

Technical Data on MOV Long Life

General

CS MOV Grease - Current Products, The Solution, Benefits
FluidCenter - Services and Specialty Products
 Backgrounder - Ken J. Brown
Limitorque Type SMB Lubricants, Standards/substitutes/requirements - list
Limitorque Type SMB Lubricants, Standards/substitutes/requirements - comments
Announcement - MOV Lubricants
Advantages of CCS Valve Greases
CCS MOV Stem Lubricants - General Information
The Need, The Product, Details, Environmental Considerations
Crompton letter to FluidCenter re QA and assurance of supply
MOV Long Life Lubricants - Technical Data
MOV Long Life - Comparison with Exxon Nebula EP1
MOV Long Life Grease, Comparative Data - Explanation
NLGI Grease Grades – table
News Release – Improved Valve Lubrication
News Release – Improved Availability of MOV Long Life, re supply by Forsythe
New Release – MOV Long Life passed COG EQ testing
New Release – MOV Long Life passes EPRI EQ testing
Status Report – May/June 2002

'Environmental Qualifications'

MOV Long Life Grease >Environmental Qualification=; Shell Roll
 MOV Long Life
Motor Operated Valves, Stem Greases; Shell Roll Stability
 Nebula and MOV Plus
MOV Greases - >Environmental Qualification; Shell Roll
 MOV Long Life, MOV Plus, Nebula, Mobilux, Unirex
Copper Strip Corrosion Testing of aged, irradiated and EQ exposed grease.
Summary of COG Environmental Qualification Testing
Limitorque Technical Update 02-01 – EQ approval for MOV Long Life Grade 0 and 1
'Qualification of MOV Long Life Grease for Limitorque Main Gearbox Application',
 by G. Staniewski, R. McCutcheon and J. Janis, Report COG-JP-009,.. (aging,
 irradiation to 70 Mrad, and steam exposure), Contact COG for copies.
EPRI Report 1003483, by B. Bolt, "Comparative Analysis Of Nebula And MOV
 Long Life Greases For Limitorque Main Gearbox Applications", Final Report
 December 2002, Contact EPRI for copies.

Oxidation Test Data

Oven Panel Test Photos
MOV Plus, Nebula, Unirex, Mobilux
Oven Panel Test Results
MOV Long Life, MOV Plus, Nebula, Unirex, Mobilux
Effect of Aging
MOV Long Life, Nebula: Penetration
Oven Panel Test Photos
MOV Long Life, Mobilgrease 28 and Beacon 325 after 66 hours @ 350°F.
Oven Panel Test Results
MOV Long Life, Mobilgrease 28 and Beacon 325 after 66 hours @ 350°F
Technical Report - Activation Energy
MOV Long Life, Mobilgrease 28, Nebula EP
Summary, Calcium Sulphonate Aging Tests
CCS MOV Lubricants, Oxidation Test Data
Bomb Oxidation, Wheel Bearing Grease Life
Shell Roll Stability, Room Temperature and 170EF
MOV Long Life and Nebula
Shelf Life of MOV Long Life

Radiation Test Data

Radiation Testing of Calcium Sulphonate Greases; >200 Mrad
MOV Long Life, MOV Plus, Summary of Exelon work
Effect of Radiation on Calcium Carbonate Grease, 20 Mrad
Various calcium sulphonate MOV greases, Nebula, Unirex and Chevron SRI

Corrosion Protection Data

Corrosion Resistance, Photos, ASTM B-117 Salt Fog Tests
CCS MOV Greases - Corrosion Protection; Salt Fog Tests
MOV Plus, Nebula, Unirex, Mobilux, MOV Long Life
Copper Strip Corrosion Testing of aged, irradiated and EQ exposed grease.
Calcium Sulphonate MOV Greases - Technical Note, Sulphur Content

Wear Protection Data

MOV Greases, Four Ball Wear, 75EC, 150EC & 225EC
MOV Long Life, MOV, Mobilux, Unirex, Nebula
MOV Greases, Four Ball Coefficient of Friction, 75EC, 150EC & 225EC
MOV Long Life, MOV, Mobilux, Unirex, Nebula
MOV Greases, Four Ball Wear, 75EC, 150EC & 225EC :
MOV
MOV Greases, Four Ball Wear, 75EC, 150EC & 225EC @ 0,20,40&60 min.
MOV, Unirex,
Pin on Disc Tribometer Tests, Bronze Pin on 310 Stainless Disk
MOV, MOV Plus, MOV Syn, Nebula, Darina, Chevron, Mobilgrease
Pin on Disc Tribometer Tests, Bronze Pin on 310 Stainless Disk
Aged MOV Plus
Navy Gear Test Results, 1,000 cycles bronze and steel gears, FTM

Elastomer Compatibility

MOV Calcium Sulphonate Grease, Elastomer Compatibility
Wire Coatings
Testing with MOV Long Life and Nebula EP on wire from Fermi NGS
NLGI AG Wheel Bearing Grease Categories
NLGI AL Chassis Grease Categories

Grease Compatibility

Grease Compatibility, Thickeners
Shell Roll Stability, Aged Samples, 72 hours @ 250EF
MOV Long Life and Nebula EP1 Mixtures
Shell Roll Stability,
MOV Plus and Nebula EP1 Mixtures
Herguth Compatibility of Grease Study
MOV Long Life and Nebula EP1 Mixtures

Health & Safety

MSDS, MOV Long Life

User Reports

NMAC Lube Notes, July 1996, Volume 7, No.5
Limitorque MOV Actuator Lubrication, A Single Lubricant
Nebula Replacement Report, by Dr. B. Bolt, EPRI, July 29, 2001
MOV - Long Life Grease, Comparison with Exxon Nebula EP1 To Demonstrate
Environmental Qualification, by L. Icard, APS, December 7, 2001
Replacement For Nebula EP1 for the Limitorque Actuator Main Gearbox,
by Dr. G.W. Staniewski, OPG-N, July 27, 2001
Evaluation of Cor-Tek MOV Long Life and MOV Plus Greases Following
Radiation Exposure, by B. Piechalak, Exelon (was ComEd), A2000-178S
MOV Users' Group Position Paper. 'Equivalent Replacement Evaluation for MOV
Gearbox Lubrication', by E. Cavey, Detroit Edison, DFI 02G-J01, May 6, 2002.
'MOV Stem Lubricant Aging Research,' by K. DeWall and K. Watkins, INEEL/EXT-02-
00975, September 2002.

Papers

'Proper Grease Selection Reduces Steam Valve Maintenance'
W. Mackwood, and K. Brown, NLGI Preprint, NLGI 2001 Annual Meeting
'High Performance Calcium Sulphonate Complex Lubricating Grease'
R. Muir, NLGI 1987 Annual Meeting
'Calcium Sulphonate Grease One Decade Later'
W. Mackwood and R. Muir, NLGI 1998 Annual Meeting

Presentations

CD Video on G2000 Series of Crompton Greases, 12 minutes
'Proper Grease Selection Reduces Steam Valve Maintenance' by Mackwood and
Brown, NLGI 2001 PowerPoint presentation
'Improved Greases for Motor Operated Valve Actuators', by Dr. H. Adams, STLE
2002 Annual Meeting, PowerPoint presentation
'All-in-grease, An Update on MOV Long Life', by K. Brown, T. Austin and W. Mackwood,
(limit switch application testing). MOV Users' Group, Clearwater 2003,
'MOV Stem Lubricant Aging Research', DeWall and Watkins, INEL (ambient and
elevated stem tests on MOV Long Life, Mobilgrease 28 and Chevron SRI. MOV
Users' Group, Clearwater 2003,
'Rate of Loading', Bensinger, Flowserve, (ROL tests on MOV Long Life, Never Seeze
N-5000 and MolyKote P37 MOV Users' Group, Clearwater 2003,

Other

Calcium Sulphonate Complex Greases, Crompton Petroleum Additives
Crompton 2000 Annual Report

For specific documents or comparisons with other products call toll free (North America)
888 442-5008, or 416 466-3144 or e-mail: info@fluidcenter.com.