# Subject Index

#### Chinese activities, 75 Classification of materials, 268-269 (See also ABCUP Program Series, 305 Characterization of materials) ACTIS tribology information system, 340 Commission of the European Communities Aerospace applications, 197, 200 (CEC) activities, 43, 63, 70-72 Alloys (See Metals and alloys) Committee on Data of the International American Ceramic Society, 60, 292, 304 Council of Scientific Unions (CO-American Chemical Society, 59 American Society of Mechanical Engineers, activities, 99 China, activities in, 79 American Society of Metals, 60, 322 cooperation with Versailles Project for Ad-American Welding Institute, 60, 329 vanced Materials and Standards (VA-American Welding Society, 60 MAS), 68 Anisotropic materials, 265 history, 43, 99 Artificial intelligence interfaces, 175, 329, 332 survey, 92 ASM International, 60, 322 Composite materials, 92, 253, 265, 280 **ASTM** committees Computer-aided design (CAD)/computer-E-28: 11 aided manufacturing (CAM), 109, E-49: 7, 231, 239, 318-319 197, 200 G-01: 318-319 Computer-integrated manufacturing (CIM), ASTM standards 109, 126 D 648: 232 Computer programs (See also Data bases) D 1600: 231 ABCUP Program Series, 305 Audience profiles, 216 DATATRIEVE, 240-241 Automated manufacturing, 109, 126 METSEL2, 280 Automated Manufacturing Research Facility SPIRES, 58 (AMRF), 126 Corrosion data base, 239, 317 Cost-benefits studies, 99 B Coupon corrosion testing, 239 Creep of materials, 80 Basic Data Administration System (BDAS), Crystal structure, 322 131-132 Bibliographic data bases, 324-325, 342-343 Bilingual data bases, 89 D Data administration, 126 C Data banks (See Data bases) CAD/CAM, 109, 197, 200 Data base software Ceramics data base, illus., 90 ABCUP Program Series, 305 Ceramics phase diagrams, 292, 304 DATATRIEVE, 240-241 Characterization of materials METSEL2, 280 categories required, 10, 33 SPIRES, 58 composites, 270 Data bases corrosion data, 317 ABCUP Program Series, 305 definition, 25 ACTIS tribology, 340 measurement units, 137-139 alloys (See Metals and alloys) metals and alloys, 23 anisotropic materials, 265 tables (data), 135 architecture (structure), 140-143, 326-328, Chemical Abstracts Service, 59 342-343 Chemical data bases, 292 bibliographic, 324-325, 342-343

Data bases (cont.)	personal computer based, 280, 292, 340
bilingual, 89	Phase Diagrams for Ceramists, 292, 304
builders, 304	PhaseLit, 325
building blocks, 272	problems in development, 216
ceramics, 90, 292, 304	publication, 200, 304, 342
chemical, 82, 292	RUST, 239
Chinese, 75	Science and Technology Agency, 82
composite materials, 92, 253, 265, 280	Semantic Association Model (SAM*), 109
computer-aided design (CAD)/computer-	Society of Materials Science, Japan, 81
aided manufacturing (CAM), 109,	software, 58, 240-241, 280, 305
197, 200	SPIRES system, 58 STN International, 59
corrosion, 239, 317 cost-benefits studies, 99	structural design, 253, 272, 289, 306-312
creep of materials, 80	terminology, 15, 43, 109, 135
data description, 135	unified life-cycle engineering, 197
data structure complexity, 136-137	welding, 329
DATATRIEVE, 240-241	WIN system, 332-339
directories, 63, 101, 135	Data capture, 151
distributed, 126, 135, 175, 289 (See also	Data description (See Characterization of
Networks)	materials)
Engineering Materials Property Data Ba-	Data dictionaries, 109, 135, 178
ses, 200	Data exchange formats, 293
fatigue of materials, 80	Data evaluation, 320
file systems, 272, 306-312	Data files, 272
fourth-generation language (4GL), 329	Data representation, 151, 317
incompatibilities, 63, 224, 272	DATATRIEVE, 240-241
indexing, 314	Demonstrator program, materials data
input format, 12-15, 317 (See also Inter-	banks, 63
face design)	Descriptors (See Characterization of materials)
Integrated Chemical Database System, 82	Designations (See also Characterization of
integration, 63, 272	materials)
interest in, survey, 92 interfaces (See Interface design)	composite materials, 266-267
Japanese Information Center for Science	definition, 24
and Technology, 83-86	metals and alloys, 23
management, 216	VAMAS Task Group findings and recom-
Materials Engineering Center (MEC) of the	mendations, 43
Dow Chemical Company, 229	DIANE information service network, 64
Materials Information for Science and	Dictionaries, 109, 135, 178
Technology (MIST) program, 23, 135	Digitizing software, 293
MATUS, 211	Directories, 63, 101, 135
METADEX, 324-325	Directories of Data Sources for Science and
metals (See Metals and alloys)	Technology, 101
METSEL2, 280	Distributed Data Administration System
MIL-HDBK-17B, 280	(DDAS), 132-133 Distributed data bases, 126, 135, 175, 289
modular construction, 272	
National Materials Property Data Network,	(See also Networks) Dow MEC data base, 229
Inc. (MPD), 7, 32, 55, 281	Dow MEC data base, 227
National Research Institute for Metals, 82–86	
nomenclature, 15, 43, 109, 135	${f E}$
nonmetals, 92, 229, 239, 317	Electronic mail systems, 200, 342
object-oriented data representation, 147-	Engineering Materials Property Data Bases,
149	200
Open System Interconnection (OSI) model,	EURONET-DIANE, 63
80	European Communities activities

Code of Practice, 70-72
Materials Data Banks Demonstrator Program, 63
VAMAS Task Group findings and recommendations, 43, 44
European Host Network (EHN), 66

Expert systems, 175, 332

## F

Fairfield Glade workshop, 100
Fatigue of materials, 80
File systems, 272, 306-312
Formats, data, 12-15, 317
Fourth-generation language (4GL) data bases, 329
Frame-based information organization, 332
French activities, 92
Friction, 340

## G

Graph metadata, 151 Graphics, 287, 289, 292, 325-328, 331

#### H

Handbooks, 135, 198-199, 280 Hierarchical agglomerative clustering, 185

### I

Identification of materials, 23, 24 (See also Characterization of materials) Incompatibilities of data bases, 63, 224 Indexing, 314 Information market, 63 Information systems (See Data bases) Input format (See Interface design) Institute of Metals, 60 Integrated Chemical Database System, 82 Integrated Manufacturing Data Administration System (IMDAS), 130-134 Interface design artificial intelligence, 175, 329, 332 expert systems, 175, 332 fourth-generation language (4GL), 329 input formats, 12-15, 317 issues and standards, 15-16 types, illus., 184 WIN system, 332-335 International cooperation (See Commission of the European Communities (CEC) activities; Committee on Data of the International Council of Scientific Unions [CODATA])

International Numbering System for Metals (INSM), 31

#### J-K

Japanese Information Center for Science and Technology, 83-86 Knowledge base, 175

#### L

Laboratory information management systems, 200
Lamina, 265
Lay-up, 265
Liability, 99
Life-cycle engineering, 197
Local area networks, 200
Lubrication, 340

#### M

Manufacturing systems, 109, 126 Master Data Administration System (MDAS), 133 Material selection, 317 Materials Engineering Center (MEC) of the Dow Chemical Company, 229 Materials Information for Science and Technology (MIST), 23, 135 Materials Property Data Network, Inc. (MPD), 7, 32, 55, 281 MATUS materials data bank, 211 Measurement units, 137-139 MEC data base, 229 Metadata data capture, 163-167 definition, 152 graphs, 151 schema, 151 system, 56-57 tables, 151 uniform treatment, 109 METADEX data base, 324-325 Metals and alloys alloy phase diagrams, 322 characterization, 23 corrosion, 239, 317 France, interest in data base, 92 Japanese data base, 82-86 numbering systems, 23 METSEL2 program, 280 MIL-HDBK-17B data base, 280 Military specification handbooks, 135, 198-199, 280 MIST program, 23, 135

N

National Association of Corrosion Engineers (NACE), 60, 317 National Bureau of Standards (NBS) ASM/ NBS Data Program for Alloy Phase Diagrams, 322 Automated Manufacturing Research Facility (AMRF), 126 corrosion data base, 317 Integrated Manufacturing Data Administration System (IMDAS), 126 Phase Diagrams for Ceramists data base, 292, 304 National Materials Property Data Network, Inc. (MPD), 7, 32, 55, 281 National Research Institute for Metals, 82-86 Natural clustering, 185 Networks aerospace applications, 200 **EURONET-DIANE**, 63 European Host Network (EHN), 66 local area, 200 neural, 337-338 Open System Interconnection (OSI) model, Neural networks, 337-338 Nomenclature, 15, 43, 135

## 0

Nonmetals, corrosion of, 239, 317

Object-oriented data representation, 147-149 Open System Interconnection (OSI) network model, 80

## P

Personal computer data bases, 280, 292, 340
Phase diagrams, 292, 304, 322
PhaseLit data base, 325
Plastics, 92, 229
Polymers, 92, 229
Programs (See also Data bases)
ABCUP Program Series, 305
DATATRIEVE, 240-241
METSEL2, 280
SPIRES, 58
Published materials capture, 151

R

RUST data base, 239

S

Schluchsee workshop, 100 Science and Technology Agency, 82 Semantic Association Model (SAM\*), 109 Semantic capacity, 177–180 Simulators, 181-182 Society of Materials Science, Japan, data base, 81 Socioeconomic problems, 216 Software (See also Data bases) ABCUP Program Series, 305 DATATRIEVE, 240-241 METSEL2, 280 SPIRES, 58 Specification (See Characterization of materi-SPIRES data base system, 58 Standards for data bases ASTM Committee E-49, 7 ASTM D 648: 232 ASTM D 1600: 231 recommended, table, 9 VAMAS Task Group findings and recommendations, 43 Steels (See Metals and alloys) STN International, 59 Strength of materials, 80

#### T

Table metadata, 151
Table structures, 151
Technology transfer, 340
Terminology, 15, 43, 135
Test data reporting, 11
Thesauri, 143-146
Tribology, 340
Typesetting, 304

## U

Unified life-cycle engineering, 197
Unified Numbering System (UNS), 23, 243
Usage patterns, 216
User friendliness, 104-105 (See also Interface design)
User interfaces (See Interface design)
User profiles, 92, 216

v

Validation file, 23 Variables files, 272 Versailles Project for Advanced Materials and Standards (VAMAS), 43, 44, 68

W

Wear, 340

Welding information systems, 329 WELDSELECTOR expert system, 332-335 WELDSYMPLE expert system, 337 WIN system, 332-339