

Index

ALABAMA

- Generally, § 8:32
- Alabama A&M University, § 8:33
- Alabama State University, § 8:34
- Auburn University, § 8:35
- State development and regulation, generally, §§ 8:31-8:37
- Tuskegee University, § 8:36
- University of Alabama, § 8:37

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

- Standards and nomenclature, § 9:2

APPLICATIONS

- New applications, § 1:4
- Patents (this index)

APPROACHES TO SAFE TECHNOLOGY

- 2006 NIOSH document. **Materials in the Workplace** (this index)

AQUATIC SPECIES

- Environmental, Health, and Safety (EHS)** (this index)

ARGONNE NATIONAL LABORATORY

- Center for Nanoscale Materials, § 2:103

ARIZONA

- Generally, § 8:38
- Arizona Nanotechnology Cluster, § 8:45
- Arizona State University generally, § 8:39

ARIZONA—Cont'd

- Arizona State University—Cont'd
 - Arizona Biodesign Institute, § 8:40
 - Arizona Institute for Nano-Electronics, § 8:41
 - Center for Nanotechnology in Society, §§ 2:158, 8:44
 - Nanostructures Research Group, § 8:42
 - Sandra Day O'Connor College of Law, § 8:43
- State development and regulation, §§ 8:31, 8:38-8:46
- University of Arizona, § 8:46

ARKANSAS

- Generally, § 8:47
- Arkansas Code, § 8:48
- State development and regulation, §§ 8:31, 8:47-8:49
- University of Arkansas, § 8:49
 - Center for Semiconductor Physics in Nanostructures, § 2:149

BACKGROUND

- Generally, § 1:1
- Food and drug regulatory issues, § 5:1
- Materials in the workplace, § 6:1
- National Nanotechnology Initiative (NNI)** (this index)
- 1994 Retrospective** (this index)

BROOKHAVEN NATIONAL LABORATORY

- Federal nanotechnology research and development efforts, Center for Functional

**BROOKHAVEN NATIONAL
LABORATORY—Cont'd**
Nanomaterials, § 2:106

BSI BRITISH STANDARDS (BSI)

- Generally, § 9:4
- Consumer product labeling, § 7:16
- Nanotechnologies
 - PD 6699-1:2007, Good practice guide for specifying manufactured nanomaterials, below
 - PD 6699-2:2007, Good practice guide to safe handling and disposal of manufactured nanomaterials, below
- PAS 71:2005, Vocabulary, nanoparticles, § 9:5
- PAS 130:2007, Guidance on labeling of manufactured nanoparticles and products containing manufactured nanoparticles
 - generally, § 9:6
 - content of product labels, § 9:11
 - examples of product labels, § 9:12
 - labeling recommendations, § 9:10
 - precautionary efforts, § 9:8
 - purpose, § 9:7
 - scope, § 9:9
 - suggested additional information, § 9:13
- PAS 131:2005, Terminology for nanofabrication, § 9:23
- PAS 131:2007, Terminology for medical, health, and personal care applications of nanotechnology
 - generally, §§ 9:15, 9:16
 - molecular entities, § 9:17
 - nanosystems, § 9:19
 - structural entities, § 9:18
- PAS 132:2007, Terminology for bio-nano interface, § 9:20

**BSI BRITISH STANDARDS (BSI)
—Cont'd**

- PAS 133:2007, Terminology for nanoscale measurement and instrumentation, § 9:21
- PAS 134:2007, Terminology for carbon nanostructures, § 9:22
- PAS 135:2007, Terminology for nanofabrication, § 9:23
- PAS 136:2007, Terminology for nanomaterials, § 9:24
- PD 6699-1:2007, Good practice guide for specifying manufactured nanomaterials
 - generally, § 9:26
 - measurement methods, § 9:32
 - purpose, § 9:27
 - three material categories
 - generally, § 9:28
 - one-dimensional nanoscale materials, § 9:31
 - three-dimensional nanoscale materials, § 9:29
 - two-dimensional nanoscale materials, § 9:30
- PD 6699-2:2007, Good practice guide to safe handling and disposal of manufactured nanomaterials
 - generally, § 9:33
 - accidental releases, § 9:45
 - assessing exposure, § 9:41
 - dermal exposure and ingestion risks, § 9:36
 - exposure control, § 9:42
 - health surveillance, § 9:44
 - information collection, § 9:39
 - inhalation risks, § 9:35
 - nanoparticles as hazardous materials, § 9:37
 - purpose, § 9:34
 - risk evaluation, § 9:40
 - risk management approaches, § 9:38
 - storage and disposal, § 9:46

INDEX

BSI BRITISH STANDARDS (BSI)

—Cont'd

- PD 6699-2:2007, Good practice guide to safe handling and disposal of manufactured nanomaterials—Cont'd suggested exposure benchmark, **§ 9:43**
- Terminology documents, **§ 9:14**
- 2007 good practice guides generally, **§ 9:25**
- PD 6699-1:2007, Good practice guide for specifying manufactured nanomaterials, above
- PD 6699-2:2007, Good practice guide to safe handling and disposal of manufactured nanomaterials, above

BUDGET AND FUNDING

National Nanotechnology Initiative (NNI) (this index)

BURNHAM INSTITUTE

- Nanotherapy for Vulnerable Plaque, **§ 2:168**

CALIFORNIA

- Generally, **§ 8:50**
- Berkeley, California generally, **§ 8:1**
- additional criticism, **§ 8:12**
- disclosure guidelines generally, **§ 8:7**
- confidentiality, **§ 8:11**
- control banding, **§ 8:9**
- costs, **§ 8:10**
- toxicology reporting requirements, **§ 8:8**
- existing literature, **§ 8:2**
- hazardous materials management program, **§ 8:4**
- labeling as “hazardous material,” **§ 8:6**
- municipal development and regulation, **§§ 8:1-8:12**

CALIFORNIA—Cont'd

- Berkeley, California—Cont'd safe harbor, **§ 8:3**
- triggering quantity, **§ 8:5**
- California Department of Toxic Substances Control Carbon, Nanotube Data Call-In, **§ 8:51**
- California Institute of Technology generally, **§ 8:52**
- Center for Science and Engineering of Nanomaterials, **§ 2:137**
- Center for Science and Engineering of Nanomaterials; Nanosystems Biology Cancer Center, **§ 8:56**
- Kavli Nanoscience Institute, **§ 8:54**
- Micromachining Laboratory, **§ 8:55**
- Nanoethics Group, **§ 8:57**
- Nanofabrication Group, **§ 8:53**
- Nanosystems Biology Cancer Center, **§ 2:184**
- California workforce initiative, **§ 8:58**
- Moffett Field, Ames Center for Nanotechnology, **§ 2:195**
- Municipal development and regulation. Berkeley, California, above
- Northern California Nanotechnology Initiative, **§ 8:59**
- Santa Clara University, **§ 8:60**
- Stanford University
 - Center for Cancer Nanotechnology Focused on Therapy Response, **§ 2:182**
 - Center for Polymer Interfaces and Macromolecular Assemblies, **§ 2:143**
 - Center for Probing the Nanoscale, **§ 2:126**

CALIFORNIA—Cont'd

- Stanford University—Cont'd
 - state development and regulation, § 8:61
- State development and regulation, §§ 8:31, 8:50-8:78
- University of California, Berkeley, § 8:62
 - Center for the Optical Control of Biological Functions, § 2:171
 - Center of Integrated Nanomechanical Systems, § 2:128
 - state development and regulation, § 8:62
- University of California, Davis, § 8:63
- University of California, Irvine, § 8:64
- University of California, Los Angeles
 - generally, § 8:65
 - Center for Cell Control, §§ 2:172, 8:72
 - Center for NanoSafety Research and Testing, § 8:67
 - Center for Scalable and Integrated Nanomanufacturing, §§ 2:123, 8:66
 - Department of Defense (DOD), Center for Nanoscience Innovation for Defense, § 2:96
 - Functional Engineered Nano Architectonics Focus Center, § 8:68
 - Nanoelectronics Research Facility, § 8:69
 - Nano Renewable Energy Center, § 8:70
 - Western Institute of Nanoelectronics, § 8:71
- University of California, Riverside
 - Center for Nanoscience Innovation for Defense, § 2:96

CALIFORNIA—Cont'd

- University of California, Riverside—Cont'd
 - state development and regulation, § 8:73
 - University of California, San Diego
 - Center of Nanotechnology for Treatment, Understanding, and Monitoring of Cancer, § 2:180
 - state development and regulation, § 8:74
 - University of California, San Francisco
 - Engineering Cellular Control: Synthetic Signaling and Motility Systems, § 2:178
 - state development and regulation, § 8:75
 - University of California, Santa Barbara
 - Center for Materials Information Technology Materials Research Laboratory, § 2:144
 - Center for Nanotechnology in Society, § 2:159
 - Department of Defense (DOD), Center for Nanoscience Innovation for Defense, § 2:96
 - state development and regulation, § 8:76
 - University of California, Santa Cruz, § 8:77
 - University of Southern California, § 8:78
- CARBON NANOPARTICLES**
- Environmental, health, and safety (EHS) concerns, generally, § 3:6
 - Fullerenes, § 3:7
 - Multiwalled carbon nanotubes (MWCNTs), § 3:13

INDEX

CARBON NANOPARTICLES

—Cont'd

- Other carbon nanoparticles, § 3:14
- Single-walled carbon nanotubes (SWCNTs)
 - generally, § 3:8
 - cytotoxicity of single-walled carbon nanotubes (SWCNTs), § 3:9
 - genotoxicity of single-walled carbon nanotubes (SWCNTs), § 3:10
 - pulmonary effects of single-walled carbon nanotubes (SWCNTs), § 3:11
 - single-walled carbon nanotubes (SWCNTs) in the bloodstream, § 3:12
- The next asbestos?, § 3:15

CARBON NANOTUBES

- Dermal exposure route, § 3:34
- Multiwalled carbon nanotubes (MWCNTs), § 3:13
- Single-walled carbon nanotubes (SWCNTs)
 - generally, § 3:8
 - cytotoxicity of single-walled carbon nanotubes (SWCNTs), § 3:9
 - genotoxicity of single-walled carbon nanotubes (SWCNTs), § 3:10
 - pulmonary effects of single-walled carbon nanotubes (SWCNTs), § 3:11
 - single-walled carbon nanotubes (SWCNTs) in the bloodstream, § 3:12

CATEGORIES OF NANOSCALE MATERIALS

- BSI British Standards (BSI), Part 1: Good practice guide for specifying manufactured nanomaterials, PD 6699-1:2007, §§ 9:28-9:31

CATEGORIES OF NANOSCALE MATERIALS—Cont'd

- One-dimensional nanoscale materials, § 9:31
- Two-dimensional nanoscale materials, § 9:30
- Three-dimensional nanoscale materials, § 9:29
- Three material categories, generally, §§ 1:6, 9:28

CENTER FOR NANOSCIENCE INNOVATION FOR DEFENSE

- Federal nanotechnology research and development efforts, University of California, Santa Barbara, Riverside, Los Angeles, § 2:96

CENTER FOR NANOTECHNOLOGY IN SOCIETY

- Nanoscale Science and Engineering Network (this index)

CENTER FOR RESPONSIBLE NANOTECHNOLOGY

- Regional initiatives, § 8:23

CLEAN AIR ACT (CAA)

- Generally, § 4:54
- Ambient air quality standards, § 4:56
- American Bar Association (ABA)
 - Clean Air Act teleconference, § 4:62
 - recommendations of Section of Environment, Energy, and Resources, § 4:63
- Criteria air pollutants, § 4:55
- Enforcement, § 4:61
- Hazardous air pollutants, § 4:58
- Permits, § 4:60
- Stack heights, § 4:59
- State implementation plans, § 4:57

CLEAN WATER ACT (CWA)

- Generally, § 4:64
- Subchapter III: standards and enforcement
 - generally, § 4:65
 - Section 301: effluent limitations, § 4:66
 - Section 302: water quality-related effluent limitations, § 4:67
 - Section 303: water quality standards and implementations, § 4:68
 - Section 304: information and guidelines, § 4:69
 - Section 306: National Standards of Performance, § 4:70
 - Section 307: toxic and pretreatment effluent standards, § 4:71
 - Section 309: enforcement, § 4:72
 - Section 319: nonpoint management program, § 4:73
- Subchapter IV: permits and licenses, Section 402: National Pollutant Discharge Elimination System, § 4:74
- Subchapter V: general provisions
 - Section 504: emergency powers, § 4:75
 - Section 505: citizens' suits, § 4:76

COLORADO

- Generally, § 8:79
- Colorado Code, § 8:80
- Colorado Nanotechnology Alliance, § 8:81
- Colorado State University, Center for Extreme Ultraviolet Science and Technology, § 2:114
- State development and regulation, §§ 8:31, 8:79-8:82
- University of Colorado, § 8:82

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA)

- Generally, § 4:47
- Hazardous substances, § 4:48
- Liability, § 4:53
- Potentially responsible parties, § 4:50
- Release reporting and reportable quantities, § 4:49
- Remediation actions, § 4:52
- Removal actions, § 4:51

CONNECTICUT

- Generally, § 8:83
- Connecticut Code, § 8:84
- Nanoworkforce-cf.org, § 8:85
- State development and regulation, §§ 8:31, 8:83-8:86
- Yale University
 - Center for Research on Interface Structure and Phenomena, § 2:134
 - state development and regulation, § 8:86

CONSUMER PRODUCT SAFETY ACT (CPSA)

- Consumer Product Safety Commission (CPSC)** (this index)

CONSUMER PRODUCT SAFETY COMMISSION (CPSC)

- Generally, § 7:2
- Consumer Product Safety Act (CPSA)
 - authority, § 7:4
 - definition and general responsibilities, § 7:3
- Federal nanotechnology research and development efforts, § 2:87
- Funding, § 7:5
- Position on nanotechnology, § 7:6

INDEX

CONSUMER PRODUCT SAFETY COMMISSION (CPSC)—Cont'd

**Project on Emerging
Nanotechnologies (PEN)**
(this index)

CONSUMER PRODUCTS AND INSURANCE ISSUES

Generally, §§ 1:23, 7:1 et seq.
ACE Casualty, § 7:37

Consumer product inventory.
**Project on Emerging
Nanotechnologies (PEN)**
(this index)

Consumer product labeling
generally, § 7:15
BSI British Standards (BSI),
§ 7:16
environmental interest coalition,
§ 7:17

ETC Group, § 7:18

Friends of the Earth
generally, § 7:19
food packaging, § 7:21
sunscreens, § 7:20

Natural Resources Defense
Council, § 7:22

other legal scholars, § 7:25

Project on Emerging
Nanotechnologies (PEN),
§ 7:23

Soil Association, § 7:24

**Consumer Product Safety Com-
mission (CPSC)** (this index)

Consumer surveys, § 7:26

Continental Western Insurance
Group

generally, § 7:38
background document, § 7:39
exclusion document, § 7:41
notice document, § 7:40

Environmental concerns for
aquatic species, unintentional
releases from consumer
products, §§ 3:40-3:42

CONSUMER PRODUCTS AND INSURANCE ISSUES

—Cont'd

Environmental Defense/DuPont
Nano Risk Framework,
§ 7:50

European risk perception poll,
§ 7:32

Insurance coverage issues, § 7:36

Insurance Services Office Inc.,
§ 7:42

Inventory of consumer products.
**Project on Emerging
Nanotechnologies (PEN)**
(this index)

Lloyd's of London
generally, § 7:43
insurer's perspective, § 7:44
nanotechnology risks and
opportunities, § 7:45

Marsh business risk survey, § 7:33

MunichRe, § 7:46

Nano-liability cap, § 7:47

Nanopublic surveys, § 7:34

National Nanotechnology Initia-
tive (NNI) 2006 EHS needs
document, consumer issues,
§ 2:54

Natural Resources Defense
Council framework, § 7:51

Potential consumer product safety
issues, § 7:1

Print media surveys, § 7:35

**Project on Emerging
Nanotechnologies (PEN)**
(this index)

Rice University Center for
Biological and
Environmental Nanotechnol-
ogy (CBEN), public percep-
tion poll, § 7:31

Swiss Re
small matter, many unknowns,
§ 7:49
small size, large impact, § 7:48

**CONTINENTAL WESTERN
INSURANCE GROUP**

Consumer Products and Insurance Issues (this index)

COPYRIGHTS

Intellectual property landscape,
§ 10:38

COSMETICS

Generally, § 5:54
Environmental, health, and safety
(EHS) concerns, dermal
exposure route, § 3:32
FDA Nanotechnology Task Force
2006 public meeting,
Cosmetics and Personal Care
Products session, § 5:27
Food and drug regulatory issues,
generally, §§ 5:54-5:57
Labeling, § 5:56
2007 IEHN report, § 5:55
2008 Soil Association standard,
§ 5:57

CROPS/PLANTS

Environmental, health, and safety
(EHS) concerns, § 3:45

DEFINITIONS

Nanotechnology, introduction,
§ 1:5

DELAWARE

Generally, § 8:87
Executive Order No. 88, § 8:88
State development and regulation,
§§ 8:31, 8:87-8:89
University of Delaware, § 8:89

**DEPARTMENT OF
COMMERCE (DOC)**

Generally, § 2:88
Bureau of Industry and Security,
§ 2:89
Federal nanotechnology research
and development efforts, gen-
erally, §§ 2:88-2:93

**DEPARTMENT OF
COMMERCE (DOC)**

—Cont'd

**National Institute of Standards
and Technology (NIST)**
(this index)

**DEPARTMENT OF DEFENSE
(DOD)**

Generally, § 2:94
Center for Nanoscience Innova-
tion for Defense (University
of California, Santa Barbara,
Riverside, Los Angeles),
§ 2:96
Federal nanotechnology research
and development efforts, gen-
erally, §§ 2:94-2:97
Institute for Nanoscience (Naval
Research Laboratory), § 2:97
Institute for Soldier
Nanotechnologies (ISN),
§ 2:95

**DEPARTMENT OF
EDUCATION**

Federal nanotechnology research
and development efforts,
§ 2:162

**DEPARTMENT OF ENERGY
(DOE)**

Center for Functional Nanomateri-
als (Brookhaven National
Laboratory), § 2:106
Federal nanotechnology research
and development efforts, gen-
erally, §§ 2:98-2:107
**Nanoscale Science Research
Centers** (this index)
Office of Energy Efficiency and
Renewable Energy (EERE),
§ 2:101
Office of Fossil Energy, § 2:100
Office of Science, § 2:99

**DEPARTMENT OF HEALTH
AND HUMAN SERVICES
(DHHS)**

Generally, § 2:163

INDEX

DEPARTMENT OF HEALTH AND HUMAN SERVICES

(DHHS)—Cont'd

Federal nanotechnology research
and development efforts,
§§ 2:163-2:184

National Institutes of Health
(this index)

DEPARTMENT OF JUSTICE

Federal nanotechnology research
and development efforts,
§ 2:185

DEPARTMENT OF LABOR (DOL)

Federal nanotechnology research
and development efforts,
§ 2:108

DEPARTMENT OF STATE

Federal nanotechnology research
and development efforts,
§ 2:186

DEPARTMENT OF TRANSPORTATION (DOR)

Federal nanotechnology research
and development efforts,
§ 2:109

DEPARTMENT OF TREASURY

Federal nanotechnology research
and development efforts,
§ 2:187

DEVELOPMENTAL PHASES OF NANOTECHNOLOGY

Generally, § 1:7

DIETARY SUPPLEMENTS

Food and drug regulatory issues,
§ 5:58

DISCLOSURE

Berkeley, California. **California**
(this index)

DISTRICT OF COLUMBIA

Generally, § 8:90

DISTRICT OF COLUMBIA

—Cont'd

Catholic University, § 8:91

Howard University, § 8:92

State development and regulation,
§§ 8:31, 8:90-8:92

DRUG PRODUCTS

Generally, § 5:49

FDA Nanotechnology Task Force
2006 public meeting, Drugs,
Biologics, and Devices ses-
sion, § 5:28

Food and drug regulatory issues,
generally, §§ 5:49-5:52

2005 Till survey, § 5:50

2006 Article by FDA Center for
Drug Evaluation and
Research (CDER) officials,
§ 5:41

2007 Strickland survey, § 5:51

2008 Bawa survey, § 5:52

EMERGENCY PLANNING AND COMMUNITY

RIGHT-TO-KNOW ACT (EPCRA)

Generally, § 4:82

Emergency notification of release,
§ 4:84

Emergency planning notification,
§ 4:83

Enforcement remedies, § 4:86

Protection of confidential business
information, § 4:85

EMPLOYMENT

Materials in the Workplace (this
index)

ENVIRONMENTAL, HEALTH, AND SAFETY (EHS) CONCERNS

Generally, § 3:1 et seq.

Approach of NNI to
environmental, health, and
safety concerns
generally, § 2:44

**ENVIRONMENTAL, HEALTH,
AND SAFETY (EHS)
CONCERNS—Cont'd**

- Approach of NNI to environmental, health, and safety concerns—Cont'd
 - review by President's Council of Advisors on Science and Technology (PCAST), § 2:45
- Aquatic species
 - generally, § 3:39
 - fish, § 3:44
 - microscopic plants and animals, § 3:43
 - nanosilver socks, unintentional releases from consumer products, § 3:42
 - Samsung washing machine, unintentional releases from consumer products, § 3:41
 - unintentional releases from consumer products, §§ 3:40-3:42
- Background, § 3:1
- Carbon nanoparticles
 - generally, § 3:6
 - fullerenes, § 3:7
 - multiwalled carbon nanotubes (MWCNTs), § 3:13
 - other carbon nanoparticles, § 3:14
 - single-walled carbon nanotubes (SWCNTs)
 - generally, § 3:8
 - cytotoxicity of single-walled carbon nanotubes (SWCNTs), § 3:9
 - genotoxicity of single-walled carbon nanotubes (SWCNTs), § 3:10
 - pulmonary effects of single-walled carbon nanotubes (SWCNTs), § 3:11
 - single-walled carbon nanotubes (SWCNTs) in

**ENVIRONMENTAL, HEALTH,
AND SAFETY (EHS)
CONCERNS—Cont'd**

- Carbon nanoparticles—Cont'd
 - single-walled carbon nanotubes (SWCNTs)—Cont'd
 - the bloodstream, § 3:12
 - the next asbestos?, § 3:15
 - Carbon nanotubes, dermal exposure route, § 3:34
- Clean Air Act (CAA)** (this index)
- Clean Water Act (CWA)** (this index)
- Comprehensive Environmental Response Compensation and Liability Act (CERCLA)** (this index)
- Cosmetics and sunscreens, dermal exposure routes, § 3:32
- Crops/plants, § 3:45
- Dermal exposure routes
 - generally, § 3:31
 - carbon nanotubes, § 3:34
 - cosmetics and sunscreens, § 3:32
 - fullerenes, § 3:33
 - quantum dots, § 3:35
- Emergency Planning and Community Right-to-Know Act (EPCRA)** (this index)
- Environmental concerns, generally, §§ 1:20, 3:37-3:46
- Environmental exposure assessment, 2007 NNI EHS prioritization document, § 2:61
- Environmental Protection Agency (EPA)** (this index)
- Environmental research, 2006 NNI EHS needs document, § 2:53
- FDA Nanotechnology Task Force 2007 Task Force report, potential nanotechnology specific regulation, National

INDEX

ENVIRONMENTAL, HEALTH, AND SAFETY (EHS)

CONCERNS—Cont'd

Environmental Policy Act,
§ 3:39

**Federal Insecticide, Fungicide,
and Rodenticide Act
(FIFRA)** (this index)

Fullerenes

carbon nanoparticles, § 3:7

dermal exposure routes, § 3:33

FY 2007 federal nanotechnology
funding expenditures, § 2:80

FY 2008 federal nanotechnology
funding expenditures, § 2:83

FY 2009 federal nanotechnology
funding expenditures, § 2:86

Health and environmental
exposure assessment, 2007
NNI EHS prioritization docu-
ment, § 2:61

Human exposure routes

generally, § 3:28

dermal

generally, § 3:31

carbon nanotubes, § 3:34

cosmetics and sunscreens,
§ 3:32

fullerenes, § 3:33

quantum dots, § 3:35

ingestion, § 3:30

inhalation, § 3:29

injection, § 3:36

Human health concerns

generally, § 3:2

blanket statements difficult,
§ 3:3

human exposure routes, below
nanomaterial type, below
need for more research, § 3:4

Ingestion as exposure route,
§ 3:30

Inhalation as exposure routes,
§ 3:29

ENVIRONMENTAL, HEALTH, AND SAFETY (EHS)

CONCERNS—Cont'd

Injection as exposure routes,
§ 3:36

**International Organization for
Standardization (ISO)** (this
index)

Metal and metal-oxide based
engineered nanoscale materi-
als

generally, § 3:16

iron oxide, § 3:24

other metal and metal-oxide
based nanoscale materials,
§ 3:25

silver

generally, § 3:17

nanosilver, particle shape,
§ 3:20

nanosilver, particle size,
§ 3:21

nanosilver, U.S.

Environmental Protec-
tion Agency citizen's
petition, § 3:19

silver background, § 3:18

titanium dioxide, § 3:22

zinc oxide, § 3:23

Nanomaterials and human health,
2007 NNI EHS prioritization
document, § 2:59

Nanomaterials and the environ-
ment, 2007 NNI EHS
prioritization document,
§ 2:60

Nanomaterial type

carbon nanoparticles, above
human health concerns, gener-
ally, §§ 3:5-3:36

metal and metal-oxide based
engineered nanoscale
materials, above

other types of nanoscale
particles subject to
environmental, health, and

**ENVIRONMENTAL, HEALTH,
AND SAFETY (EHS)
CONCERNS—Cont'd**

- Nanomaterial type—Cont'd
 - safety scrutiny, § 3:27
 - quantum dots, § 3:26
- Nanotechnology and the environment, NNI workshop reports, § 2:29
- Nanotechnology Environmental and Health Implications (NEHI) working group, § 2:6
- National Institute for Occupational Safety and Health (NIOSH). **Materials in the Workplace** (this index)
- National Nanotechnology Initiative (NNI), see more specific lines in this heading
- NNI workshop reports on nanotechnology and environment, § 2:29
- Potential nano-related concerns, § 1:19
- Quantum dots
 - dermal exposure routes, § 3:35
 - nanomaterial type, § 3:26
- Resource Conservation and Recovery Act (RCRA)** (this index)
- Safe Drinking Water Act (SDWA)** (this index)
- Single-walled carbon nanotubes (SWCNTs). Carbon nanoparticles, above
- Soil, § 3:46
- Standards and nomenclature. **International Organization for Standardization (ISO)** (this index)
- Terrestrial species, § 3:38
- Three primary environmental, health, and safety (EHS) documents of NNI, § 2:46
- Toxic Substances Control Act (TSCA)** (this index)

**ENVIRONMENTAL, HEALTH,
AND SAFETY (EHS)
CONCERNS—Cont'd**

- 2006 NNI EHS needs document
 - generally, § 2:47
 - adequacy of existing data, § 2:52
 - communication, § 2:56
 - consumer issues, § 2:54
 - end-of-life issues, § 2:55
 - environmental research, § 2:53
 - interaction with biological systems, § 2:48
 - life-cycle analysis, § 2:50
 - next steps, § 2:51
 - risk mitigation formula, § 2:49
 - 2007 NNI EHS prioritization document
 - generally, § 2:57
 - gap analysis, § 2:63
 - health and environmental exposure assessment, § 2:61
 - instrumentation, metrology, and analytical methods, § 2:58
 - nanomaterials and human health, § 2:59
 - nanomaterials and the environment, § 2:60
 - risk management methods, § 2:62
 - 2008 NNI EHS strategy document, § 2:64
 - Workshop reports of National Nanotechnology Initiative (NNI), § 2:29
- ENVIRONMENTAL
PROTECTION AGENCY
(EPA)**
- Generally, § 4:1
 - Federal nanotechnology research and development efforts, § 2:110
 - Oversight for 21st century, § 4:87

INDEX

ENVIRONMENTAL

PROTECTION AGENCY (EPA)—Cont'd

- 2007 Nanotechnology White Paper
 - generally, § 4:2
 - environmental application research needs, § 4:5
 - possible nano-specific regulation, § 4:4
 - potential environmental benefits, § 4:3
 - recommendations, § 4:7
 - risk assessment research needs, § 4:6

ETHICS, GOVERNANCE, RISK, AND UNCERTAINTY

- California Institute of Technology, Nanoethics Group, § 8:57
- Materials in the workplace, § 6:3
- National Nanotechnology Initiative (NNI) workshop reports, § 2:39
- National Nanotechnology Initiative (NNI) workshop reports, societal implications, § 2:39

EXPOSURE

- 2006 NIOSH “Approaches to Safe Technology” document. **Materials in the Workplace** (this index)

FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT (FIFRA)

- Generally, § 4:29
- Application and registration application, § 4:30
- Approval of application, § 4:31
- Enforcement authority, § 4:34
- Example of application, § 4:35
- Postregistration authority, § 4:32
- Treated article exemption, § 4:33

FEDERAL

NANOTECHNOLOGY RESEARCH AND DEVELOPMENT EFFORTS

- Generally, § 1:18
- Bureau of Industry and Security of DOC, § 2:89
- Consumer Product Safety Commission (CPSC), § 2:87
- Department of Commerce (DOC)** (this index)
- Department of Defense (DOD)
- Department of Defense (DOD)** (this index)
- Department of Energy (DOE)** (this index)
- Department of Health and Human Services (DHHS)** (this index)
- Department of Justice, § 2:185
- Department of Labor (DOL), § 2:108
- Department of State, § 2:186
- Department of Transportation, § 2:109
- Department of Treasury, § 2:187
- Institute for Soldier Nanotechnologies (ISN) of DOD, § 2:95
- Intelligence Community, § 2:188
- National Aeronautics and Space Administration (NASA)** (this index)
- National Institute of Standards and Technology (NIST)** (this index)
- National Science Foundation (NSF)** (this index)
- Nuclear Regulatory Commission, § 2:189
- Office of Energy Efficiency and Renewable Energy (EERE) of DOE, § 2:101
- Office of Fossil Energy of DOE, § 2:100
- Office of Science of DOE, § 2:99

**FEDERAL
NANOTECHNOLOGY
RESEARCH AND
DEVELOPMENT EFFORTS
—Cont'd**

- U.S. Department of Agriculture (USDA), § 2:161
- U.S. Environmental Protection Agency (EPA), § 2:110
- U.S. Geological Survey (USGS), § 2:190
- U.S. International Trade Commission (USITC), § 2:111
- U.S. Patent and Trademark Office (USPTO), § 2:112

FISH

- Environmental, health, and safety (ehs) concerns, § 3:44

FLORIDA

- Generally, § 8:93
- Florida International University, § 8:94
- Florida State University, § 8:95
- State development and regulation, §§ 8:31, 8:93-8:98
- University of Central Florida, § 8:96
- University of Florida, § 8:97
- University of South Florida, § 8:98

**FOOD AND DRUG
REGULATORY ISSUES**

- Generally, §§ 1:21, 5:1 et seq.
- Background, § 5:1
- Citizen's petition for further regulation, § 5:8
- Consumer product labeling, Friends of the Earth, food packaging, § 7:21
- Cosmetics
 - generally, § 5:54
 - labeling, § 5:56
 - 2007 IEHN report, § 5:55

**FOOD AND DRUG
REGULATORY ISSUES
—Cont'd**

- Cosmetics—Cont'd
 - 2008 Soil Association standard, § 5:57
- Dietary supplements, § 5:58
- Drug products
 - generally, § 5:49
 - 2005 Till survey, § 5:50
 - 2007 Strickland survey, § 5:51
 - 2008 Bawa survey, § 5:52
- FDA funding and resources, § 5:43
- FDA Nanotechnology Task Force, § 5:9
- FDA Nanotechnology Task Force 2006 public meeting
 - generally, § 5:10
 - Cosmetics and Personal Care Products session, § 5:27
 - Drugs, Biologics, and Devices session, § 5:28
 - general policy session
 - generally, § 5:12
 - Center for Biological and Environmental Nanotechnology, § 5:17
 - Center for Regulatory Effectiveness, § 5:25
 - Consumer Union, § 5:18
 - Environmental Defense, § 5:16
 - ETC Group, § 5:26
 - European Directorate for Health and Consumer Protection, § 5:14
 - Health Canada, § 5:15
 - Michigan State University, § 5:19
 - Oregon State University, § 5:20
 - President's Council of Advisors on Science and Technology, § 5:13

INDEX

FOOD AND DRUG REGULATORY ISSUES

—Cont'd

- FDA Nanotechnology Task Force
 - 2006 public meeting—Cont'd
 - general policy session—Cont'd
 - University of Maryland,
§ 5:24
 - University of Michigan,
§ 5:22
 - U.S. Council for International
Business, § 5:21
 - Woodrow Wilson
International Center for
Scholars' Project on
Emerging
Nanotechnologies,
§ 5:23
 - Material Use in Food Products
session, § 5:29
 - on-site presentations, § 5:30
 - opening remarks, § 5:11
- FDA Nanotechnology Task Force
 - 2007 Task Force report
 - generally, § 5:31
 - potential nanotechnology,
specific regulation
 - generally, § 5:36
 - identifying FDA-regulated
products containing
nanoscale materials,
§ 5:37
 - nano-product labeling, § 5:38
 - National Environmental
Policy Act, § 5:39
 - science issues
 - generally, § 5:33
 - adequacy of testing
approaches, § 5:35
 - interactions with biological
systems, § 5:34
 - state of the relevant science,
§ 5:32
- FDA Nanotechnology Task Force
 - 2008 public meeting, § 5:40
- FDA primary research, § 5:42

FOOD AND DRUG REGULATORY ISSUES

—Cont'd

- Food applications
 - 2007 Nanowerk food applica-
tion survey, § 5:46
 - generally, § 5:44
- Friends of the Earth “On to Our
Plates,” § 5:48
- Grocery Manufacturers
Association, § 5:45
- Swiss food retailers association
Code of Conduct, § 5:47
- Friends of the Earth
 - consumer product labeling, food
packaging, § 7:21
 - “On to Our Plates,” § 5:48
- Medical devices, § 5:53
- 2006 Article by FDA Center for
Drug Evaluation and
Research (CDER) officials,
§ 5:41
- 2006 Taylor report
- generally, § 5:2
- additional tools, § 5:7
- capacity of Food and Drug
Administration's (FDA)
legal authority to regulate
nanotechnology, § 5:6
- nine product categories of
products regulated by the
Food and Drug
Administration (FDA),
§ 5:5
- postmarket oversight goals for
the Food and Drug
Administration (FDA),
§ 5:4
- premarket oversight goals for
the Food and Drug
Administration (FDA),
§ 5:3

FRIENDS OF THE EARTH

- Labeling of consumer products.
Consumer Products and

FRIENDS OF THE EARTH

—Cont'd

Insurance Issues (this index)
 “On to Our Plates” food applica-
 tions, § 5:48

FULLERENES

Carbon nanoparticles, § 3:7
 Dermal exposure routes, § 3:33

GEORGIA

Generally, § 8:99
 Clark Atlanta University, § 8:100
 Emory University
 nanotechnology: detection and
 analysis of plaque forma-
 tion, § 2:167
 state development and regula-
 tion, § 8:101
 Georgia Institute of Technology
 generally, § 8:102
 Center for Nanoscience and
 Nanotechnology, § 8:103
 Center for Nanostructure
 Characterization and Fabri-
 cation, § 8:104
 Marcus Nanotechnology
 Research Center, § 8:105
 NANOChBE, § 8:106
 Nanomedicine Center for
 Nucleoprotein Machines,
 § 2:174
 Nanostructure Resaerch Labora-
 tory, § 8:107
 Nanotechnology: Detection and
 Analysis of Plaque Forma-
 tion program and
 Nanomedicine Center for
 Nucleoprotein Machines,
 § 8:108
 State development and regulation,
 §§ 8:31, 8:99-8:109
 University of Georgia, § 8:109

**GLOBAL RESEARCH AND
 DEVELOPMENT**

Generally, § 1:8

HAWAII

State development and regulation,
 §§ 8:31, 8:110

HUMAN HEALTH CONCERNS

**Environmental, Health, and
 Safety (EHS) Concerns** (this
 index)

IDAHO

State development and regulation,
 §§ 8:31, 8:111

ILLINOIS

Generally, § 8:112
 Illinois Institute of Technology,
 § 8:113
 Illinois State University, § 8:114
 Northwestern University
 generally, § 8:115
 additional federally funded
 activities, § 8:121
 Atomic and Nanoscale
 Characterization Experi-
 mental Center, § 8:116
 Center for Integrated Nanopat-
 terning and Detection,
 § 2:120
 Center for Learning and Teach-
 ing, National Center for
 Learning and Teaching in
 Nanoscale Science and
 Engineering, § 2:160
 Center for Nanofabrication and
 Molecular Self-Assembly,
 § 8:119
 Center of Cancer Nanotechnol-
 ogy Excellence, § 2:183
 Institute for BioNanotechnology
 in Medicine, § 8:118
 International Institute for
 Nanotechnology, § 8:120
 Nanoscale Integrated, Fabrica-
 tion, Testing, and
 Instrumentation Facility,
 § 8:117

INDEX

ILLINOIS—Cont'd

- Northwestern University—Cont'd
 - Nanoscale Science and Engineering Center, Center for Integrated Nanopatterning and Detection, § 2:120
 - National Center for Learning and Teaching in Nanoscale Science and Engineering, § 2:160
- State development and regulation, §§ 8:31, 8:112-8:128
- University of Chicago
 - Center for Materials Information Technology Chicago Materials Research Center, § 2:145
 - state development and regulation, § 8:122
- University of Illinois
 - generally, § 8:123
 - Center for Nanoscale Chemical-Electrical-Mechanical Manufacturing Systems, § 8:124
 - Center for Nanoscale Science & Technology, § 8:125
 - Nano Sensors Group, § 8:127
 - National Center for Design of Biometric Nanoconductors, § 8:128
 - The Micro and Nanotechnology Laboratory, § 8:126
- University of Illinois, Urbana-Champaign
 - Center for Chemical-Electrical-Mechanical Manufacturing Systems, § 2:124
 - National Center for Design of Biomimetic Nanoconductors, § 2:175

INDIANA

- Generally, § 8:129
- Indiana Code, § 8:133
- Indiana University, § 8:134

INDIANA—Cont'd

- Notre Dame
 - generally, § 8:130
 - Center for Nano Science and Technology, § 8:131
- Midwest Institute for Nanoelectronics (MIND), § 8:132
- Purdue University
 - generally, § 8:135
 - Birck Nanotechnology Center, § 8:136
 - Institute for Nanoelectronics and Computing, §§ 2:194, 8:137
 - nanoHub, § 8:138
 - National Institutes of Health, Phi29 DNA-Packaging Motor for Nanomedicine, § 2:173
 - Network for Computational Nanotechnology, §§ 2:153, 8:139
 - Phi29 DNA-Packaging Motor for Nanomedicine, §§ 2:173, 8:140
 - Purdue Nanotechnology Initiative, § 8:141
- State development and regulation, §§ 8:31, 8:129-8:141

INFRINGEMENT

- Patents (this index)

INGESTION

- Environmental, health, and safety (EHS) concerns, exposure route, § 3:30

INHALATION

- Environmental, health, and safety (EHS) concerns, exposure route, § 3:29

INJECTION

- Environmental, health, and safety (EHS) concerns, exposure route, § 3:36

**INSTITUTE FOR
NANOSCIENCE (NAVAL
RESEARCH
LABORATORY)**

Federal nanotechnology research
and development efforts,
Department of Defense
(DOD), § 2:97

**INSTITUTE OF ELECTRICAL
AND ELECTRONICS
ENGINEERS (IEEE)**

Generally, § 9:48
General nanotechnology activities,
§ 9:49
Nanotechnology roadmap
generally, § 9:50
devices, § 9:52
materials, § 9:51

**INSTRUMENTATION,
METROLOGY, AND
ANALYTICAL METHODS**

Center for Nano Manufacturing
and Metrology, University of
Maryland, § 8:152
National Nanotechnology Initia-
tive (NNI), 2007 NNI EHS
prioritization document,
§ 2:58
National Nanotechnology Initia-
tive (NNI) workshop reports,
§ 2:31
2007 NNI EHS prioritization doc-
ument, § 2:58

**INTELLECTUAL PROPERTY
LANDSCAPE**

Generally, §§ 1:26, 10:1 et seq.
Constitutional and statutory basis,
§ 10:5
Copyrights, § 10:38
Examiner resources, § 10:17
Importance, § 10:1
Legal playing field, § 10:2
Lexicography, § 10:15
Monopoly rights, § 10:7

**INTELLECTUAL PROPERTY
LANDSCAPE—Cont'd**

Multidisciplinary nature of
nanotechnology, § 10:8
Nano-goldrush, § 10:11
Nano-patent thicket, § 10:12
Nano-specific challenges for the
United States Patent and
Trademark Office (USPTO),
§ 10:13
Naturally occurring material
generally, § 10:9
halloysite nanotubes and
nanoclays, § 10:10
Overlapping claims, § 10:16
Patents (this index)
Policy objectives, § 10:6
Prior art, § 10:14
Scope of chapter, § 10:3
Trademarks (this index)
Trade Secrets (this index)
**United States Patent and
Trademark Office (USPTO)**
(this index)

INTELLIGENCE COMMUNITY

Federal nanotechnology research
and development efforts,
§ 2:188

**INTERAGENCY WORKING
GROUP ON
NANOTECHNOLOGY
(IWGN)**

Vision report, § 2:14
Worldwide study, § 2:13

**INTERNATIONAL
ASSOCIATION OF
NANOTECHNOLOGY**

Regional initiatives, § 8:24

**INTERNATIONAL COUNCIL
ON NANOTECHNOLOGY**

Regional initiatives, § 8:25

INDEX

INTERNATIONAL

ORGANIZATION FOR STANDARDIZATION (ISO)

- Generally, § 9:53
- Health and safety practices in occupational settings generally, § 9:55
- control methodologies, § 9:60
- exposure assessment, § 9:58
- hazard characterization, § 9:57
- nanomaterials: description and manufacturing, § 9:56
- risk assessment, § 9:59
- Nanotechnology terminology and definitions, § 9:54
- Technical Committee 113 (TC 113), § 9:61
- Technical Committee 229 (TC 229)
 - generally, § 9:62
 - Working Group 1 (WG 1), § 9:63
 - Working Group 2 (WG 2), § 9:64
 - Working Group 3 (WG 3), § 9:65
 - Working Group 4 (WG 4), § 9:66

IOWA

- State development and regulation, §§ 8:31, 8:142

JOB SITE

- Materials in the Workplace (this index)

KANSAS

- Generally, § 8:143
- Kansas Code, § 8:144
- State development and regulation, §§ 8:31, 8:143-8:145
- University of Kansas, § 8:145

KENTUCKY

- State development and regulation, §§ 8:31, 8:146

LABELING

- BSI British Standards (BSI), guidance on labeling of manufactured nanoparticles and products containing manufactured nanoparticles, PAS 130:2007, §§ 9:6-9:13
- Consumer Products and Insurance Issues (this index)
- Cosmetics, § 5:56
- FDA Nanotechnology Task Force 2007 Task Force report, nano-product labeling, § 5:38
- Food packaging, § 7:21
- Municipal development and regulation, Berkeley, California, labeling as “hazardous material,” § 8:6
- Natural Resources Defense Council, § 7:22
- Project on Emerging Nanotechnologies (PEN), § 7:23
- Soil association, § 7:24

LABOR AND EMPLOYMENT

- Materials in the Workplace (this index)

LAWRENCE BERKELY

NATIONAL LABORATORY

- Molecular foundry, § 2:104

LICENSING

- Patents (this index)

LLOYD’S OF LONDON

- Consumer Products and Insurance Issues (this index)

LOS ALAMOS NATIONAL

LABORATORY

- Center for Integrated Nanotechnologies, § 2:105

LOUISIANA

- State development and regulation, §§ 8:31, 8:147

MAINE

State development and regulation,
§§ 8:31, 8:148

MANUFACTURING

BSI British Standards (BSI), PD
6699-1:2007
good practice guide for specifying
manufactured nanomaterials
generally, § 9:26
purpose, § 9:27
three material categories
generally, § 9:28
one-dimensional nanoscale
materials, § 9:31
three-dimensional
nanoscale materials,
§ 9:29
two-dimensional nanoscale
materials, § 9:30
BSI British Standards (BSI), PD
6699-2:2007
good practice guide to safe
handling and disposal of
manufactured nanomaterials
generally, § 9:33
accidental releases, § 9:45
assessing exposure, § 9:41
dermal exposure and ingestion
risks, § 9:36
exposure control, § 9:42
health surveillance, § 9:44
information collection, § 9:39
inhalation risks, § 9:35
nanoparticles as hazardous
materials, § 9:37
purpose, § 9:34
risk evaluation, § 9:40
risk management approaches,
§ 9:38
storage and disposal, § 9:46
suggested exposure
benchmark, § 9:43

MANUFACTURING—Cont'd

BSI British Standards (BSI), PSA
130:2007
guidance on labeling of
manufactured
nanoparticles and products
containing manufactured
nanoparticles, §§ 9:6-9:13
generally, § 9:6
content of product labels,
§ 9:11
examples of product labels,
§ 9:12
labeling recommendations,
§ 9:10
precautionary efforts, § 9:8
purpose, § 9:7
scope, § 9:9
suggested additional informa-
tion, § 9:13
Center for Chemical-Electrical-
Mechanical Manufacturing
Systems (University of Illi-
nois, Urbana-Champaign),
§ 2:124
Center for Hierarchical
Manufacturing (University of
Massachusetts-Amherst),
§ 2:117
Center for High Rate
Nanomanufacturing
(Northeastern University),
§ 2:130
Center for Nano Manufacturing
and Metrology (University of
Maryland), § 8:152
Center for Nanoscale Chemical-
Electrical-Mechanical
Manufacturing Systems
(University of Illinois),
§ 8:124
Center for Scalable and Integrated
Nanomanufacturing
(University of California, Los
Angeles), § 8:66
Center for Scalable and Integrated
Nano-Manufacturing

INDEX

MANUFACTURING—Cont'd

- (University of California, Los Angeles), § 2:123
- Food and drug regulatory issues, Grocery Manufacturers Association, § 5:45
- International Organization for Standardization (ISO), health and safety practices in occupational settings, § 9:56
- National Nanotechnology Initiative (NNI)
 - manufacturing at the nanoscale, NNI workshop reports, § 2:28
 - Nanomanufacturing Industry Liaison and Innovation (NILI) working group, § 2:7
 - Nanomanufacturing Public Engagement and Communications working group, § 2:9
- Notices, environmental regulatory issues. **Toxic Substances Control Act (TSCA)** (this index)
- Organization for Economic Cooperation and Development (OECD), Working Party on Manufactured Nanomaterials (WPMN)
 - generally, § 9:73
 - nanomaterials testing program phase one, § 9:79
 - sponsorship, § 9:80
 - 2005 Workshop report, § 9:74
 - 2006-2008 Work program, § 9:78
 - 2006 London report, § 9:75
 - 2007 Berlin report, § 9:76
 - 2007 Paris report, § 9:77
- Pennsylvania Nanofabrication Manufacturing Technology Partnership, § 8:269

MARSHALL SPACE FLIGHT CENTER

- Space Elevator, § 2:196

MARYLAND

- Generally, § 8:149
- Johns Hopkins, § 8:150
- State development and regulation, §§ 8:31, 8:149-8:157
- Towson University, § 8:157
- University of Maryland
 - generally, § 8:151
 - Center for Nano Manufacturing and Metrology, § 8:152
 - Center for Nanomedicine and Cellular Delivery, § 8:153
 - FDA Nanotechnology Task Force 2006 public meeting, general policy session, § 5:24
 - Keck Laboratory for Combinatorial Nanosynthesis and Multiscale Characterization, § 8:154
 - Maryland NanoCenter, § 8:155
 - Materials Research Science and Engineering Center, § 2:146
 - Materials Science and Engineering Center, § 8:156

MASSACHUSETTS

- Generally, § 8:158
- Boston University, § 8:159
- Cambridge, Massachusetts
 - generally, § 8:13
 - business development, § 8:15
 - existing companies, § 8:14
 - municipal development and regulation, §§ 8:13-8:21
- Nanotechnology Advisory Committee (NAC), § 8:16
- Report to City Council
 - generally, § 8:17

NANOTECHNOLOGY LAW

MASSACHUSETTS—Cont'd

- Cambridge, Massachusetts
 - Cont'd
 - Report to City Council—Cont'd
 - regulation inappropriate, § 8:20
 - scope of report, § 8:19
 - specific recommendations, § 8:21
 - unknown risks, § 8:18
- Harvard
 - Center of Cancer Nanotechnology Excellence (MIT-Harvard), § 2:170
- Harvard University
 - Nanoscale Science and Engineering Center, Science of Nanoscale Systems and Their Device Applications, § 2:118
 - Nanoscale Science and Engineering Centers, Science of Nanoscale Systems and Their Device Applications, § 2:118
 - state development and regulation, § 8:160
- Massachusetts Code, § 8:162
- Massachusetts General Hospital, Translational Program for Excellence in Nanotechnology, § 2:169
- Massachusetts Institute of Technology (MIT)
 - Center for Materials Science and Engineering, § 2:140
 - Center of Cancer Nanotechnology Excellence (MIT-Harvard), § 2:170
 - state development and regulation, § 8:161
- Massachusetts Nanotechnology Initiative, § 8:163
- Municipal development and regulation. Cambridge, Massachusetts, above

MASSACHUSETTS—Cont'd

- Northeastern University
 - Center for High Rate Nanomanufacturing, § 2:130
 - state development and regulation, § 8:164
- State development and regulation, §§ 8:31, 8:158-8:165
- University of Massachusetts, § 8:165
- University of Massachusetts, Amherst
 - Center for Hierarchical Manufacturing, § 2:117
 - Materials Research Science and Engineering Center on Polymers, § 2:147

MATERIALS IN THE WORKPLACE

- Generally, §§ 1:22, 6:1 et seq.
- Background, § 6:1
- Critical research areas. 2008 NIOSH strategic plan, below
- Ethical and scientific issues, § 6:3
- Exposure control procedures. 2006 NIOSH “Approaches to Safe Technology” document, below
- Guidelines for working with engineered nanoparticles. 2006 NIOSH “Approaches to Safe Technology” document, below
- Health effects, pros and cons, § 6:2
- Medical screening, 2007 NIOSH interim guidance, § 6:50
- National Institute for Occupational Safety and Health (NIOSH)
 - generally, § 6:4
 - field studies, § 6:54
 - health and safety research, § 6:52

INDEX

MATERIALS IN THE WORKPLACE—Cont'd

- National Institute for Occupational Safety and Health (NIOSH)
 - Cont'd
 - nanoparticle information library, § 6:53
 - 2005 NIOSH TiO₂ exposure recommendation, § 6:49
 - 2006 NIOSH “Approaches to Safe Technology” document, below
 - 2007 NIOSH interim guidance for medical screening, § 6:50
 - 2007 NIOSH progress document, below
 - 2008 NIOSH strategic plan, below
 - 2008 NIOSH workplace brochure, § 6:51
- Research and guidance goals.
 - 2008 NIOSH strategic plan, below
- 2005 NIOSH TiO₂ exposure recommendation, § 6:49
- 2006 NIOSH “Approaches to Safe Technology” document
 - generally, § 6:5
 - critical research topics, § 6:20
 - descriptions and definitions, § 6:6
 - exposure assessment and characterization, § 6:12
 - exposure control procedures generally, § 6:13
 - cleanup and disposal of nanomaterials, § 6:18
 - engineering controls, § 6:14
 - personal protective clothing, § 6:16
 - respirators, § 6:17
 - work practices, § 6:15
 - guidelines for working with engineered nanoparticles generally, § 6:9

MATERIALS IN THE WORKPLACE—Cont'd

- 2006 NIOSH “Approaches to Safe Technology” document
 - Cont'd
 - guidelines for working with engineered nanoparticles
 - Cont'd
 - factors affecting exposure to nanoparticles, § 6:11
 - potential for occupational exposure, § 6:10
 - hypotheses from animal and epidemiological studies, § 6:8
 - occupational health surveillance, § 6:19
 - potential health concerns, § 6:7
- 2007 NIOSH progress document
 - generally, § 6:21
 - applications, § 6:31
 - communication and education, § 6:30
 - engineering controls and personal protective equipment, § 6:25
 - epidemiology and surveillance, § 6:24
 - exposure assessment, § 6:27
 - fire and explosion safety, § 6:28
 - measurement methods, § 6:26
 - recommendations and guidance, § 6:29
 - risk assessment, § 6:23
 - toxicity and internal dose, § 6:22
- 2008 NIOSH strategic plan
 - generally, § 6:32
 - critical research areas
 - generally, § 6:38
 - applications, § 6:48
 - communication and information, § 6:47
 - engineering controls and personal protective

**MATERIALS IN THE
WORKPLACE—Cont'd**

- 2008 NIOSH strategic plan
—Cont'd
 - critical research areas—Cont'd
 - equipment, § 6:44
 - epidemiology and surveillance, § 6:41
 - exposure assessment, § 6:39
 - fire and explosion safety, § 6:45
 - measurement methods, § 6:43
 - recommendations and guidance, § 6:46
 - risk assessment, § 6:42
 - toxicity and internal dose, § 6:40
 - research and guidance goals generally, § 6:33
 - collaboration, § 6:37
 - nano-applications, § 6:35
 - nanomaterial risk research, § 6:34
 - workplace interventions and recommendations, § 6:36
- 2008 NIOSH workplace brochure, § 6:51

**MATERIALS RESEARCH
SCIENCE AND
ENGINEERING CENTERS**

- Generally, § 2:131
- Center for Advanced Materials Research (Brown University), § 2:136
- Center for Materials Information Technology Chicago Materials Research Center (University of Chicago), § 2:145
- Center for Materials Information Technology Materials Research Laboratory (University of California,

**MATERIALS RESEARCH
SCIENCE AND
ENGINEERING CENTERS
—Cont'd**

- Santa Barbara), § 2:144
- Center for Materials Research (Cornell University), § 2:139
- Center for Materials Science and Engineering (Massachusetts Institute of Technology), § 2:140
- Center for Nanoscale Science (Pennsylvania State University), § 2:132
- Center for Nanoscopic Materials Design (University of Virginia), § 2:151
- Center for Nanostructured Materials (Columbia University), § 2:138
- Center for Polymer Interfaces and Macromolecular Assemblies (Stanford University), § 2:143
- Center for Quantum and Spin Phenomena in Nanomagnetic Structures (University of Nebraska, Lincoln), § 2:133
- Center for Research on Interface Structure and Phenomena (Yale University), § 2:134
- Center for Science and Engineering of Nanomaterials (California Institute of Technology), § 2:137
- Center for Semiconductor Physics in Nanostructures (University of Arkansas, University of Oklahoma), § 2:149
- Center for Sensor Materials (Michigan State University), § 2:141
- Genetically Engineered Materials (University of Washington), § 2:135
- Materials Research Science and Engineering Center on

INDEX

MATERIALS RESEARCH SCIENCE AND ENGINEERING CENTERS

—Cont'd

- Polymers (University of Massachusetts, Amherst), § 2:147
- Materials Research Science and Engineering Center (University of Maryland), § 2:146
- Materials Research Science and Engineering Center (University of Minnesota), § 2:148
- National Science Foundation (NSF), generally, §§ 2:131-2:151
- Princeton Center for Complex Materials (Princeton University), § 2:142
- The Laboratory for Research on the Structure of Matter (University of Pennsylvania), § 2:150

MEDICAL APPLICATIONS

- Alliance for Nanomedical Technologies (Cornell University), § 8:210
- BSI British Standards (BSI) PAS 131:2007, terminology for medical, health, and personal care applications of nanotechnology generally, §§ 9:15, 9:16
- molecular entities, § 9:17
- nanosystems, § 9:19
- structural entities, § 9:18
- Center for Affordable Nanoengineering of Polymeric Biomedical Devices (Ohio State University), § 2:127
- Food and drug regulatory issues, § 5:53
- Materials in the workplace, 2007 NIOSH interim guidance for

MEDICAL APPLICATIONS

—Cont'd

- medical screening, § 6:50
- Purdue University, Phi29 DNA-Packaging Motor for Nanomedicine, §§ 2:173, 8:140

MEMBERSHIP

- National Nanotechnology Initiative (NNI), § 2:2

METAL AND METAL-OXIDE BASED ENGINEERED NANOSCALE MATERIALS

- Environmental, health, and safety (EHS) concerns, generally, § 3:16
- Iron oxide, § 3:24
- Other metal and metal-oxide based nanoscale materials, § 3:25
- Silver
 - generally, § 3:17
 - nanosilver, particle shape, § 3:20
 - nanosilver, particle size, § 3:21
 - nanosilver, U.S. Environmental Protection Agency citizen's petition, § 3:19
 - silver background, § 3:18
- Titanium dioxide, § 3:22
- Zinc oxide, § 3:23

MICHIGAN

- Generally, § 8:166
- Michigan Code, § 8:167
- Michigan State University
 - Center for Sensor Materials, § 2:141
 - FDA Nanotechnology Task Force 2006 public meeting, general policy session, § 5:19
 - standards workshop, § 9:82
 - state development and regulation, § 8:168

MICHIGAN—Cont'd

- State development and regulation, §§ 8:31, 8:166-8:171
- University of Michigan
 - FDA Nanotechnology Task Force 2006 public meeting, general policy session, § 5:22
 - state development and regulation, § 8:169
- Wayne State University, § 8:170
- Western Michigan University, § 8:171

MICROSCOPIC PLANTS AND ANIMALS

- Environmental, health, and safety (ehs) concerns, § 3:43

MID-ATLANTIC NANOTECHNOLOGY ALLIANCE

- Regional initiatives, § 8:26

MINNESOTA

- Generally, § 8:172
- Center for NanoEnergetics Research, § 8:174
- Center for Nanostructure Applications, § 8:175
- Minnesota Nanotechnology Cluster, § 8:176
- Minnesota Research Science and Engineering Center, § 8:179
- Nanobiotechnology Initiative, § 8:178
- Nanofabrication Center, § 8:177
- State development and regulation, §§ 8:31, 8:172-8:179
- University of Minnesota, Materials Research Science and Engineering Center, § 2:148

MISSOURI

- Generally, § 8:180
- State development and regulation, §§ 8:31, 8:180-8:182

MISSOURI—Cont'd

- University of Missouri, § 8:181
- Washington University
 - Nanotechnology Characterization Laboratory, § 2:166
 - state development and regulation, § 8:182
- The Siteman Center of Cancer Nanotechnology Excellence, § 2:179

MOFFETT FIELD

- Ames Center for Nanotechnology, § 2:195

MONTANA

- State development and regulation, §§ 8:31, 8:183

MUNICIPAL DEVELOPMENT AND REGULATION

- Generally, §§ 1:24, 8:1 et seq.
- Berkeley, California
 - generally, § 8:1
 - additional criticism, § 8:12
 - disclosure guidelines
 - generally, § 8:7
 - confidentiality, § 8:11
 - control banding, § 8:9
 - costs, § 8:10
 - toxicology reporting requirements, § 8:8
 - existing literature, § 8:2
 - hazardous materials management program, § 8:4
 - labeling as “hazardous material,” § 8:6
 - safe harbor, § 8:3
 - triggering quantity, § 8:5
- Cambridge, Massachusetts
 - generally, § 8:13
 - business development, § 8:15
 - existing companies, § 8:14
 - Nanotechnology Advisory Committee (NAC), § 8:16

INDEX

MUNICIPAL DEVELOPMENT AND REGULATION

—Cont'd

Cambridge, Massachusetts

—Cont'd

Report to City Council

generally, § 8:17

regulation inappropriate,

§ 8:20

scope of report, § 8:19

specific recommendations,

§ 8:21

unknown risks, § 8:18

MUNICIPAL DEVELOPMENT AND RESEARCH

National Nanotechnology Initiative (NNI) workshop reports,
§ 2:43

NANOBIOTECHNOLOGY

National Nanotechnology Initiative (NNI) workshop reports,
§ 2:41

NANOBUSINESS ALLIANCE

Regional initiatives, § 8:27

NANOSCALE MATERIALS STEWARDSHIP PROGRAM (NMSP)

Toxic Substances Control Act
(TSCA) (this index)

NANOSCALE SCIENCE AND ENGINEERING CENTERS

Generally, § 2:116

Center for Affordable

Nanoengineering of
Polymeric Biomedical
Devices (Ohio State
University), § 2:127

Center for Biological and
Environmental Nanotechnol-
ogy (Rice University),
§ 2:119

Center for Chemical-Electrical-
Mechanical Manufacturing

NANOSCALE SCIENCE AND ENGINEERING CENTERS

—Cont'd

Systems (University of Illi-
nois, Urbana-Champaign),
§ 2:124

Center for Directed Assembly of
Nanostructures (Rensselaer
Polytechnic Institute),
§ 2:122

Center for Electron Transport in
Molecular Nanostructures
(Columbia University),
§ 2:121

Center for Hierarchical
Manufacturing (University of
Massachusetts-Amherst),
§ 2:117

Center for High Rate
Nanomanufacturing
(Northeastern University),
§ 2:130

Center for Integrated Nanopattern-
ing and Detection
(Northwestern University),
§ 2:120

Center for Probing the Nanoscale
(Stanford University),
§ 2:126

Center for Scalable and Integrated
Nano-Manufacturing
(University of California, Los
Angeles), § 2:123

Center of Integrated
Nanomechanical Systems
(University of California,
Berkeley), § 2:128

Center on Templated Synthesis
and Assembly at the
Nanoscale (University of
Wisconsin), § 2:125

Nano-Bio Interface Center
(University of Pennsylvania),
§ 2:129

National Science Foundation
(NSF), generally, §§ 2:116-
2:130

**NANOSCALE SCIENCE AND
ENGINEERING CENTERS**

—Cont'd

Science of Nanoscale Systems and
Their Device Applications
(Harvard University), § 2:118

**NANOSCALE SCIENCE AND
ENGINEERING NETWORK**

Generally, § 2:152

**NANOSCALE SCIENCE AND
ENGINEERING
NETWORKS**

Generally, § 2:152

Center for Nanotechnology in
Society

generally, § 2:157

Arizona State University,
§ 2:158

University of California, Santa
Barbara, § 2:159

Nanoscale Informal Science
Education Network, § 2:156

National Nanotechnology
Infrastructure Network
(NNIN), § 2:154

National Science Foundation
(NSF), generally, §§ 2:152-
2:159

Network for Computational
Nanotechnology (Purdue
University), § 2:153

Oklahoma Network for
Nanostructured Materials,
§ 2:155

**NANOSCALE SCIENCE
RESEARCH CENTERS**

Generally, § 2:102

Center for Integrated
Nanotechnologies (Los
Alamos and Sandia National
Laboratories), § 2:105

Center for Nanophase Materials
Sciences (Oak Ridge

**NANOSCALE SCIENCE
RESEARCH CENTERS**

—Cont'd

National Laboratory),
§ 2:107

Center for Nanoscale Materials
(Argonne National Labora-
tory), § 2:103

Federal nanotechnology research
and development efforts,
Department of Energy,
§§ 2:102-2:107

Molecular Foundry (Lawrence
Berkeley National Labora-
tory), § 2:104

**NANOSCIENCE AND
TECHNOLOGY INSTITUTE**

Regional initiatives, § 8:28

**NANOSCIENCE RESEARCH
FOR ENERGY NEEDS**

National Nanotechnology Initia-
tive (NNI) workshop reports,
§ 2:42

NANOSILVER SOCKS

Environmental, health, and safety
(EHS) concerns,
unintentional releases from
consumer products, § 3:42

**NANOTECHNOLOGY-SPECIFIC
REGULATION**

Generally, § 1:17

**NANOTECHNOLOGY
STANDARDS AND
NOMENCLATURE**

Generally, § 9:1 et seq.

Importance of standards and
nomenclature, § 9:1

**NATIONAL AERONAUTICS
AND SPACE
ADMINISTRATION (NASA)**

Generally, §§ 2:191-2:197

INDEX

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA) —Cont'd

- Ames Center for Nanotechnology
(Moffett Field, California),
§ 2:195
- Biologically Inspired Materials
Institute (Princeton
University), § 2:193
- Federal nanotechnology research
and development efforts, gen-
erally, §§ 2:191-2:197
- Glenn Research Center
(Cleveland, Ohio), § 2:197
- Institute for Intelligent Bio-Nano
Materials and Structures for
Aerospace Vehicles (Texas
A&M University), § 2:192
- Institute for Nanoelectronics and
Computing (Purdue
University), § 2:194
- Space Elevator (Marshall Space
Flight Center), § 2:196

NATIONAL CANCER INSTITUTE (NCI)

- Nanotechnology Characterization
Laboratory, § 2:165

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

- Materials in the Workplace** (this
index)

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

- Generally, §§ 2:90-2:93, 9:67
- Center for Nanoscale Science and
Technology (CNST)
generally, § 9:68
- Department of Commerce,
§ 2:92
- nanomaterials characterization,
§ 9:69

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST) —Cont'd

- Center for Nanoscale Science and
Technology (CNST)
—Cont'd
- reference materials, § 9:70
- Department of Commerce (DOC),
§§ 2:90-2:93
- Federal nanotechnology research
and development efforts, gen-
erally, §§ 2:90-2:93
- National Technical Information
Service (NTIS), § 2:93
- 2006 report, § 2:91

NATIONAL INSTITUTES OF HEALTH

- Generally, § 2:164
- Carolina Center of Cancer
Nanotechnology Excellence
(University of North Caro-
lina), § 2:181
- Center for Cancer Nanotechnol-
ogy Focused on Therapy
Response (Stanford
University), § 2:182
- Center for Cell Control (NDC)
(University of California, Los
Angeles), § 2:172
- Center for Protein Folding
Machinery (Baylor
University), § 2:176
- Center for the Optical Control of
Biological Functions
(University of California,
Berkeley), § 2:171
- Center of Cancer Nanotechnology
Excellence (MIT-Harvard),
§ 2:170
- Center of Cancer Nanotechnology
Excellence (Northwestern
University), § 2:183
- Center of Nanotechnology for
Treatment, Understanding,
and Monitoring of Cancer

NATIONAL INSTITUTES OF HEALTH—Cont'd

- (NANO-TUMOR)
(University of California, San Diego), § **2:180**
- Department of Health and Human Services (DHHS), generally, §§ **2:164-2:184**
- Engineering Cellular Control: Synthetic Signaling and Motility Systems (University of California, San Francisco), § **2:178**
- Nanomedicine Center for Nucleoprotein Machines (Georgia Institute of Technology), § **2:174**
- Nanosystems Biology Cancer Center (California Institute of Technology), § **2:184**
- Nanotechnology: detection and analysis of plaque formation (Emory University; Georgia Tech.), § **2:167**
- Nanotechnology Center for Mechanics in Regenerative Medicine (Columbia University), § **2:177**
- Nanotechnology Characterization Laboratory (Washington University), § **2:166**
- Nanotherapy for Vulnerable Plaque (Burnham Institute), § **2:168**
- National Cancer Institute (NCI)-Nanotechnology Characterization Laboratory, § **2:165**
- National Center for Design of Biomimetic Nanoconductors (University of Illinois, Urbana-Champaign), § **2:175**
- Phi29 DNA-Packaging Motor for Nanomedicine (Purdue University), § **2:173**
- The Siteman Center of Cancer Nanotechnology Excellence

NATIONAL INSTITUTES OF HEALTH—Cont'd

- (Washington University), § **2:179**
 - Translational Program for Excellence in Nanotechnology (Massachusetts General Hospital), § **2:169**
- NATIONAL NANOTECHNOLOGY INITIATIVE (NNI)**
- Generally, §§ **1:18, 2:1 et seq.**
 - Approach to environmental, health, and safety (EHS), review by President's Council of Advisors on Science and Technology (PCAST), § **2:45**
 - Background
 - generally, § **2:12**
 - Interagency Working Group on Nanotechnology (IWGN), §§ **2:13, 2:14**
 - vision report, Interagency Working Group on Nanotechnology (IWGN), § **2:14**
 - worldwide study, Interagency Working Group on Nanotechnology (IWGN), § **2:13**
 - Budget and funding
 - generally, § **2:65**
 - FY 1997 federal nanotechnology funding, § **2:66**
 - FY 1998 federal nanotechnology funding, § **2:67**
 - FY 1999 federal nanotechnology funding, § **2:68**
 - FY 2000 federal nanotechnology funding, § **2:69**
 - FY 2001 federal nanotechnology funding, § **2:70**
 - FY 2002 federal nanotechnology funding, § **2:71**

INDEX

NATIONAL

NANOTECHNOLOGY

INITIATIVE (NNI)—Cont'd

Budget and funding—Cont'd

FY 2003 federal nanotechnology funding, § 2:72

FY 2004 federal nanotechnology funding, § 2:73

FY 2005 federal nanotechnology funding, § 2:74

FY 2006 federal nanotechnology funding

generally, § 2:75

allocation, § 2:76

Government Accountability

Office audit, § 2:77

FY 2007 federal nanotechnology funding

generally, § 2:78

allocation, § 2:79

environmental, health, and safety (EHS)

expenditures, § 2:80

FY 2008 federal nanotechnology funding

generally, § 2:81

allocation, § 2:82

environmental, health, and safety (EHS)

expenditures, § 2:83

FY 2009 federal nanotechnology funding

generally, § 2:84

allocation, § 2:85

environmental, health, and safety expenditures,

§ 2:86

Communication, 2006 NNI EHS needs document, § 2:56

Consumer issues, 2006 NNI EHS needs document, § 2:54

Coordinating hub, § 2:3

End-of-life issues, 2006 NNI EHS needs document, § 2:55

NATIONAL

NANOTECHNOLOGY

INITIATIVE (NNI)—Cont'd

Energy needs, NNI workshop reports on nanoscience research, § 2:42

Environmental, Health, and Safety (EHS) (this index)

Funding. Budget and funding, above

Gap analysis, 2007 NNI EHS prioritization document, § 2:63

Global Issues in Nanotechnology (GIN) working group, § 2:8

Instrumentation, metrology, and analytical methods, 2007 NNI EHS prioritization document, § 2:58

Interaction with biological systems, 2006 NNI EHS needs document, § 2:48

Interagency Working Group on Nanotechnology (IWGN) vision report, § 2:14

worldwide study, § 2:13

Life-cycle analysis, 2006 NNI EHS needs document, § 2:50

Local initiatives in nanotechnology, NNI workshop reports, § 2:43

Manufacturing

Nanomanufacturing Industry Liaison and Innovation (NILI) working group, § 2:7

Nanomanufacturing Public Engagement and Communications working group, § 2:9

NNI workshop reports, manufacturing at the nanoscale, § 2:28

Membership, § 2:2

Nanobiotechnology, NNI workshop reports, § 2:41

NATIONAL

NANOTECHNOLOGY

INITIATIVE (NNI)—Cont'd

- Nanomanufacturing Industry Liaison and Innovation (NILI) working group, § 2:7
- Nanomanufacturing Public Engagement and Communications working group, § 2:9
- Nanoscale Science, Engineering and Technology Subcommittee (NSET), § 2:5
- Nanoscience research for energy needs, NNI workshop reports, § 2:42
- Nanotechnology: Societal Implications. Societal implications, below
- Nanotechnology Environmental and Health Implications (NEHI) working group, § 2:6
- National Nanotechnology Coordination Office (NNCO), § 2:10
- National Nanotechnology Initiative (NNI) workshop reports. Workshop reports, below
- National Science and Technology Council (NSTC) generally, § 2:4
- Global Issues in Nanotechnology (GIN) working group, § 2:8
- Nanomanufacturing Industry Liaison and Innovation (NILI) working group, § 2:7
- Nanomanufacturing Public Engagement and Communications working group, § 2:9
- Nanoscale Science, Engineering and Technology Subcommittee (NSET), § 2:5
- Nanotechnology Environmental and Health Implications

NATIONAL

NANOTECHNOLOGY

INITIATIVE (NNI)—Cont'd

- National Science and Technology Council (NSTC)—Cont'd (NEHI) working group, § 2:6
- Oversight generally, § 2:1
- National Science and Technology Council (NSTC), above
- President Clinton's adoption of National Nanotechnology Initiative's (NNI), § 2:15
- President's Council of Advisors on Science and Technology (PCAST), review of NNI, § 2:11
- Risk management methods, 2007 NNI EHS prioritization document, § 2:62
- Risk mitigation formula, 2006 NNI EHS needs document, § 2:49
- Space exploration, NNI workshop reports, § 2:30
- Strategy document, 2008 NNI EHS, § 2:64
- Structure, § 2:1
- The 21st Century Nanotechnology Research and Development Act generally, § 2:16
- Section one, § 2:17
- Section two, § 2:18
- Section three, § 2:19
- Section four, § 2:20
- Section five, § 2:21
- Section six, § 2:22
- Section seven, § 2:23
- Section eight, § 2:24
- Section nine, § 2:25
- Section ten, § 2:26

INDEX

NATIONAL

NANOTECHNOLOGY

INITIATIVE (NNI)—Cont'd

- 2006 NNI EHS needs document
 - generally, § 2:47
 - adequacy of existing data, § 2:52
 - communication, § 2:56
 - consumer issues, § 2:54
 - end-of-life issues, § 2:55
 - environmental research needs, § 2:53
 - interaction with biological systems, § 2:48
 - life-cycle analysis, § 2:50
 - next steps, § 2:51
 - risk mitigation formula, § 2:49
- 2007 NNI EHS prioritization document
 - generally, § 2:57
 - gap analysis, § 2:63
 - health and environmental exposure assessment, § 2:61
 - instrumentation, metrology, and analytical methods, § 2:58
 - nanomaterials and human health, § 2:59
 - nanomaterials and the environment, § 2:60
 - risk management methods, § 2:62
- 2008 NNI EHS strategy document, § 2:64
- Workshop reports
 - generally, § 2:27
 - environmental, health, and safety (EHS), § 2:29
 - local initiatives in nanotechnology, § 2:43
 - manufacturing at the nanoscale, § 2:28
 - nanobiotechnology, § 2:41
 - nanoscience research for energy needs, § 2:42

NATIONAL

NANOTECHNOLOGY

INITIATIVE (NNI)—Cont'd

- Workshop reports—Cont'd
 - nanotechnology and the environment, § 2:29
 - nanotechnology in space exploration, § 2:30
 - nanotechnology instrumentation and metrology, § 2:31
 - regional initiatives in nanotechnology, § 2:43
 - societal implications
 - generally, § 2:32
 - converging technologies, § 2:37
 - ethics, governance, risk, and uncertainty, § 2:39
 - future economic scenarios, § 2:34
 - future social scenarios, § 2:36
 - national security and space exploration, § 2:38
 - productivity and equity, § 2:33
 - public policy, legal, and international aspects, § 2:40
 - quality of life, § 2:35
 - state initiatives in nanotechnology, § 2:43

NATIONAL SCIENCE AND TECHNOLOGY COUNCIL (NSTC)

National Nanotechnology Initiative (NNI) (this index)

NATIONAL SCIENCE FOUNDATION (NSF)

- Generally, § 2:113
- Center for Learning and Teaching, National Center for Learning and Teaching in Nanoscale Science and Engineering

**NATIONAL SCIENCE
FOUNDATION (NSF)**

—**Cont'd**
(Northwestern University),
§ 2:160

Engineering Research Center,
Center for Extreme
Ultraviolet Science and
Technology (Colorado State
University), **§ 2:114**

**Materials Research Science and
Engineering Centers** (this
index)

**Nanoscale Science and
Engineering Centers** (this
index)

**Nanoscale Science and
Engineering Networks** (this
index)

Science and Technology Center,
Nanobiotechnology Center
(Cornell University), **§ 2:115**

Science and Technology Centers
(this index)

**NATURAL RESOURCES
DEFENSE COUNCIL**

Consumer product labeling, **§ 7:22**

Consumer products and insurance
issues

consumer product labeling,
§ 7:22

framework, **§ 7:51**

NEBRASKA

Center for Quantum and Spin Phenomena in Nanomagnetic Structures, **§ 2:133**

State development and regulation,
§§ 8:31, 8:184, 8:185

University of Nebraska, Lincoln,
Center for Quantum and Spin
Phenomena in Nanomagnetic
Structures, **§ 2:133**

NEVADA

State development and regulation,
§§ 8:31, 8:186

NEW HAMPSHIRE

Generally, **§ 8:187**

Dartmouth College, **§ 8:189**

State development and regulation,
§§ 8:31, 8:187-8:189

The University of New
Hampshire, **§ 8:188**

NEW JERSEY

Generally, **§ 8:190**

Greater Garden State
Nanotechnology Alliance,
§ 8:191

New Jersey Code, **§ 8:192**

New Jersey Nanotechnology
Consortium, **§ 8:193**

Princeton University
Biologically Inspired Materials
Institute, **§ 2:193**

Princeton Center for Complex
Materials, **§ 2:142**

state development and regula-
tion, **§ 8:194**

Rutgers University
generally, **§ 8:195**

Bio-Nano Robotics, **§ 8:197**

Institute for Advanced Materi-
als, Devices, and
Nanotechnology, **§ 8:201**

Laboratory for Nanostructured
Materials Research,
§ 8:198

Nano-Fabrication Facility,
§ 8:200

Nanomaterials Science and
Engineering Initiative,
§ 8:199

NJNanoRU, **§ 8:196**

State development and regulation,
§§ 8:31, 8:190-8:201

NEW MEXICO

Generally, **§ 8:202**

Micro and Nanotechnology Com-
mercialization Education
Foundation, **§ 8:203**

INDEX

NEW MEXICO—Cont'd

- New Mexico State University,
§ 8:204
- State development and regulation,
§§ 8:31, 8:202-8:205
- University of New Mexico,
§ 8:205

NEW YORK

- Generally, § 8:206
- Clarkson University, § 8:207
- Columbia University
 - Center for Electron Transport in
Molecular Nanostructures,
§ 2:121
 - Center for Nanostructured
Materials, § 2:138
 - Nanotechnology Center for
Mechanics in Regenerative
Medicine, § 2:177
 - state development and regula-
tion, § 8:208
- Cornell University
 - additional federally funded
activities at Cornell,
§ 8:213
 - Alliance for Nanomedical
Technologies, § 8:210
 - Center for Materials Research,
§ 2:139
 - Nanophotonics Group, § 8:211
 - NanoScale Science and
Technology Facility,
§ 8:212
 - National Science Foundation
(NSF), §§ 2:115, 2:139
 - Science and Technology Center,
Nanobiotechnology
Center, § 2:115
 - state development and regula-
tion, § 8:209
- New York Code, § 8:214
- Rensselaer Polytechnic Institute
 - Center for Directed Assembly
of Nanostructures, § 2:122

NEW YORK—Cont'd

- Rensselaer Polytechnic Institute
 - Cont'd
 - state development and regula-
tion, § 8:215
- Rochester Institute of Technology,
§ 8:216
- State development and regulation,
§§ 8:31, 8:206-8:218
- State University of New York,
§ 8:218
- Stevens Institute of Technology,
§ 8:217

1994 RETROSPECTIVE

- Generally, § 1:9
- Four developmental stages of
nanotechnology, § 1:10
- Insufficiency of existing laws,
§ 1:11
- Lack of regulatory resources,
§ 1:14
- Potential public fear and backlash,
§ 1:15
- Regulatory tightrope, § 1:12
- Time flies, § 1:16
- Twin dangers, § 1:13

NOMENCLATURE

- Standards and Nomenclature**
(this index)

NONOBVIOUSNESS

- Patents** (this index)

NORTH CAROLINA

- Carolina Center of Cancer
Nanotechnology Excellence,
§ 8:220
- Department of Commerce, E-Nc
Initiative, § 8:221
- Duke University, § 8:222
- Generally, § 8:219
- North Carolina Agricultural and
Technical State University,
Greensboro, § 8:223

NANOTECHNOLOGY LAW

NORTH CAROLINA—Cont'd

- North Carolina State University generally, § 8:224
- Nano State, § 8:226
- Nanoscale Quantum Engineering Group, § 8:227
- Nanoscale Science Education Research Group, § 8:228
- Nanoscale Tribology Laboratory, § 8:229
- Nanoscience, Nanomaterials and Nanotechnology Research Group, § 8:230
- North Carolina State University Nanofabrication Facility, § 8:225
- State development and regulation, §§ 8:31, 8:219-8:236
- University of North Carolina generally, § 8:231
- Carolina Center of Cancer Nanotechnology Excellence, § 2:181
- Center for Nanoscale Materials, § 8:234
- Center of Cancer Nanotechnology Excellence, § 8:235
- Center of Research Excellence in Nanobiosciences, § 8:232
- Institute for Advanced Materials, Nanoscience and Technology, § 8:233
- Wake Forest University, § 8:236

**NORTHCENTRAL STATES
NANOSYSTEMS
CONSORTIUM**

- Regional initiatives, § 8:29

NORTH DAKOTA

- Generally, § 8:237
- North Dakota State College of Science, § 8:239
- North Dakota State University, § 8:238

NORTH DAKOTA—Cont'd

- State development and regulation, §§ 8:31, 8:237-8:239

**NORTHWEST NANOSCIENCE
AND NANOTECHNOLOGY
NETWORK**

- Regional initiatives, § 8:30

NOVEL PROPERTIES

- Generally, § 1:2
- Dilemma, § 1:3

**NUCLEAR REGULATORY
COMMISSION**

- Federal nanotechnology research and development efforts, § 2:189

**OAK RIDGE NATIONAL
LABORATORY**

- Center for Nanophase Materials Sciences, § 2:107

**OFFICE OF ENERGY
EFFICIENCY AND
RENEWABLE ENERGY
(EERE)**

- Federal nanotechnology research and development efforts, Department of Energy, § 2:101

OFFICE OF FOSSIL ENERGY

- Federal nanotechnology research and development efforts, Department of Energy, § 2:100

OFFICE OF SCIENCE

- Federal nanotechnology research and development efforts, Department of Energy, § 2:99

OHIO

- Generally, § 8:240
- Cleveland, Ohio, Glenn Research Center, § 2:197

INDEX

OHIO—Cont'd

- Miami University, § 8:241
- Nano-Network, § 8:242
- Ohio State University
 - generally, § 8:243
 - additional federally funded activities at Ohio State University, § 8:247
- Center for Affordable Nanoengineering of Polymeric Biomedical Devices, § 2:127
- Center for Multifunctional Polymer Nano Devices, § 8:244
- Nanoprobe Laboratory for Bio- and Nanotechnology & Biomimetics, § 8:246
- Nanotech West Laboratory, § 8:245
- Ohio University, § 8:248
- State development and regulation, §§ 8:31, 8:240-8:250
- University of Akron, § 8:249
- University of Cincinnati, § 8:250

OKLAHOMA

- Generally, § 8:251
- Nanoscale Science and Engineering Network, Oklahoma Network for Nanostructured Materials, § 2:155
- Oklahoma Code, § 8:252
- Oklahoma Nanotechnology Initiative, § 8:253
- Oklahoma Network for Nanostructured Materials, § 8:254
- State development and regulation, §§ 8:31, 8:251-8:255
- University of Oklahoma, § 8:255
 - Center for Semiconductor Physics in Nanostructures, § 2:149

OREGON

- Generally, § 8:256

OREGON—Cont'd

- Oregon Nano-Micro Interface Institute, § 8:257
- Oregon State University
 - FDA Nanotechnology Task Force 2006 public meeting, general policy session, § 5:20
- Portland State University, § 8:258
- University of Oregon, § 8:259

ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD)

- Generally, § 9:71
- Working Party on Manufactured Nanomaterials (WPMN)
 - generally, § 9:73
 - nanomaterials testing program phase one, § 9:79
 - sponsorship, § 9:80
 - 2005 Workshop report, § 9:74
 - 2006-2008 Work program, § 9:78
 - 2006 London report, § 9:75
 - 2007 Berlin report, § 9:76
 - 2007 Paris report, § 9:77
- Working Party on Nanotechnology (WPN), § 9:72

PATENTS

- Generally, § 10:4
- Applications
 - generally, § 10:27
 - best mode, § 10:30
 - enablement, § 10:29
 - written description, § 10:28
- Best mode, § 10:30
- Enablement, § 10:29
- Infringement
 - generally, § 10:32
 - Elan v. Abraxys, § 10:34
 - MTS Systems Corp. v. Hysitron, Inc., § 10:33
- Licensing, § 10:35

PATENTS—Cont'd

- Licensing disputes
 - Nano-Proprietary v. Canon, Inc., § 10:36
 - Nano-Proprietary v. Keesman, § 10:37
- Nano-intellectual property landscape, §§ 10:4, 10:24-10:37
- Nano-patent thicket, § 10:12
- Patentability
 - generally, § 10:24
 - nonobviousness
 - generally, § 10:25
 - size reduction, § 10:26
- Priorities, § 10:31
- Trade secrets v. patents, § 10:42
- United States Patent and Trademark Office (USPTO)
 - patent classification system, § 10:18
- U.S. Patent and Trademark Office (USPTO), § 2:112
- Written description, § 10:28

PENNSYLVANIA

- Generally, § 8:260
- Ben Franklin Technology Partners, § 8:261
- Carnegie Mellon University, § 8:262
- Drexel University, § 8:263
- Haverford College, § 8:264
- Lehigh University, § 8:265
- Nanotechnology Institute, § 8:266
- Pennsylvania Initiative for Nanotechnology, § 8:267
- Pennsylvania Nanofabrication Manufacturing Technology Partnership, § 8:269
- Pennsylvania NanoMaterials Commercialization Center, § 8:268
- Pennsylvania State University
 - Center for Molecular Nanofabrication and Devices, § 8:272

PENNSYLVANIA—Cont'd

- Pennsylvania State University
 - Cont'd
 - Center for Nanoscale Science, §§ 2:132, 8:276
 - Center for Nanotechnology Education and Utilization, § 8:273
 - Nanofabrication Facility, § 8:274
 - nanoPenn State, § 8:271
 - Pennsylvania State Advanced Materials and Nanotechnology Research and Commercialization Program, § 8:275
 - state development and regulation, generally, § 8:270
 - Pennsylvania Workforce Development Act, § 8:281
 - State development and regulation, §§ 8:31, 8:260-8:281
 - University of Pennsylvania
 - Nanoscale Science and Engineering Centers, Nano-Bio Interface Center, § 2:129
 - state development and regulation, § 8:277
 - The Laboratory for Research on the Structure of Matter, § 2:150
 - University of Pittsburgh
 - generally, § 8:278
 - NanoRobotics and Molecular Recognition Laboratory, § 8:280
 - Peterson Institute of Nanoscience and Engineering, § 8:279

PRESIDENT CLINTON

- Adoption of National Nanotechnology Initiative's (NNI), § 2:15

INDEX

PRESIDENT'S COUNCIL OF ADVISORS ON SCIENCE AND TECHNOLOGY (PCAST)

- Approach of NNI to environmental, health, and safety concerns, review, § 2:45
- FDA Nanotechnology Task Force 2006 public meeting, general policy session, § 5:13
- Review of National Nanotechnology Initiative (NNI), § 2:11

PRIORITIES

- Patent priorities, § 10:31

PROJECT ON EMERGING NANOTECHNOLOGIES (PEN)

- Consumer product labeling, § 7:23
- Consumer Product Safety Commission (CPSC)
 - generally, § 7:10
 - criticism of Consumer Product Safety Commission (CPSC), suggested new federal efforts, § 7:14
 - generic weaknesses, § 7:11
 - recommendations for Congress, § 7:13
 - recommendations for CPSC, § 7:12
- Consumer products and insurance issues
 - generally, § 7:7
 - consumer product inventory description, § 7:8
 - potential misuse, § 7:9
- Consumer Product Safety Commission
 - generally, § 7:10
 - criticism of Consumer Product Safety Commission (CPSC), suggested new federal efforts, § 7:12

PROJECT ON EMERGING NANOTECHNOLOGIES (PEN)—Cont'd

- Consumer products and insurance issues—Cont'd
- Consumer Product Safety Commission—Cont'd
 - generic weaknesses, § 7:11
 - recommendations for Congress, § 7:13
 - recommendations for CPSC, § 7:12
 - criticism of Consumer Product Safety Commission (CPSC), suggested new federal efforts, § 7:14
 - public awareness polls, § 7:27
 - public risk perception study, § 7:29
 - 2005 public awareness survey, § 7:28
 - 2008 public awareness survey, § 7:30

PUERTO RICO

- Generally, § 8:282
- Puerto Rico Code, § 8:283
- State development and regulation, §§ 8:31, 8:282-8:284
- University of Puerto Rico, § 8:284

QUANTUM DOTS

- Dermal exposure routes, § 3:35
- Nanomaterial type, § 3:26

REGIONAL INITIATIVES

- Generally, §§ 1:24, 8:22 et seq.
- Center for Responsible Nanotechnology, § 8:23
- International Association of Nanotechnology, § 8:24
- International Council on Nanotechnology, § 8:25
- Mid-Atlantic Nanotechnology Alliance, § 8:26
- NanoBusiness Alliance, § 8:27

REGIONAL INITIATIVES

—**Cont'd**

- NanoScience and Technology Institute, § 8:28
- National Nanotechnology Initiative (NNI) workshop reports, § 2:43
- Northcentral States Nanosystems Consortium, § 8:29
- Northwest Nanoscience and Nanotechnology Network, § 8:30

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

- Generally, § 4:36
- Characteristic hazardous wastes, § 4:39
- Exemptions/exceptions, § 4:45
- Hazardous waste, § 4:38
- Hazardous waste facility regulation, § 4:43
- Hazardous waste generator regulation, § 4:41
- Hazardous waste permitting, § 4:44
- Hazardous waste transporter regulation, § 4:42
- Listed hazardous wastes, § 4:40
- Project on Emerging Nanotechnologies suggestions, § 4:46
- Solid waste, § 4:37

RESTATEMENT OF THE LAW (THIRD)

- Trade secrets, § 10:45

RESTATEMENT OF TORTS

- Nano-intellectual property landscape, § 10:44

RHODE ISLAND

- Brown University, Center for Advanced Materials Research, § 2:136

RHODE ISLAND—Cont'd

- State development and regulation, §§ 8:31, 8:285

RISK MANAGEMENT METHODS

- National Nanotechnology Initiative (NNI), 2007 NNI EHS prioritization document, § 2:62

RISK MITIGATION FORMULA

- National Nanotechnology Initiative (NNI), 2006 NNI EHS needs document, § 2:49

SAFE DRINKING WATER ACT (SDWA)

- Generally, § 4:77
- Enforcement and emergency powers, § 4:81
- Monitoring and source assessment, § 4:80
- National primary drinking water regulations, § 4:78
- National secondary drinking water regulations, § 4:79

SANDIA NATIONAL LABORATORY

- Center for Integrated Nanotechnologies, § 2:105

SOCIETAL IMPLICATIONS

- Generally, § 2:32
- Converging technologies, § 2:37
- Ethics, governance, risk, and uncertainty, § 2:39
- Future economic scenarios, § 2:34
- Future social scenarios, § 2:36
- National Nanotechnology Initiative (NNI) workshop reports, generally, § 2:32
- National security and space exploration, § 2:38
- Productivity and equity, § 2:33
- Public policy, legal, and international aspects, § 2:40

INDEX

SOCIETAL IMPLICATIONS

—Cont'd

Quality of life, § 2:35

SOIL

Environmental, health, and safety (ehs) concerns, § 3:46

SOIL ASSOCIATION

Consumer product labeling, § 7:24
Food and drug regulatory issues, cosmetics, 2008 Soil Association standard, § 5:57

SOUTH CAROLINA

Generally, § 8:286
Clemson University, § 8:288
South Carolina Code, § 8:287
State development and regulation, §§ 8:31, 8:286-8:289
University of South Carolina, § 8:289

SOUTH DAKOTA

State development and regulation, §§ 8:31, 8:290

SPACE EXPLORATION

National Aeronautics and Space Administration (NASA) (this index)
National Nanotechnology Initiative (NNI) workshop reports, §§ 2:30, 2:38
Texas A&M University, Institute for Intelligent Bio-Nano Materials and Structures for Aerospace Vehicles, § 2:192

STANDARDS AND

NOMENCLATURE

Generally, § 1:25
American National Standards Institute (ANSI), § 9:2
ASTM International (ASTM), § 9:3
BSI British Standards (BSI) (this index)

STANDARDS AND

NOMENCLATURE—Cont'd

European Committee for Standardization (CEN), § 9:47
Institute of Electrical and Electronics Engineers (IEEE) (this index)
International Organization for Standardization (ISO) (this index)
International Workshop on Documentary Standards, § 9:81
Michigan State standards workshop, § 9:82
National Institute of Standards and Technology (NIST) (this index)
Organization for Economic Cooperation and Development (OECD) (this index)

STATE DEVELOPMENT AND REGULATION

Generally, §§ 1:24, 8:31 et seq.
Alabama (this index)
Arizona (this index)
Arkansas (this index)
California (this index)
Colorado (this index)
Connecticut (this index)
Delaware (this index)
District of Columbia (this index)
Florida (this index)
Georgia (this index)
Hawaii, § 8:110
Idaho, § 8:111
Illinois (this index)
Indiana (this index)
Iowa, § 8:142
Kansas (this index)
Kentucky, § 8:146
Louisiana, § 8:147
Maine, § 8:148
Maryland (this index)

**STATE DEVELOPMENT AND
REGULATION—Cont'd**

Massachusetts (this index)
Michigan (this index)
Minnesota (this index)
Missouri (this index)
 Montana, § **8:183**
 National Nanotechnology Initiative (NNI) workshop reports, § **2:43**
 Nebraska, §§ **8:184, 8:185**
 Nevada, § **8:186**
New Hampshire (this index)
New Jersey (this index)
New Mexico (this index)
New York (this index)
North Carolina (this index)
North Dakota (this index)
Ohio (this index)
Oklahoma (this index)
Oregon (this index)
Pennsylvania (this index)
Puerto Rico (this index)
 Rhode Island, § **8:285**
South Carolina (this index)
 South Dakota, § **8:290**
Tennessee (this index)
Texas (this index)
Utah (this index)
Virginia (this index)
Washington (this index)
 West Virginia, § **8:337**
Wisconsin (this index)

SUNSCREENS

Consumer product labeling, Friends of the Earth, § **7:20**
 Environmental, health, and safety (EHS) concerns, dermal exposure route, § **3:32**

SWISS RE

Consumer products and insurance issues, §§ **7:48, 7:49**

TENNESSEE

Generally, § **8:291**
 Innovation Valley Nano Alliance, § **8:292**
 State development and regulation, §§ **8:31, 8:291-8:294**
 University of Memphis, § **8:293**
 Vanderbilt University, § **8:294**

TERRESTRIAL SPECIES

Environmental, health, and safety (EHS) concerns, § **3:38**

TEXAS

Generally, § **8:295**
 Alliance for NanoHealth, § **8:296**
 Baylor University
 Center for Protein Folding Machinery, § **2:176**
 state development and regulation, § **8:298**
 Nanotechnology Foundation of Texas, § **8:299**
 Nanotechnology Group, Inc., § **8:300**
 Rice University
 generally, § **8:301**
 Center for Biological and Environmental Nanotechnology, § **2:119**
 Consortium for Nanomaterials for Aerospace Commerce and Technology (Rice), § **8:302**
 public perception poll, Rice University Center for Biological and Environmental Nanotechnology (CBEN), § **7:31**
 State development and regulation, §§ **8:31, 8:295-8:317**
 Strategic Partnership for Research in Nanotechnology, § **8:297**
 Texas A&M University
 Institute for Intelligent Bio-Nano Materials and

INDEX

TEXAS—Cont'd

- Texas A&M University—Cont'd
 - Structures for Aerospace Vehicles, § 2:192
 - state development and regulation, § 8:303
- Texas Code, § 8:304
- Texas Nanotechnology Initiative, § 8:305
- Texas State University, § 8:306
- Texas Tech University, § 8:307
- University of Houston, § 8:308
- University of Texas
 - generally, § 8:309
 - Center for Nano and Molecular Science and Technology (Austin), § 8:310
 - International Center for Nanotechnology and Advanced Materials (Austin), § 8:312
 - NANOLAB (Austin), § 8:313
 - Nanotech Institute (Dallas), § 8:315
 - Nanotechnology Research and Teaching Facility (Arlington), § 8:314
 - Southwest Academy of Nanotechnology (Austin), § 8:316
 - Strategic Partnership for Research in Nanotechnology (Arlington), § 8:317
 - The Nano Science and Technology Building (Austin), § 8:311

TITANIUM DIOXIDE

- Environmental, health, and safety (EHS) concerns
 - titanium dioxide, § 3:22
- Materials in the workplace, 2005 NIOSH TiO₂ exposure recommendation, § 6:49

TOXIC SUBSTANCES

CONTROL ACT (TSCA)

- Generally, § 4:8

TOXIC SUBSTANCES

CONTROL ACT (TSCA)

—Cont'd

- Nanoscale Materials Stewardship Program (NMSP)
 - generally, § 4:26
 - future reporting, § 4:28
 - January 2009 initial report, § 4:27
- New chemical substances. Section 5: manufacturing and processing notices, below
- Section 4: testing of chemical substances and mixtures, § 4:9
- Section 5: manufacturing and processing notices
 - 2007 public statement regarding categorical significant new use rules, § 4:19
 - generally, § 4:10
 - exemptions, § 4:21
 - new chemical substances
 - 2008 Federal Register Notice, § 4:13
 - 2008 Thomas Swan consent order
 - generally, § 4:14
 - conclusions of law, § 4:16
 - inhalation toxicity study, § 4:17
 - risk assessment, § 4:15
 - generally, § 4:11
 - TSCA inventory status of nanoscale substances, § 4:12
 - significant new uses of existing chemical substances, § 4:18
 - significant new uses of existing chemical substances, 2008 SNURs for siloxane-modified silica and alumina-modified nanoparticles, § 4:20
- Section 6: regulation of hazardous chemical substances and

TOXIC SUBSTANCES

CONTROL ACT (TSCA)

—Cont’d

- mixtures, § 4:22
- Section 7: imminent hazards, § 4:23
- Section 8(b): reporting and retention of information, inventory, § 4:24
- Section 8(d): reporting and retention of information, health, and safety studies, § 4:25
- 2008 Thomas Swan consent order. Section 5: manufacturing and processing notices, above

TRADEMARKS

- Generally, § 10:39
- Nano-intellectual property landscape, §§ 10:39, 10:40
- Nano-marks, § 10:40
- U.S. Patent and Trademark Office (USPTO), § 2:112

TRADE SECRETS

- Generally, § 10:41
- Ensuring trade secret protection, § 10:46
- Litigation, § 10:47
- Nano-intellectual property landscape, §§ 10:41-10:47
- Patents v. trade secrets, § 10:42
- Restatement of the Law (Third), unfair competition, § 10:45
- Restatement of Torts, § 10:44
- Uniform Trade Secrets Act (UTSA), § 10:43

21ST CENTURY

- Environmental Protection Agency (EPA), oversight, § 4:87
- The 21st Century Nanotechnology Research and Development Act
 - generally, § 2:16
 - Section one, § 2:17
 - Section two, § 2:18

21ST CENTURY—Cont’d

- The 21st Century Nanotechnology Research and Development Act—Cont’d
 - Section three, § 2:19
 - Section four, § 2:20
 - Section five, § 2:21
 - Section six, § 2:22
 - Section seven, § 2:23
 - Section eight, § 2:24
 - Section nine, § 2:25
 - Section ten, § 2:26

2007 NANOTECHNOLOGY WHITE PAPER

- Environmental Protection Agency (EPA)** (this index)

2008 NIOSH WORKPLACE BROCHURE

- Materials in the workplace, § 6:51

UNFAIR COMPETITION

- Nano-intellectual property landscape, § 10:45

UNIFORM TRADE SECRETS ACT (UTSA)

- Nano-intellectual property landscape, § 10:43

U.S. CONSUMER PRODUCT SAFETY COMMISSION (CPSC)

- Consumer Products and Insurance Issues** (this index)

U.S. DEPARTMENT OF AGRICULTURE (USDA)

- Federal nanotechnology research and development efforts, § 2:161

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

- Federal nanotechnology research and development efforts, § 2:110

INDEX

U.S. GEOLOGICAL SURVEY (USGS)

Federal nanotechnology research
and development efforts,
§ 2:190

U.S. INTERNATIONAL TRADE COMMISSION (USITC)

Federal nanotechnology research
and development efforts,
§ 2:111

U.S. PATENT AND TRADEMARK OFFICE (USPTO)

Class 977—nanotechnology
creation, § 10:19
filings, § 10:21
glossary, § 10:22
scope, § 10:20

Federal nanotechnology research
and development efforts,
§ 2:112

Nano-intellectual property land-
scape, §§ 10:18-10:23

Nano-specific challenges, § 10:13
Patent classification system,
§ 10:18

Potential nanotechnology examin-
ing group, § 10:23

UTAH

Generally, § 8:318
nanoUtah, § 8:321
State development and regulation,
§§ 8:31, 8:318-8:322
University of Utah, § 8:319
Utah Code, § 8:322
Utah Nanotechnology Initiative,
§ 8:320

VIRGINIA

Generally, § 8:323
Emerging Tech Forum (f.k.a.
Atlantic Nano Forum),
§ 8:325
George Mason University, § 8:326

VIRGINIA—Cont'd

Joint Commission on Technology
and Science, § 8:324

State development and regulation,
§§ 8:31, 8:323-8:330

University of Virginia
Center for Nanoscopic Materi-
als Design, § 2:151
state development and regula-
tion, § 8:327

Virginia Code, § 8:329

Virginia Nanotechnology Initia-
tive, § 8:328

Virginia Technical University,
§ 8:330

VOCABULARY

BSI British Standards, PAS
71:2005, § 9:5

WASHINGTON

Generally, § 8:331
State development and regulation,
§§ 8:31, 8:331-8:333

University of Washington, § 8:332
Genetically Engineered Materi-
als, § 2:135

Washington Nanotechnology Ini-
tiative, § 8:333

WEST VIRGINIA

State development and regulation,
§§ 8:31, 8:337

WISCONSIN

Generally, § 8:334
State development and regulation,
§§ 8:31, 8:334-8:336

University of Wisconsin
Nanoscale Science and
Engineering Centers,
Center on Templated
Synthesis and Assembly at
the Nanoscale, § 2:125
state development and regula-
tion, § 8:335

Wisconsin Code, § 8:336

WORKPLACE

Materials in the Workplace (this
index)