# Subject Index

## A

Accelerated testing, 89  
Aging  
- accelerated, 113  
- chemical and functional tests, 142  
- elastomers, 142  
- simulation, 76, 319  
Alkali metal silicates, 327  
Aluminum  
- corrosion inhibitors, 7  
- critical pitting potential, 133  
- fully formulated coolants, 361  
- heat-rejecting, 52, 327  
- incipient passivating layers, 23  
Antifreeze  
- manufacturing and quality control, 352  
- recycling, 251, 292  
- by vacuum distillation, 231  
ASTM D 1384, 113, 133  
ASTM D 2809, 319  
ASTM D 3147, 319  
ASTM D 4340, 23, 113, 319  
ASTM D 4985, 43  
ASTM D 5752, 43  

## B

Beaker tests, 210  
Brass, corrosion inhibitors, 7  
Bulk fluid temperatures, 210  

## C

Carboxylates, 23  
- electrochemical degradation of elastomers, 183  
Cast iron, corrosion inhibitors, 7  
Cavitation, 392  
Chloride, recycled coolant, 270  
Compatibility, with nonmetals, 168  
Conductivity, as estimate of total dissolved solids, 199  
Contract blender/packages, 352  
Copper, corrosion inhibitors, 7  
Copper-triazole interaction, 76  
Corrosion  
- carboxylate- and silicate-inhibited coolants, 23  
- inhibitors, 7  
- additives, 89  
- copper-triazole interaction, 76  
- light-duty applications, 52  
- recycled coolant, 270  
- Corrosion-fatigue, 89  
Critical pitting potential, 133  

## D

Delayed-release, 361, 409  
Depletion, 76, 113  
- fully formulated coolants, 361  
- recycled coolant, 270  
Deposits, 319  
- high-heat-rejection engines, 210  
- silicate stabilization, 327  

## E

Elastomers  
- aging, 142  
- effect of propylene and ethylene glycol base, 168  
- electrochemical degradation behavior, 183  
- Electrochemical degradation, ethylene-propylene rubber, 183  
- Electrochemical potentiometric measurements, 133  
- Electrochemical testing, 133  
- Electrochemistry, organic acids, 7  
- Ethylene glycol, 168  
- coolant base, 43  
- manufacturing of final product, 352  
- recycling, 251  
- by vacuum distillation, 231  
- Ethylene-propylene rubber, electrochemical degradation behavior, 183  
- Extended life coolants, 113  
- Extended service interval, 43, 142  
- filter, 409  
- fully formulated coolants, 361  
- total dissolved solids, 199
F

Filter
delayed-release, 43
extended service, 409
fleet testing, 370
Filter/conditioner, 370
Fleet testing, 43
coolant filter, 370
fully formulated coolant, 361
modeling, 113
recycled coolant, 270, 292
Flow rate, 210
Fully formulated coolants
extended service, 361
recycling, 251
total dissolved solids, 43, 199
FVV Test R443/1986, 392

G

Galvanic corrosion, 89
Germany, testing methods, 392
Glassware corrosion test, 133
inhibitors, 7
Glycol
concentration and conductivity, 199
degradation, 113
Glycol degradation acids, recycled coolant, 270

H

Hardness, 210
Hard water stability, 327
Heat flux, 210
Heat transfer, 210, 392
Heavy-duty coolants
extended service, 361
recycled, fleet testing, 270
scale and deposits, 210
total dissolved solids, 199
Hot surface temperature, 210

I

Immersion testing, 168
Inorganic inhibitors, 142
Inverse solubility, 210
ISO 9002, 352

L

Laboratory testing, fully formulated coolant, 361
Lead, corrosion inhibitors, 7
Long-life coolants, 319

N

Nitrited organic acid, 43
Nitrite inhibited coolants, electrochemical
degradation of elastomers, 183
Nonmetals, coolant compatibility, 168

O

Open circuit potential, 133
Organic acids, 7, 23
chemical and physical properties, 113
electrochemical degradation of elastomers, 183
fleet test evaluation, 43
as inhibitor, 142
light-duty applications, 52
nitrited, 43
nonmetal compatibility, 168
Organosilicon stabilization, 327

P

Passive layer, heat-rejecting aluminum, 23
Performance tests, 53, 113
Phosphate based coolant, deposits, 210
Phosphate-free low-silicate coolants, 361
Pitting, 89
Polymer, water-soluble, 210
Polymer coating, coolant filter, 409
Propylene glycol, 168
coolant base, 43
electrochemical degradation of elastomers, 183
recycling, 251
silicate stabilization studies, 327

Q

Quality control, 352

R

Recycling, 89
evaluation of processes, 292
high-volume, stationary, multiple technology
equipment, 251
by vacuum distillation, 231
Rubber compounds
coolant compatibility, 168
electrochemical degradation, 183

S

Scale, 319
high-heat-rejection engines, 210
silicate stabilization, 327
Silicate, 23
  filtering, 251
  fully formuated coolants, 361
  light-duty applications, 52
  low, 43
  nonmetal compatibility, 168
  stabilization studies, in propylene glycol, 327
Solution analysis, 270
Steel, corrosion inhibitors, 7
Stress/strain relaxation, 142
Sulfate, recycled coolant, 270
Supplemental coolant additive, 199
  filtration, 370, 409
  in recycled coolant, 270
  scale and deposits, 210

T
Testing equipment, 319
Testing methods, 89, 319
  European, 392
Thermoplastics, effect of propylene and ethylene glycol base, 168
TMC RP 329 and 330, 361
Total dissolved solids
  conductivity as estimate of, 199
  low, 43, 361

V
Vacuum distillation, recycling by, 231

W
Water pumps, fully formulated coolants, 361

X
X-ray photoelectron spectroscopy, passivating layers, 23