

# TECHNICAL GUIDANCE DOCUMENT FOR PREPARING THE CHEMICAL SAFETY ASSESSMENT

## Chapter R.3: Information Gathering

**“Technical Guidance Documents in support of the New EU Chemicals Legislation (REACH) –  
V: Development of a Technical Guidance Document for preparing the Chemical Safety  
Assessment (REACH Implementation Project 3.2-2)”**

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## 1 **R.3 INFORMATION GATHERING**

2 This Technical Guidance Document (TGD) has been developed to assist registrants meet the  
3 information requirements for their chemicals by considering all types and sources of information  
4 and the adequacy and suitability of such data through specific Integrated Testing Strategies (ITS)  
5 for each endpoint.

6 However, before any of these strategies are applied, a critical first step is to assemble all of the  
7 available information on a substance, or information that may be useful to inform on the properties  
8 of that substance. This information should be used to drive the information gathering strategy  
9 detailed and described in subsequent specific chapters and is a vital first step in the overall process.  
10 This is envisaged in Step 1 of Annex VI of REACH - *Perform data search and gather available*  
11 *information* – and is described in Section R.3.1.

12 The specific information requirements for REACH are detailed in Annexes VI-X of the Regulation  
13 and are discussed in detail in the endpoint specific subsections of chapter R.7.

### 14 **R.3.1 Information sources/searching**

15 This section addresses information searching strategies and sources of information, but not the use  
16 or quality of the information that this process may yield.

17 Within the context of the Regulation, Information is required for the specific purposes of:

- 18     ▪ Classification and Labelling
- 19     ▪ Determination of PBT status
- 20     ▪ Determination of vPvB status
- 21     ▪ Chemical Safety Assessment and Report
- 22     ▪ Determination of any need for risk management measures

23 The above measures provide for:

- 24     ▪ Downstream communication of information on the hazards of substances
- 25     ▪ Ensuring a high level of protection of human health and the environment, as well as the free  
26         circulation of substances on the internal market while enhancing competitiveness and  
27         innovation

28 Failure to collate all of the available information on a substance may lead to duplicate work, wasted  
29 time, increased costs and potentially unnecessary animal use. Consequently, a thorough and reliable  
30 information gathering stage is a critical first step.

31 REACH requires the submission of data on:

- 32 - Substance identity
- 33 - Physico-chemical properties
- 34 - Exposure/uses/occurrence and applications
- 35 - Mammalian toxicity

- 36 - Environmental toxicity
- 37 - Environmental fate, including chemical and biotic degradation.
- 38 For the description of substance identity see the guidance developed on Technical Guidance  
39 Document for identification and naming of substances in REACH<sup>Erreur ! Signet non défini.</sup> - see RIP 3.10.
- 40 In many cases the information gathered may consist of actual test data. However, other types of  
41 information may be sufficient, especially when used in a *Weight of Evidence* approach. Such  
42 information could include:
- 43 - Human data
- 44 - Data from *in vivo* or *in vitro* studies that have not been generated in accordance with the latest  
45 adopted/accepted version of the corresponding (validated) test method or to GLP (or equivalent)  
46 standards
- 47 - (Q)SAR model outputs<sup>1</sup>
- 48 - SAR model outputs, read-across and category approaches
- 49 Consequently the information searching strategy needs to be as wide as possible. Guidance is given  
50 below on information sources specific to each endpoint and the searcher needs to understand the  
51 range of potential sources of information, and their content, structure, design and format. Given the  
52 large numbers of available resources and venues, the time required to learn the details of each  
53 system can be extensive, leading many searchers to search only a few, familiar resources. However  
54 this restricted approach is unlikely to yield all available data/information.
- 55 Information source types that could be included in any search strategy comprise (but are not limited  
56 to):
- 57     ▪ in house Company and trade association files – may include studies generated in-house,  
58 commissioned studies carried out by contract houses, information on type and experience in  
59 use, reports from downstream companies and customers, purchased reports from other  
60 companies, collections of published papers and reviews of published data, and Safety Data  
61 Sheets. This kind of information requires expertise to interpret it. For studies not in the  
62 public domain there is the requirement to demonstrate legal title to the information in order  
63 to protect intellectual property rights of the data owner.
- 64     ▪ Databanks and databases of compiled data – the content depends upon the objectives of the  
65 hosts/providers (which may change with time). Databanks generally contain limited  
66 information from original sources, but usually give little insight into test information quality.  
67 Databases and databanks should be seen only as routes to the cited original sources and are  
68 often indicative of the amount of published literature on a substance. They usually cover  
69 many more chemicals than the product range of any company. Requires expertise in  
70 searching numerous systems and in interpreting information.
- 71     ▪ Published literature – could include papers reporting original findings (primary papers),  
72 review papers, books, monographs, and reports of proceedings, meetings and conferences.  
73 Covers many more chemicals than the product range of any company. Requires expertise in  
74 both identifying and interpreting information.
- 75     ▪ Internet – search engines allow identification of electronic versions of a diverse range of

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<sup>1</sup> Detailed guidance on how to gather non-testing data is provided in chapter 6.1.7

76 data sources. In addition, websites of various expert organizations and regulatory bodies  
77 contain useful information. To obtain the information, registry numbers, chemical names  
78 and possible synonyms will need to be used in the search strategy.

79     ▪ (Q)SAR models – some of these are available without charge and others are a fee based  
80 service. These sources are described in the generic section on QSAR and in the specific  
81 sections for each endpoint. Specialised expertise is required to run models and interpret  
82 results. See chapter 6.1 for further guidance on these models and their use.

83 An indicative list of major available databases and databanks is given in section R.3.4.

84 There is a large literature on the subject of literature searching itself. For example see the special  
85 edition of the Journal of Toxicology which was devoted to the topic. It is not the intention of this  
86 subchapter to detail this area of expertise although a bibliography is included in section R.3.4 for  
87 further information / reading.

88 The internet is now maturing as a source of information, but the searcher needs to be aware that a  
89 variety of sources needs to be checked rather than just a single source, in order to be sure that all  
90 relevant external information is retrieved. Many of the most useful external sources of information  
91 are fee based services accessed through a data base vendor or specialist service provider. Sources  
92 vary in many aspects, including quality, reliability, and accuracy, indexing policy, extent of peer  
93 review, the time-spans covered, numbers of chemicals addressed and the extent of detail.  
94 Experienced searchers will know which sources have been most useful to them in the past. In some  
95 cases, comparative evaluations have been carried out. For example, Wright (2001) has given an  
96 overview of selected fee and non-fee databases, along with experience of the quality of service desk  
97 assistance.

98 The data table/summary databases are a source of initial information but the individual databases  
99 typically cover only a relatively small number of chemicals and endpoints. Consequently they  
100 cannot always be relied upon to be comprehensive so they often need to be supplemented with other  
101 databases including bibliographic ones. One strategy is to use initially free web based sources of  
102 information to locate information sources, and gauge the amount of data available. If little or no  
103 information is found then the more sophisticated sources may be interrogated. Some of these  
104 databases are complex and require knowledge of chemistry and chemical nomenclature to get the  
105 best from the investment of time and resource required. This is especially true of substructure  
106 searches that may be employed to look for information on similar or complementary substances  
107 where the information may be extremely useful for SAR relationships or within categories of  
108 substances. Consequently it may often be most cost effective to use a specialist information service  
109 provider to access all relevant sources with a consistent strategy.

110 The OECD has developed a web site giving free public access to existing information on existing  
111 Chemicals (The Global Portal to Information on Chemical Substances). In a first phase of  
112 development, the Portal gives access to many existing assessment reports and datasets – see  
113 <http://webnet3.oecd.org/eChemPortal/> and can at this stage be queried by CAS No and chemical  
114 names. The OECD is investigating the feasibility of the development of a second phase where  
115 different databases that share the same data structure would be linked to the portal and thereby  
116 allowing the users to query the Portal by both current simple but also very advanced and complex  
117 search facilities including search possibilities related to chemical structure and properties. The  
118 European Commission and the US-EPA databases for their national/regional chemicals programmes  
119 will be linked to this second version of the Portal in a pilot phase. There are plans to extend this to  
120 other countries at a later stage.

## 121 **R.3.2 Recording the Search Strategy**

122 The exact searching strategy for a particular substance will be dependent on that substance - a  
123 proprietary molecule is unlikely to have any information in the public domain whereas for some  
124 high production volume substances the available information may be found in comprehensive  
125 reviews obtainable from international organisations. Whatever strategy is employed, it is important  
126 to record what is done and when. This serves two purposes: as a check on the detail and  
127 thoroughness of the search and also, if a search is repeated on a regular basis, it records the time and  
128 extent of the previous search. The search strategy should be recorded and there is a specific chapter  
129 in IUCLID 5 to record the details of the search that resulted in the information provided in the  
130 registration dossier. The major element to capture in this record include:

- 131     ▪ Chemicals names and synonyms used for the search
- 132     ▪ In house Company and trade association files
  - 133         ○ Details of the database(s) and coverage
  - 134         ○ Date of search
- 135     ▪ Databanks and databases of compiled data
  - 136         ○ Published literature
    - 137             ▪ Databank / Database name(s),
    - 138             ▪ Calendar Years covered by the database / databank
    - 139             ▪ Date of search
- 140     ▪ Internet
  - 141         ○ Search engines used
  - 142         ○ Date of search
- 143     ▪ Textbooks Consulted
- 144     ▪ Other Sources of information
- 145     ▪ (Q)SAR models
  - 146         ○ Name of model / Software version / Reference

147 It is not the purpose of the search strategy record to document the validity of any QSAR model  
148 used, this will be done, as necessary, in the specific endpoint description where the QSAR is used.

149 When a search is done to find analogous substances for the purposed of chemical category  
150 formation, or for establishment of Structure Activity Relationships, the approach should be  
151 documented in a similar way.

152 For employment of chemical categories and (Q)SAR models further guidance is given in sections  
153 R.6.1 and R.6.2.

154 For many high production volume substances there is an extensive literature and they have often  
155 been the subject of extensive critical reviews and evaluation for their effect on both health and the  
156 environment. These reviews, from regulatory, academic and international organisations are peer  
157 reviewed and generally accepted by stakeholders. Where such reviews exist an exhaustive literature  
158 search would only reveal significant amounts of data that have already been assessed and  
159 information published after the review has been produced.

160 Such reviews include (illustrative, not exhaustive)

- 161     ▪ EU Existing Substance Regulation Risk assessment
- 162     ▪ OECD SIDS evaluations
- 163     ▪ WHO International Programme on Chemical Safety; e.g. Environmental Health Criteria
- 164         documents and Concise International Assessment Documents
- 165     ▪ WHO International Agency on Cancer - Monographs
- 166     ▪ ECETOC Joint assessment of Commodity Chemical reports (JACC)
- 167     ▪ National documentation; e.g. UK HSE Documentation for setting occupational exposure
- 168         standards. BUA reports, US Environmental Protection Agency reports, BG Chemie

169 Deviations from reviews under Community legislation should be justified (see REACH Annex I

170 paragraph 0.5.).

171 It would serve little to add to the overall assessment of a substance by revisiting all of the primary

172 information sources cited in such reviews. In such cases these reviews should form the basis of the

173 information collection strategy and help in both the identification of key studies and *Weight of*

174 *Evidence* approaches. However, attention must be given to establishing the quality of such

175 substance reviews, for example it is expected that it will have undergone a quality assurance

176 procedure such as a peer review process. Furthermore, it would be necessary to determine when the

177 last complete literature assessment was conducted for the specific substance review in order to

178 ensure that no significant information has been published since the review literature search was

179 conducted. As with all information collection strategies, the decision made for selecting a review

180 and any additional information needs to be documented. It will be necessary to consult the primary

181 literature in order to confirm the study outcomes that drive both classification and the Chemical

182 Safety Assessment – see GDMF step 3 in chapter R.2.

### 183 **R.3.3 Published Articles on Searching for Health/Hazard Information**

- 184 1. Doldi, LM; Bratengeyer, E
- 185 The web as a free source for scientific information: a comparison with fee-based databases
- 186 ONLINE INFORMATION REVIEW, 29 (4): 400-411 2005
- 187 2. Wexler, P
- 188 The US National Library of Medicine's Toxicology and Environmental Health Information Program
- 189 TOXICOLOGY, 198 (1-3): 161-168 MAY 20 2004
- 190 3. Voigt, K; Welzl, G
- 191 Chemical databases: an overview of selected databases and evaluation methods
- 192 ONLINE INFORMATION REVIEW, 26 (3): 172-192 2002
- 193 4. Wexler, P
- 194 Introduction to special issue (part II) on digital information and tools
- 195 TOXICOLOGY, 173 (1-2): 1-1 APR 25 2002
- 196 5. Russom, CL
- 197 Mining environmental toxicology information: web resources
- 198 TOXICOLOGY, 173 (1-2): 75-88 APR 25 2002
- 199 6. Patterson, J; Hakkinen, PJB; Wullenweber, AE
- 200 Human health risk assessment: selected internet and world wide web resources
- 201 TOXICOLOGY, 173 (1-2): 123-143 APR 25 2002

- 202 7. Guerbet, M; Guyodo, G  
203 Efficiency of 22 online databases in the search for physico-chemical, toxicological and ecotoxicological information on  
204 chemicals  
205 ANNALS OF OCCUPATIONAL HYGIENE, 46 (2): 261-268 MAR 2002
- 206 8. Hull, RN; Ferguson, GM; Glaser, JD; et al.  
207 Risk assessment resources on the World-wide Web (WWW)  
208 HUMAN AND ECOLOGICAL RISK ASSESSMENT, 8 (2): 443-457 FEB 2002
- 209 9. Wexler, P  
210 Introduction to special issue on digital information and tools  
211 TOXICOLOGY, 157 (1-2): 1-2 JAN 12 2001
- 212 10. Wexler, P  
213 TOXNET: An evolving web resource for toxicology and environmental health information  
214 TOXICOLOGY, 157 (1-2): 3-10 JAN 12 2001
- 215 11. Poore, LM; King, G; Stefanik, K  
216 Toxicology information resources at the Environmental Protection Agency  
217 TOXICOLOGY, 157 (1-2): 11-23 JAN 12 2001
- 218 12. Brinkhuis, RP  
219 Toxicology information from US government agencies  
220 TOXICOLOGY, 157 (1-2): 25-49 JAN 12 2001
- 221 13. Stoss, FW  
222 Subnational sources of toxicology information: state, territorial, tribal, county, municipal, and community resources  
223 online  
224 TOXICOLOGY, 157 (1-2): 51-65 JAN 12 2001
- 225 14. Wright, LL  
226 Searching fee and non-fee toxicology information resources: an overview of selected databases  
227 TOXICOLOGY, 157 (1-2): 89-110 JAN 12 2001
- 228 15. Anderson, CA; Copestake, PT; Robinson, L  
229 A specialist toxicity database (TRACE) is more effective than its larger, commercially available counterparts  
230 TOXICOLOGY, 151 (1-3): 37-43 OCT 26 2000
- 231 16. Gehanno, JF; Paris, C; Thirion, B; et al.  
232 Assessment of bibliographic databases performance in information retrieval for occupational and environmental  
233 toxicology  
234 OCCUPATIONAL AND ENVIRONMENTAL MEDICINE, 55 (8): 562-566 AUG 1998
- 235 17. Ludl, H; Schope, K; Mangelsdorf, I  
236 Searching for information on toxicological data of chemical substances in selected bibliographic databases - Selection  
237 of essential databases for toxicological researches  
238 CHEMOSPHERE, 32 (5): 867-880 MAR 1996
- 239
- 240 3 special issues in journal Toxicology devoted to this topic:
- 241 **TOXICOLOGY, 157 (1-2): JAN 12 2001, Special Issue on Digital Information and Tools.**
- 242 1. Introduction to special issue on digital information and tools • EDITORIAL, Pages 1-2, Philip Wexler
- 243 2. TOXNET: An evolving web resource for toxicology and environmental health information • ARTICLE. Pages  
244 3-10, Philip Wexler
- 245 3. Toxicology information resources at the Environmental Protection Agency • ARTICLE, Pages 11-23, Linda  
246 Miller Poore, Geffry King and Karen Stefanik
- 247 4. Toxicology information from US government agencies • ARTICLE, Pages 25-49, Randall P. Brinkhuis
- 248 5. Subnational sources of toxicology information: state, territorial, tribal, county, municipal, and community  
249 resources online • ARTICLE, Pages 51-65, Frederick W. Stoss

- 250 6. Professional Toxicology Societies: Web Based Resources • ARTICLE, Pages 67-76, James P. Kehrer and Jon  
251 Mirsalis
- 252 7. Toxicology and environmental digital resources from and for citizen groups • ARTICLE, Pages 77-88, Peter  
253 Montague and Maria B. Pellerano
- 254 8. Searching free and non-free toxicology information resources: an overview of selected databases • ARTICLE,  
255 Pages 89-110, Larry L. Wright
- 256 9. The IOMC organisations: a source of chemical safety information • ARTICLE, Pages 111-119, Fatoumata  
257 Keita-Ouane, Linda Durkee, Emmert Clevenstine, Michael Ruse, Zoltan Csizer, Peter Kearns and Achim Halpaap
- 258 10. Using internet search engines and library catalogues to locate toxicology information • ARTICLE, Pages 121-  
259 139, Laura Dassler Wukovitz
- 260 11. Digital toxicology education tools: education, training, case studies, and tutorials • ARTICLE, Pages 141-152,  
261 Jonathan F. Sharpe, David L. Eaton and Craig B. Marcus
- 262 12. Online resources for news about toxicology and other environmental topics • ARTICLE, Pages 153-164,  
263 Jeffrey C. South  
264
- 265 **TOXICOLOGY, 173 (1-2): APR 25 2002, Special Issue (Part 2) on Digital Information and Tools.**
- 266 1. Introduction to special issue (part II) on digital information and tools • EDITORIAL, Page 1, Philip Wexler
- 267 2. Alternatives to animal testing: information resources via the internet and world wide web • ARTICLE, Pages  
268 3-11, P. J. (Bert) Hakkinen and Dianne K. Green
- 269 3. Cancer information resources: digital and online sources • ARTICLE, Pages 13-34, Theodore B. Junghans,  
270 Imogene F. Sevin, Boris Ionin and Harold Seifried
- 271 4. Developmental toxicity: web resources for evaluating risk in humans • ARTICLE, Pages 35-65, Janine E.  
272 Polifka and Elaine M. Faustman
- 273 5. Web resources for drug toxicity • ARTICLE, Pages 67-74, Grushenka H. I. Wolfgang and Dale E. Johnson
- 274 6. Mining environmental toxicology information: web resources • ARTICLE, Pages 75-88, Christine L. Russom
- 275 7. Electronic information resources for food toxicology • ARTICLE, Pages 89-96, Carl K. Winter
- 276 8. Forensic toxicology: web resources • ARTICLE, Pages 97-102, Bruce A. Goldberger and Aldo Polettini
- 277 9. Genetic toxicology: web resources • ARTICLE, Pages 103-121, Robert R. Young
- 278 10. Human health risk assessment: selected internet and world wide web resources • ARTICLE, Pages 123-143,  
279 Jacqueline Patterson, P. J. (Bert) Hakkinen and Andrea E. Wullenweber
- 280 11. **RETRACTED:** Internet resources for occupational and environmental health professionals • ARTICLE, Pages  
281 145-152, Gary N. Greenberg
- 282 12. WEB resources for pesticide toxicology, environmental chemistry, and policy: a utilitarian perspective •  
283 ARTICLE, Pages 153-166, Allan S. Felsot
- 284 13. Radiation information and resources on-line • ARTICLE, Pages 167-178, B. Busby
- 285 14. Internet resources for veterinary toxicologists • ARTICLE, Pages 179-189, Robert H. Poppenga and Wayne  
286 Spoo
- 287
- 288 **TOXICOLOGY, 190 (1-2): AUG 21 2003, Digital Information and Tools, Part 3 – Global Web Resources.**
- 289 1. Preface • EDITORIAL, Page 1, P. Wexler
- 290 2. On-line sources of toxicological information in Canada • ARTICLE, Pages 3-14, William J. Racz, Donald J.  
291 Ecobichon and Marc Baril
- 292 3. On-line information sources of toxicology in Finland • ARTICLE, Pages 15-21, Hannu Komulainen

- 293 4. Germany: toxicology information on the World Wide Web • ARTICLE, Pages 23-33, Regine Kahl and Herbert  
294 Desel
- 295 5. Information resources in toxicology—Italy • ARTICLE, Pages 35-54, Paolo Preziosi, Adriana Dracos and Ida  
296 Marcello
- 297 6. History and current state of toxicology in Russia • ARTICLE, Pages 55-62, B. A. Kurlyandskiy and K. K.  
298 Sidorov
- 299 7. Online information resources of toxicology in Sweden • ARTICLE, Pages 63-73 , Gunilla Heurgren-Carlström  
300 and Elisabeth Malmberg
- 301 8. Toxicology digital sources produced and available in the United Kingdom (UK) • ARTICLE, Pages 75-91,  
302 Sheila Pantry
- 303 9. Global information network on chemicals (GINC) and its Asian component • ARTICLE, Pages 93-103,  
304 Tsuguchika Kaminuma and Kotoko Nakata
- 305 10. ILO activities in the area of chemical safety • ARTICLE, Pages 105-115 , Isaac Obadia
- 306 11. The International Union of Toxicology (IUTOX): history and its role in information on toxicology •  
307 ARTICLE, Pages 117-124, Jens S. Schou and Christian M. Hodel
- 308 12. OECD Environment, Health and Safety Programme: Information on the World Wide Web • ARTICLE, Pages  
309 125-134, Sally de Marcellus
- 310 13. UNEP Chemicals' work: breaking the barriers to information access • ARTICLE, Pages 135-139, Fatoumata  
311 Keita-Ouane
- 312

313 **R.3.4 Indicative list of major available databases and databanks**314 **R.3.4.1 No fee sources**

Source	Database	Description
European Chemicals Bureau (ECB) European Chemical Substances Information System (ESIS) <a href="http://ecb.jrc.it/esis-pgm/esis_reponse_self.php?">http://ecb.jrc.it/esis-pgm/esis_reponse_self.php?</a>		Provides information on chemicals, related to: EINECS (European Inventory of Existing Commercial chemical Substances), ELINCS (European List of Notified Chemical Substances), NLP (No-Longer Polymers), HPVCs (High Production Volume Chemicals) and LPVCs (Low Production Volume Chemicals), including EU Producers/Importers lists, C&L (Classification and Labelling), Risk and Safety Phrases, Danger etc..., IUCLID Chemical Data Sheets, IUCLID Export Files, OECD-IUCLID Export Files, EUSES Export Files, Priority Lists, Risk Assessment process and tracking system in relation to Council Regulation (EEC) 793/93 also known as Existing Substances Regulation (ESR).
US National Library of Medicine (NLM), Specialized Information Sources (SIS)		Provides access to many excellent databases, see individual descriptions below
<a href="http://sis.nlm.nih.gov/enviro.html">http://sis.nlm.nih.gov/enviro.html</a>	ITER - - International Toxicity Estimates for Risk Assessment	Risk information for over 600 chemicals from authoritative groups worldwide
	IRIS - Integrated Risk Information System	Hazard identification and dose-response assessments for over 500 chemicals
	HSDB - Hazardous Substances Data Bank	Comprehensive, peer-reviewed toxicological data for over 5,000 chemicals Excerpts from published literature on: Human Health Effects and Emergency Medicine Treatment Animal Toxicity Studies Ecotoxicology Studies Environmental Fate and Exposure Chemical and Physical Properties Chemical Safety and Handling Environmental and Occupational Standards and Regulations Manufacturing and Use Information

	TOXLINE - Toxicology Literature Online	Over three million references from the toxicology literature, including MEDLINE/ PubMed, research in progress, and meeting abstracts
	ChemIDplus - Chemical Identification Plus	Dictionary of over 380,000 chemicals (names, synonyms, structures). Includes links to NLM databases and other resources such as ATSDR Medical Management Guidelines and Public Health Statements
	ChemIDplus - advanced	Provides structure search and display for over 260,000 chemicals Includes links to NLM databases and other resources
	SuperList:	Lists of chemicals of interest to government agencies
	CCRIS - Chemical Carcinogenesis Research Information System	Carcinogenicity, mutagenicity, tumour promotion, and tumour inhibition test results for over 9,000 chemicals
	DART - Developmental and Reproductive Toxicology Database	Over 200,000 references to teratology, developmental and reproductive toxicology literature
	GENE-TOX - Genetic Toxicology Data Bank	Peer-reviewed genetic toxicology test data for over 3,000 chemicals
	Haz-Map	Links jobs and hazardous tasks with occupational diseases and their symptoms
	LactMed	Database of drugs to which breastfeeding mothers may be exposed. Covers maternal and infant drug levels possible effects on infants alternate drugs to consider
	Household Products	Potential health effects of chemicals for over 6000 common household products. Information in the Household Products Database is taken from a variety of publicly available sources, including brand-specific labels and Material Safety Data Sheets (MSDS) prepared by manufacturers
	TRI - Toxics Release Inventory	Annual environmental releases on over 600 toxic chemicals by U.S. facilities
	TOXMAP	Geographic representation of TRI (US chemical releases) data with links to other TOXNET resources
<a href="http://sis.nlm.nih.gov/enviro/toxweblinks.html">http://sis.nlm.nih.gov/enviro/toxweblinks.html</a>	Toxicology Web Links – evaluated sources of data	

315 **R.3.4.2 Fee based sources**316 **Sources of Health and Environmental Hazard Information**

<b>Databases</b>	<b>Available from</b>	<b>File Type</b>	<b>Subjects Covered</b>	<b>Years Included</b>
Agricola	Commercial database vendors	Bibliographic, indexed	Agriculture, pesticides, human and environmental health	1970 - present
AMA Journals	Commercial database vendors	Full text	Medicine, occupational medicine	1982 - present
Encompass Literature (previously APILIT – American Petroleum Institute)	Subscribers only, Commercial database vendors, web version	Bibliographic, extensive indexing, CAS RNs	Toxicology, environmental health, risk assessment	1963 - present
Aquaculture	Commercial database vendors	Bibliographic, indexed	Environmental, aquatic toxicology	1970 - present
Aquatic Sciences & Fisheries Abstract	Commercial database vendors	Bibliographic, indexed	Environmental, aquatic toxicology	1978 - present
Biological Abstracts - BIOSIS	Commercial database vendors	Bibliographic, extensive indexing, CAS RNs	All aspects of biology including mammalian, human and environmental toxicology	1969 - present
CAB Abstracts	Commercial database vendors	Bibliographic, indexed	Agriculture, pesticides, human and environmental health	1972 - present
Cancerlit	Commercial database vendors	Bibliographic, extensive indexing, CAS RNs	Primarily human and animal chronic toxicology	1975 - 2002
Chemical Abstracts	Commercial database vendors	Bibliographic, extensive indexing, CAS RNs	Mammalian, human and environmental toxicology, risk assessment	1967 - present
Chemical Abstracts Registry File	Commercial database vendors	Extensive indexing, original source of CAS RNs	Index of all chemical compounds appearing in the published literature, includes physical/chemical properties and indicators of amount of literature available	1967 - present

<b>Databases</b>	<b>Available from</b>	<b>File Type</b>	<b>Subjects Covered</b>	<b>Years Included</b>
Chemical Carcinogenesis Research Info. Service - CCRIS	Commercial database vendors	Data Tables/ Summaries	Cancer and chronic toxicity studies summarized	
Chemical Exposure	Commercial database vendors	Bibliographic, indexed	Human exposures to chemicals and their health effects summarized, small database	1974 - present
Chemical Information System (CIS) Databases: AQUIRE - Aquatic Information Retrieval CASR - Chemical Activity Status Report CESARS - Chemical Evaluation Search & Retrieval System ENVIROFATE - Environmental Fate GENETOX - Genetic Toxicity GIABS - Gastrointestinal Absorption ISHOW - Info. System for Hazardous Organics in Water OHM/TADS - Oil and Hazardous Materials/ Technical Assistance Data System PHYTOTOX - Terrestrial Plant Tox SANSS - Structure & Nomenclature Search System SUSPECT - Suspect Chemicals Source Book TSCATS - TSCA Submissions - Unpublished Data	Commercial database vendors	Data Tables/ Summaries	Summarized results searchable by endpoint, species, and route of administration. Some very unique databases, such as PHYTOTOX which only covers effects on plants (primarily agriculture related)	Varies
Chemlist. Australian Inventory, status through June 1996 EINECS , DSL, NDSL status through June 15, 1990 EINECS PMNs (European List of Notified Chemical Substances -	Commercial database vendors	Indexed	Indication of hazard based on regulatory lists upon which the material appears, and provides a measure of how much published hazard information is likely to be found.	Varies

<b>Databases</b>	<b>Available from</b>	<b>File Type</b>	<b>Subjects Covered</b>	<b>Years Included</b>
ELINCS) through March 2005 Japanese Existing and New Chemical Substances List (ENCS), status through Sept. 2004 Korean Existing Chemicals List (ECL) Inventory through December 2005 TSCA Actions, Inventory Status, and PMN's, coverage through January 6, 2006 Philippines Inventory of Chemicals and Chemical Substances status through 2004 Swiss Inventory of Notified New Substances status through 2004				
Dissertation Abstracts	Commercial database vendors	Bibliographic, indexed	All areas of health	1861 - present
EMBASE/Excerpta Medica	Commercial database vendors	Bibliographic, extensive indexing, CAS RNs	Health and environmental related areas	1974 - present
Energy Science & Technology	Commercial database vendors	Bibliographic, indexed	Primarily environmental effects	1974 – present
Engineering Index - Compendex	Commercial database vendors	Bibliographic, extensive indexing, CAS RNs	Environmental engineering (air, water, pollution, solid waste)	1970 – present
Enviroline	Commercial database vendors		Environmental effects (air, water, solid waste)	1970 – present
Environmental Bibliography	Commercial database vendors		Environmental effects (air, water, solid waste)	1974 – present
EPA's Integrated Risk Information Service - IRIS	Commercial database vendors	Data Tables/ Summaries	Summary of data used and cancer risk assessment done by the US-EPA	
ECB's ESIS – European Chemical	<a href="http://ecb.jrc.it/esis-">http://ecb.jrc.it/esis-</a>	Data Tables/	Summaries of data submitted to the	

<b>Databases</b>	<b>Available from</b>	<b>File Type</b>	<b>Subjects Covered</b>	<b>Years Included</b>
Substances Information System	pgm/esis_reponse_self.php?	Summaries	EU (IUCLID, HPV data)	
GEOBASE	Commercial database vendors	Bibliographic, indexed	Environmental effects (air, water, solid waste)	1980 – present
Hazardous Substances Data Bank - HSDB	Commercial database vendors	Data Tables/ Summaries	Summaries of all health aspects including end use exposures/ measured levels in the ambient environment. Excellent database, peer reviewed but only covers a small number of chemicals.	
Life Sciences Collection	Commercial database vendors	Bibliographic, indexed	All aspects of health/ hazard information.	1978 – present
JICST - EPlus (Japanese Science & Technology)	Commercial database vendors	Bibliographic, indexed	Some coverage of health/hazard topics	1985 – present
Medline	Commercial database vendors	Bibliographic, extensive indexing, CAS RNs	All aspects of health/ hazard information.	1960 – present
National Technical Information Service - NTIS	Commercial database vendors	Bibliographic, indexed	All aspects of health/ hazard information published by US government.	1964 –present
NIOSH	Commercial database vendors	Bibliographic, indexed	Occupational surveys and other related health information	1973 – 1998
Oceanic Abstracts	Commercial database vendors	Bibliographic, indexed	Environmental effects	1964 – present
PASCAL	Commercial database vendors	Bibliographic, indexed	All aspects of health/ hazard information focused on European publications	1973 – present
Pollution Abstracts	Commercial database vendors	Bibliographic, indexed	Primarily environmental effects	1970 – present
Registry of Toxic Effects of Chemical Substances - RTECS	Commercial database vendors	Data Tables/ Summaries	Toxicity, environmental data, lowest published toxicity values for each chemical listed	
Royal Society of Chemistry Databases:	Commercial database vendors	Bibliographic, indexed	Toxicity, occupational hazards, exposures	1984 - present

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<b>Databases</b>	<b>Available from</b>	<b>File Type</b>	<b>Subjects Covered</b>	<b>Years Included</b>
Chemical Hazards in Industry - CHI				1981 - present
Laboratory Hazards Bulletin - LHB				1981 – present
Chemical Safety NewsBase				
Science Citation Index	Commercial database vendors	Bibliographic, indexed	Toxicology, environmental, risk assessments	1978 – present

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**317 R.3.5 References for chapter 3**

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