

Subject Index

A

Acid gases (*see also* Hydrogen chloride), 4,
75, 76
Acrolein, 4
Air dilution rates, in animal tests, 89
Airflow and mixing, 23
Animal tests, 1, 47, 89
Arrangement of materials, 23
Asphalt roofing shingles, 147, 148
Asphyxiants, 4
ASTM Standards
E 176: 148
E 662-83: 34, 136

B

Bench-scale experiments, 46, 148
British assessment procedures, 34
Building products, as fuel (*see also* Urban
fuels), 57, 147, 148
Burn room tests, 58, 147

C

Cable fires, 46, 47, 100
Carbon dioxide, 23, 57
Carbon monoxide, 4, 23, 57, 148
Chamber tests, 34
Chemical attack, from smoke, 23, 76
CO (*see* Carbon monoxide)
CO₂ (*see* Carbon dioxide)
Combustion, 1, 4, 23, 89, 147
of acid gases, 75, 76
of building materials, 57, 147, 148
efficiency, 23
of polymers, 2, 4, 89
products, 4, 23, 89
Combustion toxicity apparatus, 57
Components, of smoke, 148
Computer modeling, 46, 89
Concentration of combustion products, 1,
23-24
Cone calorimeter, 34, 46
Cone corrosimeter, 75

Corrosion, 75-77, 100
Cyanide, 4

D

Decay of hydrogen chloride, in smoke, 1,
89
Degradation of electrical contacts, 75
Diffusion fires, 122
DIN 53 436 testing apparatus, 89
Douglas fir, 57, 135
Dual LC₅₀ values, 57

E

Early combustion products, 89
Electrical cables, 46, 100-102
Electronic equipment, and corrosion
damage, 75
Elevators, fire-safe, 165-166
Enclosure environments, in testing, 121
Environmental conditions, and testing, 1,
147
Exposure dose, 2

F

Factory Mutual Research Corporation,
testing apparatus, 23, 102
Fire, 1, 2, 23, 75, 100, 102
growth, 23
hazard assessment process, 1-2, 4, 34,
76-77, 132
modeling, 46, 121
risk, 2
safety, 1, 2, 165
Fire Propagation Index, 100, 102
Fire safe elevators, 165-166
Fire scenarios, 34, 46, 122
Fire testing (*see also* Tests), 34, 75, 89, 121
Fire tower studies, 165
Flame spread rate, 1, 23, 46
Flow rate of smoke, 166

Flow through apparatus, 136
 FMRC (*see* Factory Mutual Research Corporation)
 Fuel combustion chemistry, 121
 Fuel mass loss rate, 147
 Fuel oil, 148
 Full-scale experiments, 148

G

Generation rates, 23, 100
 German Standard DIN 53 436 test, 89

H

Halogenated acids, 76
 Harvard V math model, 46
 HCl (*see* Hydrogen chloride)
 Heat flux of materials, 23
 Heat/smoke transport, 1, 121
 HF (*see* Hydrogen fluoride)
 High rise buildings, 165
 Hydrocarbons, 147
 Hydrogen, as an asphyxiant, 4
 Hydrogen chloride, 1, 4, 89
 decay rate in smoke, 1, 89
 Hydrogen fluoride, 4

I

IEC 3m cube tests, 34
 Ignition source characteristics, 1
 International Organization for
 Standardization (ISO), 34, 76
 International smoke obscuration tests, 34
 Irritants, in smoke, 4

L

Laboratory tests (*see also* Specific tests), 47,
 75, 89
 Large scale testing, 34
 Lateral ignition and flammability
 apparatus, 46
 LC₅₀ values, 57
 Leakage of smoke, 165, 166
 Liquid hydrocarbons, as fuel, 147
 Low oxygen, as an asphyxiant, 4

M

Mass loss rate, 1, 4, 46
 Mass optical density, 100
 Mathematical models, in tests, 47

Medium-scale experiments, 147, 148
 Metal surfaces, corrosion, 75
 Mice, as animal models, 1
 Model-based methods, 46
 Mortality data, 2
 Multiple LC₅₀ values, 57

N

National Bureau of Standards
 cup furnace tests, 4
 smoke density chamber, 135, 136
 National Institute of Building Sciences, 47
 National Institute of Standards and
 Technology, 166
 cone calorimeter, 34, 46
 National Research Council of Canada Fire
 Lab, 166
 Neutral pressure level, 166
 New York State toxicity legislation, 57
 Nitrogen oxides, 4
 No. 2 fuel oil, 148
 Nonflaming combustion, 23, 89
 Nonthermal damage (*see also* Smoke), 75,
 100, 102
 NRCC (*see* National Research Council of
 Canada)
 Nuclear winter, 147–148

O

Ohio State University Heat Release
 Apparatus, 135
 Ohmic bridging, 75
 Optical density of smoke, 122, 135, 136
 ASTM E 662: 34
 OSU (*see* Ohio State University)

P

Particulate mass concentration, 135
 Particulates, in smoke, 23, 122, 135, 148
 Performance testing, with corrosion, 75
 Piloted ignition tests, 148
 Plastics (*see also* Polyvinyl chloride), 34
 Plenum cable, 46
 Plywood, as a fuel, 148
 Polymers, 2, 89
 Polyvinyl chloride, 1, 4, 76, 89
 Pressure differences, in fire tower studies,
 165, 166
 Primates, as animal models, 1
 Product design, 34
 PVC (*see* Polyvinyl chloride)

R

Radiant heating, 89
Rate of heat release, 147
Red oak, as a fuel, 57, 135
Residence time, in smoke tests, 147
Rodent species, as animal models, 1
Room smoke hazard tests, 34

S

Self-sustained fire propagation, 100
Small-scale tests, 23, 34, 46
Smoke, 1, 2, 23, 102, 136, 148
 in animal tests, 89
 characteristics of, 46, 121, 122, 147, 148
 corrosivity of, 75–77, 100
 emission factors, 147
 generation testing, 122, 135–136, 148
 movement in fire tower studies, 121, 165
 particulate concentration, 23, 122, 135, 148
 in piloted ignition tests, 148
 toxicity of, 1–4, 23, 46, 122
Smoke chamber tests, 136
Smoke flow, 165
Smoke hazard assessment, 34
Smoke release rate, 137
Smoke yield, 100
Smoldering conditions, 135, 148
Soot (*see* Particulates)
Southern pine, as a fuel, 57
Southwestern Research Institute, 89
Square wave atmospheres, of hydrogen chloride, 89
SRR (*see* Smoke release rate)
Stack action, 165, 166, 168
Static pressure, on a building, 168
Steady state combustion, 89, 102
Suppression devices, and smoke, 1
SwRI (*see* Southwestern Research Institute)

T

Temperature effects, 147, 166
Tests, 4, 47, 75, 102, 165
 animal studies, 1, 47, 89

 burn room, 58, 147
 chamber tests, 34, 136
 combustion modes in, 1, 23
 development of, 2, 75
 standardization of, 147
 validity of, 4, 89, 121, 135, 148
Thermal damage, in electrical fires, 100
Thermal decomposition, and LC₅₀ values, 57
Thermal draft coefficient, 166, 167
Thermal environments, 102
Toxic fire hazards, 4, 46, 47, 89
Toxic gases, 148, 165
Toxic parameters, 24
Toxic potency tests, 1–4, 46
Toxicity, smoke, 1–4, 23, 46, 147
 in animal studies, 1, 47, 89
 carbon monoxide-carbon dioxide synergism, 23–24, 57
 with polyvinyl chloride, 1, 2, 89
Transmittance, in testing, 136

U

University of California, Berkeley tests, 147
University of Pittsburgh combustion toxicity test, 2, 57
Urban fuels (*see also* Specific fuels), 147, 148

V

Validity of testing, 75, 89
Ventilation, 23
 effect on smoke conditions, 121, 122, 147
 in testing, 147

W

White oak, as a fuel, 57
Wind action, in fire tower studies, 165–166, 168
Wood, as a fuel, 57–58, 136, 147, 148
Wood smoke, 135