

# Subject Index

## A

Activation energy, 76  
 Adiabatic compression, 23, 267, 288  
 Alloys (See Metals and alloys) (See also specific types)  
 Aluminum, 54, 162, 178  
 Aluminum-bronze, 145, 178  
 ASTM standards  
   (See also Standards)  
     D 2015: 93  
     D 2512-82: 11, 93  
     G 74: 93  
     G 86: 93  
 Autoignition, 106

## B

Bomb test, 106  
 Brass, 178  
 British Standard 3N 100, 106, 125  
 Burn propagation rate, 54

## C

Carbon steel, 38, 76, 162, 178  
 Cobalt alloys, 145  
 Combustion, 349  
   flow control valves, 227  
   heat of, 93  
   ignition and, studies, 38, 145  
   metals, 178, 195, 212  
   model, 195  
   promoted, 38, 54, 145, 195  
 Consumption velocity, 54, 195  
 Contamination, 349  
   grease, 106  
   regulator, 241  
 Copper, 178

## D

Dent block test, 11  
 Differential scanning  
   calorimeter, 93

Note: This is a first-page citation index. Entries are based on the title, abstract, and key words for each paper. Each entry refers the reader to the first page of a paper.

## E

ECRI surgical draping  
   materials study, 392  
 Elastomers, 309  
 Electrosurgical units, 392  
 Endotracheal tubes, 387

## F

Fault tree analysis, 377  
 Fire spread rate, 162  
   oxygen pressure and rod  
     diameter effects, 195  
 Flammability  
   helium diluted oxygen  
     index, 387  
   limits, 178  
   metals, 38, 54, 178, 195  
   nitrogen diluted oxygen  
     index, 387  
   ranking metals, 54  
 Flexible hoses, 288  
 Flow control, 349  
   valve, 227  
 Fluorel E2160, 93  
 Fluorogold, 93  
 Fluorogreen E-600, 93  
 Foam insulation, 406  
 Frictional heating test, 76,  
   212, 332  
 Friction coefficient, 76, 212

## G

Garlock 8573, 93  
 Gaseous mechanical impact  
   testing, 93  
 Gas flow path, 227  
 Grease contamination, 106

## H

Hazard quantification, 377  
 Heat rate, 106

## I

Ignition  
   adiabatic compression, 267,  
     288  
   and combustion studies, 38,  
     145

- autoignition, 106
  - containment, 241
  - frictional, 76, 212
  - impact, 23, 93
  - metals, 38, 76, 145, 178, 212, 349
  - metals using oxygen index apparatus, 178
  - model for data analysis, 76
  - nonmetallic materials, 23, 93, 106
  - promoted ignition-combustion studies, 38, 145
  - promoted, of regulators, 241
  - properties of alloys under rubbing conditions, 212
  - PTFE lined hoses, 288
  - ranking, resistance, 212
  - regulators, 241, 267
  - resistance, 227
  - silicone greases, 125
  - structural metals, 54
  - temperature, 309
  - temperature, autogenous, 93
  - temperature, spontaneous (SIT), 106, 125
  - Impact testing
    - gaseous mechanical, 93
    - liquid oxygen, 11, 93
    - particle, 227
    - pneumatic, 23, 93, 288
    - pressures, 23
  - Implants, ion, 332
  - Incoloy, 178
  - Inconel, 178
    - 600, 54
    - 718, 54
  - Iron, 162
- K**
- Kel F 81, 93
  - Krytox 240AC, 93
- L**
- Laser, 387, 392
  - Lead, 162
  - Liquid oxygen mechanical impact test, 11, 93
  - repeatability, 11
- M**
- Medical devices
    - as ignition sources, 392
  - lasers, 387, 392
  - Metals and alloys (See also specific types)
    - activation energy, 76
    - combustion, 178, 195
    - fire spread rates, 162
    - flammability, 38, 54, 178, 195
    - frictional heating test, 76, 212, 332
    - friction coefficient, 76
    - ignition, 76, 178, 212
    - ignition-combustion studies, 349
    - oxygen pressure and, 76, 162, 195
    - promoted combustion, 54, 195
    - promoted ignition-combustion, 38, 145
    - ranking, 54, 178, 212
    - reactive flux constant, 76
    - structural, 54
    - surface treatments, 332
  - Modeling
    - combustion, 195
    - ignition, 76
  - Monel
    - 400, 54, 178
    - K-500, 332
    - tribological characteristics, 332
- N**
- Neoprene, 106
  - Nickel alloys, 145
  - Nickel steel, 178
  - Nitrogen, liquid, 406
  - Nitrous oxide-enriched atmospheres, 392
  - Nonmetallic materials (See also specific types)
    - autogenous ignition temperature, 93
    - foam insulation, 406
    - gaseous mechanical impact test, 93
    - heat of combustion, 93
    - ignition, 23, 93, 106
    - liquid oxygen impact test, 11, 93
    - pneumatic impact test, 23, 93
    - poly(vinyl chloride), 387
    - ranking, 11, 93
    - spontaneous ignition temperature, 106, 125

swelling characteristics,  
elastomers, 309  
Nylon 6/6, 11, 93

## O

Orifice, variable segmented, 227  
Oxidation, 76  
Oxygen compatibility  
determination by fault tree  
analysis, 377  
fire spread rate, 162  
general materials, 349  
pressure regulators, 267  
ranking methods, 54, 93, 178, 212  
silicone greases, 125  
Oxygen-enrichment  
atmospheres, preventing  
fires, 392  
foam insulation, 406  
Oxygen index  
apparatus, 178  
helium diluted, 387  
nitrogen diluted, 387  
Oxygen level measurements, 406  
Oxygen pressure, 76, 106, 125,  
162, 195  
Oxygen regulators, 241, 267  
fire, burnout, 241  
selection, 267  
Oxygen systems  
acceptability criteria, 106  
contamination, 106, 349  
evaluating by fault tree  
analysis, 377  
high pressure, 195, 288, 309, 332  
metals for high pressure, 54, 195  
nonmetallic materials for  
high pressure, 23  
problems with, 349  
silicone greases for, 125  
structural metals for, 54

## P

Particle impact testing, 227  
Pneumatic impact testing, 23,  
93, 288  
Poly(tetrafluoroethylene), 106  
lined hoses, 288  
Poly(vinyl chloride), 387  
Pressure rig, 309  
Promoted combustion, 38, 54,  
145, 195  
Promoted ignition-combustion  
studies, 38, 145

Promoted ignition of  
regulators, 241  
Pv product, 76, 212

## R

Ranking methods  
flammability, 54  
frictional ignition, 212  
liquid oxygen mechanical  
impact, 11  
sensitivity/compatibility, 93,  
178  
Reactive flux constant, 76  
Red rubber, 387  
Regulators  
contamination, 241  
oxygen, 241, 267  
Risk assessment, fault tree, 377  
Rulon A, 93

## S

Safety, patient  
during head and neck  
surgery, 392  
endotracheal tubes, 387  
Sensitivity testing  
liquid oxygen mechanical  
impact, 11, 93  
gaseous mechanical, 93  
gaseous oxygen pneumatic  
impact, 23  
particle impact, 227  
pneumatic impact, 23, 93, 288  
Shock ionization, 288  
Silicon carbide, 93  
Silicone, 387  
Silicone grease, 125  
Space shuttle oxygen valves, 227  
Spontaneous ignition  
temperature (SIT), 106, 125  
Stainless steel, 162  
17-4 PH, 54  
201, 178  
304, 178  
316, 54, 195  
316L, 38  
321, 54  
430, 178  
440C, 54  
austenitic, 145  
flexible hoses, 288  
Standards (See also ASTM standards)  
adiabatic compression, 267

## 422 FLAMMABILITY AND SENSITIVITY OF MATERIALS

Steel alloys (See also specific types), 162, 195

Stellite, 178

Structural metals, 54

Surface area, 106

Surface treatments, 332

Surgical draping materials  
flame spread rates and  
ignitability, 392

Swelling characteristics,  
elastomers, 309

### T

Teflon, 11

TFE, 93

Threshold energy level, 11

Ti-6Al-4V, 178

Tin, 162

Titanium, 162, 178

Transfer line, 406

### V

Valve

actuation, 227

design, 349

Vespel SP-21, 11, 93

Viton

A, 11

PLV5010B, 93

### W

Waspaloy, 54

### Z

Zinc, 162