev. 10-77)

PREVIOUS EDITION IS OBSOLETE

18.1 ABBREVIATIONS AND SYMBOLS USED IN CAS PUBLICATIONS

A ampere	decompg decomposing	irradn irradiation	Pr propyl (normal)
Å angstrom unit	decompn decomposition	IL international unit	prep prepare
a- atto- (10^{-18})	degrdn degradation	iv intravenous(ly)	prepd prepared
abs absolute	deriv derivative	J joule	prepg preparing
abstr abstract	det determine	K kelvin	prepn preparation
Ac acetyl (CH_3CO not CH_3COO)	deid determined	k- kilo- (10^3)	prodn production
a.c. alternating current	deig determining	L liter	psi pounds per square inch
addn addition	dein determination	(l) liquid only as in $\sim\text{H}_2\text{O}$ (l)	psia pounds per square inch absolute
addnl additional(ly)	diam diameter	lab laboratory	psig pounds per square inch gage
alc alcohol alcoholic	dil dilute	lb pound	pt pint
aliph aliphatic	diid diluted	LCAO linear combination of atomic orbitals	purifn purification
alk alkaline (not alkali)	dilg diluting	LD lethal dose	p ₂ pyridine (used in Werner complexes only)
alk ₂ alkalinity	diln dilution	LH luteinizing hormone	qt quart
a.m. ante meridiem	dissoc dissociate	liq liquid	qual qualitative(ly)
amt amount	dissocd dissociated	lm lumen	quant quantitative(ly)
amu atomic mass unit	dissocg dissociating	lx lux	R roentgen
anal analysis, analytical(ly)	dissocn dissociation	m- milli- (10^{-3})	redn reduction
anhvd anhydrous	distd distilled	m meter	ref reference
AO atomic orbital	distg distilling	m melts at melting at	rem roentgen equivalent man
app apparatus	distn distillation	M molar (10^6)	rep roentgen equivalent physical
approx approximately(ly)	DMF dimethylformamide	M molar	reprodn reproduction
approxn approximation	DNAse deoxyribonuclease	manuf manufacture	resoln resolution
aq aqueous	d.p. degree of polymerization	manufd manufactured	resp respectively
arom aromatic	dpm disintegrations per minute	manufg manufacturing	RNase ribonuclease
asoc associate	DTA differential thermal analysis	math mathematical(ly)	rpm revolutions per minute
asocd associated	ED- exa- (10^{18})	max maximum(s)	RQ respiratory quotient
asocg associating	EEG electroencephalogram	Me methyl (not metal)	S siemens
asocn association	E effective dose	mech mechanical(ly) (not mechanism)	(s) solid only as in AgCl(s)
at atomic (not atom)	EEG electroencephalogram	metab metabolism	sapon saponification
atm atmosphere (the unit)	EKG electrocardiogram	mi mile	sapond saponified
atm atmosphere atmospheric	elec electric electrical(ly)	min minute (time)	saponf saponifying
ATPase adenosinetriphosphatase	emf electromotive force	min minimum(s)	sat saturate
av average	emu electromagnetic unit	misc miscellaneous	satd saturated
b (followed by a figure denoting temperature) boils at boiling at (similarly b ₁₂ at 13 mm pressure)	en ethylenediamine (used in Werner complexes only)	mixt mixture	satg saturating
bbl barrel	equil equilibrium(s)	MO molecular orbital	satn saturation
bcc body centered cubic	equiv equivalent (the unit)	mo month	s.c. subcutaneous(ly)
Be ⁺ or Ge ⁺ billion electron volts	equiv equivalent	mol mole (the unit)	SCE saturated calomel electrode
BOD biochemical oxygen demand	esp especially	mol molecule molecular	SCF self-consistent field
μB Bohr magneton	est estimate	mph miles per hour	s second (time unit only)
b.p. boiling point	estd estimated	μ micron also micro (10^{-6})	sec secondary (with alkyl groups only)
Btu British thermal unit	estn estimating	MSH melanocyte-stimulating hormone	sep separate(ly)
Bu butyl (normal)	esu electrostatic unit	Ma maxwell	sepd separated
bu bushel	Et ethyl	n- nano- (10^{-9})	sepg separating
Bz benzoyl ($\text{C}_6\text{H}_5\text{CO}$ not $\text{C}_6\text{H}_5\text{CH}_2$)	et al and others	n refractive index (n_D^{20} for 20° and sodium D light)	sepn separation
°C degree Celsius (centigrade)	etc et cetera	N newton	sol soluble
c- centi- (10^{-2})	eV electron volt	N normal (as applied to concentration)	soln solution
cal calorie	evap evaporate	neg negative(ly)	solv solubility
calc calculate	evapd evaporated	no number	sp specific (used only to qualify physical constant)
calcd calculated	evapg evaporating	obad observed	sp gr specific gravity
calcg calculating	evapn evaporation	Ob ohmsted	sr steradian
calcn calculation	examd examined	Oe ohm	St stokes
CD circular dichroism	examg examining	org organic	std standard
c.d. current density	examn examination	oxidn oxidation	sym symmetrical(ly)
cf compare	expt experiment	oz ounce	T- tera- (10^{12})
cfm cubic feet per minute	exptl experimental(ly)	P- peta (10^{15})	tbl tablespoon
chem chemical(ly) chemistry	est extract	P poise	TEAE-cellulose triethylaminoethyl cellulose
Ci curie	estd extracted	p- pico- (10^{-12})	tech technical(ly)
clin clinical(ly)	estg extracting	Pa pascal	temp temperature
CoA coenzyme A	estn extraction	p d potential difference	terr tertiary (with alkyl groups only)
COD chemical oxygen demand	F farad	Ph phenyl	theor theoretical(ly)
coeff coefficient	°F degree Fahrenheit	phys physical(ly)	thermodn thermodynamic(s)
com commercial(ly)	f- femto- (10^{-15})	p.m. post meridiem	titrn titration
compd compound	fcc face centered cubic	polymd polymerized	tap teaspoon
compn composition	ferm fermentation	polymg polymerizing	USP United States Pharmacopeia
conc concentrate	f.p. freezing point	polymn polymerization	UV ultraviolet
concd concentrated	FSH follicle-stimulating hormone	pos positively	V volt
concg concentrating	ft foot	powd powdered	vs versus
concn concentration	ft-lb foot-pound	ppb parts per billion	vol volume (not volatile)
cond conductivity	G gauss	ppm parts per million	W watt
const constant	G- giga- (10^9)	ppt precipitate	wk week
contg containing	g gram	ppid precipitated	wt weight
cor corrected	(g) gas only as in $\text{H}_2\text{O(g)}$	ppiz precipitating	yd yard
CP chemically pure	g gravitational constant	pptn precipitation	yr year
crit critical	gal gallon		
cryst crystalline (not crystallize)	gr grain (weight unit)		
crystd crystallized	H henry		
crystg crystallizing	h- hecto- (10^2)		
crystn crystallization	ha hectare		
cwt hundredweight	Hb hemoglobin		
D debye unit	h hour		
d- deci- (10^{-1})	Hz hertz (cycles/sec)		
d density* (d ₁₂ , density at 13° referred to water at 4° d ₂₀ , at 20° referred to water at the same temperature)	ID infective dose		
da- deka- (10^4)	ie that is		
d.c. direct current	Ig immunoglobulin		
decomp decompose	im intramuscular(ly)		
decompd decomposed	in inch		
	inorg inorganic		
	insol insoluble		
	ip intraperitoneal(ly)		
	IR infrared		

Plurals of noun abbreviations are formed by adding "s" to the singular abbreviation except when a single abbreviation is designated to show both the singular and plural forms and except for words marked * whose plurals are not abbreviated. Verb forms that require "s" are treated similarly. Words formed by adding prefixes to words normally abbreviated are also abbreviated as microchem for microchemical. Acronyms listed in the *CAS Index Guide* are used without definition. Other well established unit abbreviations employed in specialized subject areas are also used. Unit abbreviations signify both singular and plural forms. Words ending in -ology or -ological(ly) are abbreviated -ol e.g. geol for geology. Words ending in -ography or -ograph(ical)(ly) are abbreviated -og e.g. chromatog for chromatographic.

18.2 ABBREVIATIONS FOR STATES AND TERRITORIES IN THE UNITED STATES*

Alabama AL	Montana MT
Alaska AK	Nebraska NE
Arizona AZ	Nevada NV
Arkansas AR	New Hampshire NH
American Samoa AS	New Jersey NJ
California CA	New Mexico NM
Canal Zone CZ	New York NY
Colorado CO	North Carolina NC
Connecticut CT	North Dakota ND
Delaware DE	Ohio OH
District of Columbia DC	Oklahoma OK
Florida FL	Oregon OR
Georgia GA	Pennsylvania PA
Guam GU	Puerto Rico PR
Hawaii HI	Rhode Island RI
Idaho ID	South Carolina SC
Illinois IL	South Dakota SD
Indiana IN	Tennessee TN
Iowa IA	Trust Territories TT
Kansas KS	Texas TX
Kentucky KY	Utah UT
Louisiana LA	Vermont VT
Maine ME	Virginia VA
Maryland MD	Virgin Islands VI
Massachusetts MA	Washington WA
Michigan MI	West Virginia WV
Minnesota MN	Wisconsin WI
Mississippi MS	Wyoming WY
Missouri MO	

*To be used when space must be conserved and in addresses.

3 PROOFREADERS' MARKS

Use the following standard proofreaders' marks when correcting a manuscript. The use of these traditional marks will expedite the typing of a manuscript.

PROOFREADERS' MARKS

<p> or or delete 1-ke/ out close up print is one word delete and close up or or care: insert here (something) insert space space: usually a white-out mark let marked and is set or transposed change order / used to separate two or more marks and often is a concluding stroke, at the end of an insertion [set further to the left] set further to the right set at or as ligatures x or n straighten alignment straighten or sign x imperfect or broken character indent or insert em quad space begin a new paragraph spill out (see lbs as five pounds) cap set in (CAPITALS) </p>	<p> or or set in (SMALL CAPITALS) set in (lowercase, lowercase) set in (italic) set in (roman, roman) set in (boldface) or or or hyphen or or or en dash (1964 72) or or or em - or long - dash superscript or superior (as in or) subscript or inferior (as in H O) or centered for a centered dot in p q comma apostrophe period or semicolon or colon or or quotation marks parentheses brackets query to author has this been set as intended </p>
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