

Subject Index

A

Additives, 230, 361
 effects, 165
 Aging, 230
 fluid, 220
 Aluminum, 277
 Analyzing devices, 140
 ASTM standards, 3, 156, 165
 D 2882, 85, 96, 106, 118, 129, 200

B

Ball-on-three flats, 361
 Bearing/sealing parts, 49
 Bench screening procedure, 314
 Bench testing, 65, 349, 361
 Bench top surface contact test, 338
 Biodegradable fluids, 208, 220
 Biodegradable hydraulic pressure media, 230
 Brass, 291

C

Cam rings, 106
 Cartridges, 118
 preparation, 106
 Cavitation, 65, 277
 Chlorofluorocarbon, 38
 Chlorotrifluoroethylene, 291
 Cleanliness, 277
 Clogging, 277
 Coating, surface, 291
 Contact loading, 200
 Contacts, steel on steel, 156
 Contact test method, surface, 338
 Contamination, 247, 338
 sensitivity, 261
 Copper, 291
 containing metals, 186
 Corrosion, 291
 tests, 186

D

Denison pump, 186
 Deposits tests, 186
 DIN standards, 85
 DU-bearing wear, 208

E

Elastohydrodynamic, 3
 lubrication, 21
 Electrostatics, 277
 Energy efficiency, 165
 Energy transfer, 65
 Esters, 230
 synthetic, 208
 Extrusion molding, 277

F

Failure mechanisms, 3
 Film attributes, 3, 38
 thickness, 21
 Fire resistance, 21
 Flow degradation, 247
 Flow rate, 106
 Flow tests, 186
 Flywheel testrig, 220
 Four-ball methods, 361
 Friction, 3, 38
 coefficient, 165, 208
 force, 49
 reduction, 85
 test, 165
 FZG gear test, 329

G

Galling, 106
 Gamma Wear Test System, 349
 Gear pumps, 176
 Gear test, 329
 Glycol and water fluids, 31

376 TRIBOLOGY OF HYDRAULIC PUMP TESTING

H

Hydrodynamic, 3
Hydrofluorocarbons, 38
Hydrolytic stability, 230
Hydrostatic transmission, 220

I

Injection molding, 277
IP 281, 85
ISO, 85

J

John Deere Sundstrand piston
pump test, 186

L

Leakage flow, 49
Leakage, internal, 106
Load conditions, high, 220
Lubrication, 3, 65, 156, 329
 capacity, 85
 mixed, 49

M

Mineral oil, 140, 220, 314, 329
Models, pump wear, 247
Motor, 49
 tests, 329

O

Oil change without shutdown test,
 165
Oil screening test, 186
Operating temperatures, 21
Oxidation stability, 230

P

Particle size distribution, 247
Performance degradation, 176
Performance, fluid, 329
Performance mapping, 3
Petroleum, wear characteristics
 D 2882, 85, 96, 106, 118, 129,
 200

Piston pumps, 176, 208, 329
 tests, 186, 200
Pitting, 3
Polyalphaolefin-based fluid, 291
Power loss, 49
Pressure conditions, high, 156
Pressure controlled pumps, 261
Pressure testing, 200

Q

Qualification tests, 349
 wear, 176, 186

R

Rape seed fluid, 208
Reference oils, 106, 165
Refrigerants, 38
Rippling, 106
Rotary piston compressor, 38
Rubber molding, 277

S

Screening tests, 165, 314, 361
Scuffing, 3
 test, 361
Sealing, 208
Sensitivity
 contamination, 261, 277
 performance test, 247
Sliding conditions, 38, 49, 85, 314
Sludge, 277
Speed, constant, condition, 156
Spline wear, 208
Stability
 hydrolytic, 230
 oxidation, 230
Standards (See also ASTM
 standards), 85, 156, 176,
 186, 291, 329
Strainers, suction, 277
Stress analysis, 140
Structure analysis, 140
Surface contact test, 338

T

Tests, 65
Transmission, hydrostatic, 220

V

Valves, proportional control,
261
Vane pump, 85, 96, 176, 314,
329
 Vickers V-104, 118, 200
 Vickers V-104C, 140, 156
 Vickers 20VQ, 118
 Vickers 20VQ5, 106
 Vickers 35VQ25, 129, 186
Vane tip contours, 106
Viscosity, 85
Volume, constant, conditions,
156

W

WAM3, 3
Water-based fluids, 21
 water-glycol, 314
Water glycol, 118

Wear, 3, 21, 96, 129, 291
 calculation, 140
 chlorotrifluoroethylene and,
 291
 component, 220
 design provisions, 261
 design, test, 156
 DU-bearing, 208
 flow degradation and, 247
 fluid performance, 85, 186
 gamma, 349
 interfaces, 200
 journal test method, 338
 laboratory tests, 165
 needle bearing, 208
 qualification, 176
 radial lip seal shaft, 208
 rates, 118
 refrigerant effects, 38
 screening tests, 165, 314
 sequential tests, 361
 spline, 208
 steel on steel, fluids, 156
 test, 261
 test review, 65
 vane pump test development,
 106