

Clean, Protect, Lubricate



Electronics

Automotive

Aerospace

Communications

Utility Industries

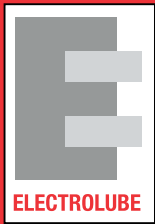


Contact Lubricants



www.electrolube.com

Contact Lubrication



- Extends switch life
- Improves signal quality
- Reduces operating temperature
- Controls switch 'feel'
- Prevents contamination
- Silicone free

Electrolube have been the leading supplier of contact lubricants since their invention by the founder in the 1950s. They increase the reliability and lifetime of current carrying metal interfaces, including switches, connectors and busbars.

Electrolube has earned an unsurpassed reputation for the manufacture and supply of specialist lubricants to the automotive, military, aerospace, industrial and domestic switch manufacturing sectors. The range has been developed over the years to accommodate many advances in such rapidly advancing industries; combining excellent electrical properties and lubricity, to improve movement and 'feel' characteristics, with plastics compatibility.

Contact lubricants are specially formulated greases and oils that reduce friction and enhance the electrical performance of current carrying metal interfaces in switches and connectors. Electrolube products are electrically insulative in thick films, preventing tracking. In ultra thin films, i.e. between closed metal contacts, they allow the current flow, owing to the 'Quantum Tunnelling Effect'. They also exhibit a neutral pH thereby avoiding surface corrosion.

The effectiveness of even perfectly designed switches can be improved by contact lubricants and, when considered at design stage, significant production cost savings can be achieved by the use of less expensive plastics and contact metals.

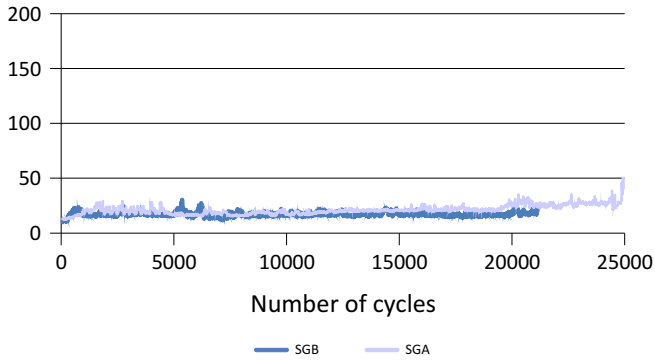


Tests have shown that contact lubrication can extend the lifetime of switches by more than 300%, producing excellent performance under all circumstances and preventing the need for expensive maintenance

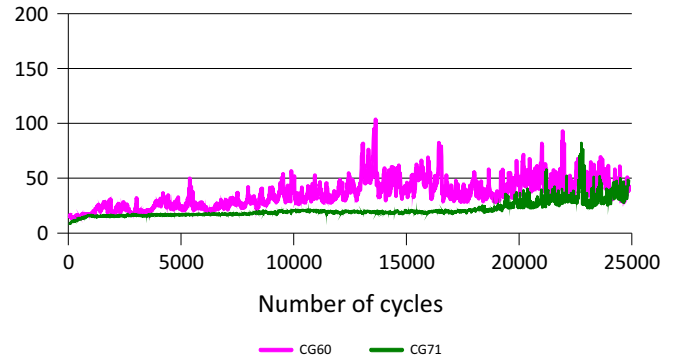
Electrical Testing

Various Electrolube contact lubricants were applied to test switches and subjected to a high number of usage cycles, providing comparison results of their electrical performance. A specially designed switch rig is utilised, measuring the mV drop of the switches over a specified number of cycles.

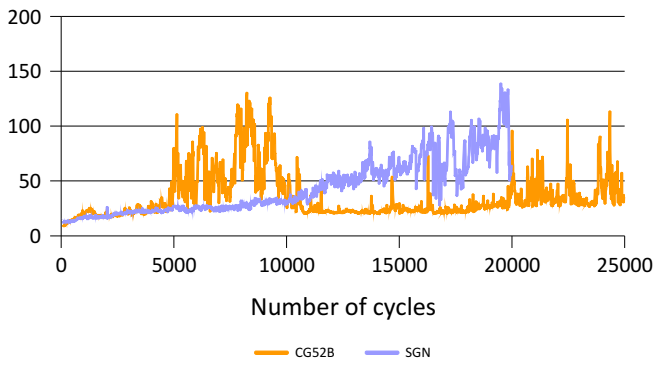
SGA vs. SGB mV Drop Comparison



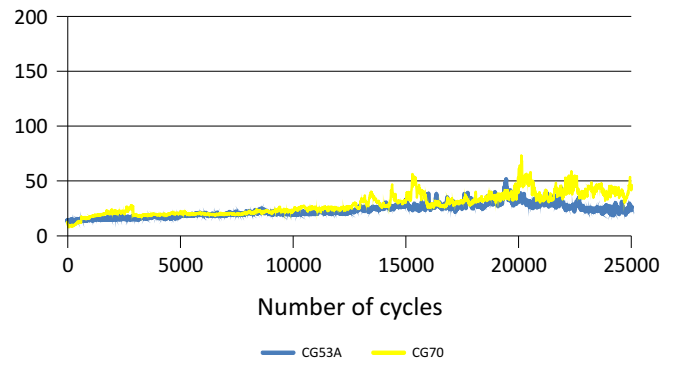
CG60 vs. CG71 mV Drop Comparison



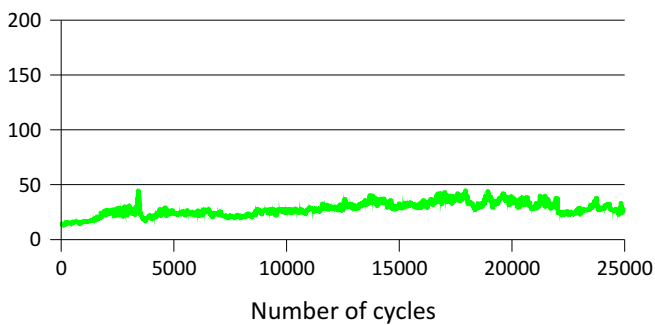
CG52B vs. SGN mV Drop Comparison



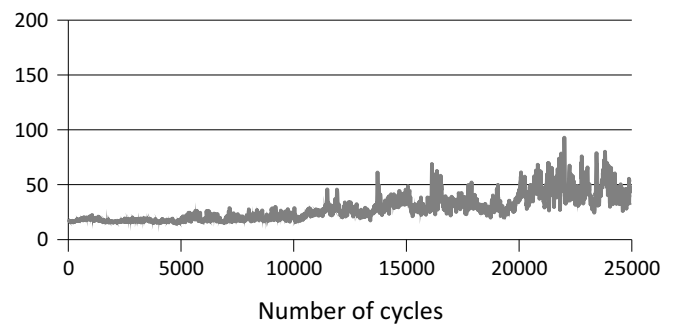
CG53A vs. CG70 mV Drop Comparison



EGF mV Drop Results



E3C - CA mV Drop Results

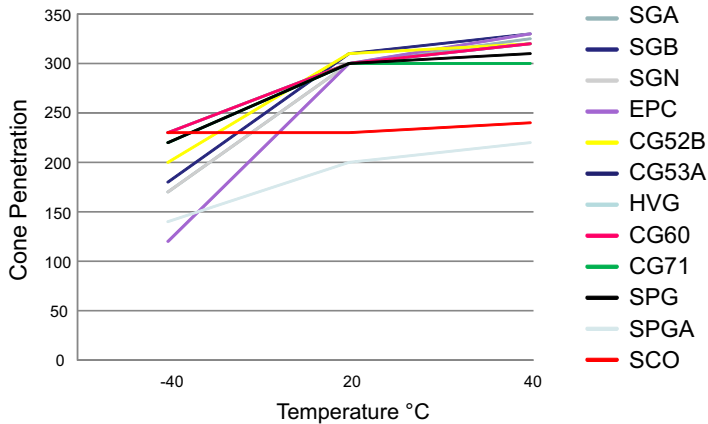


Cone Penetrations

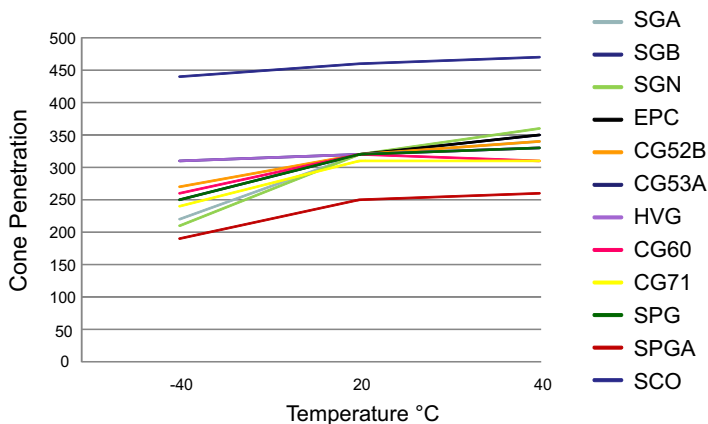
To establish the consistency and possible variations in performance at a range of temperatures, the cone penetration values were measured according to ASTM D217.

Various Electrolube contact lubricants/greases were tested for worked and unworked cone penetrations at -40°C, 20°C and 40°C.

Unworked Cone Penetration (ASTM D217)



Worked Cone Penetrations (ASTM D217 - 60 Strokes)



Mechanical Testing

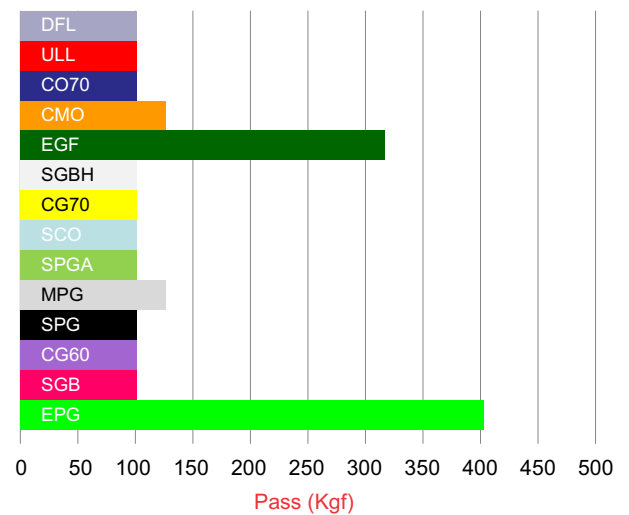
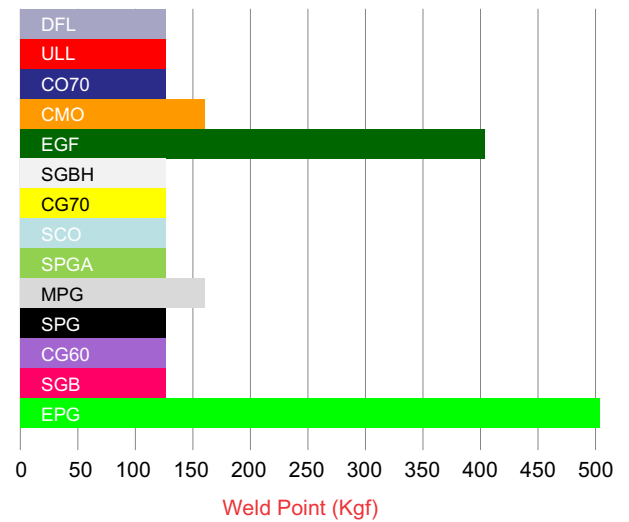
To establish the mechanical performance of the various contact lubricants / greases, 4-ball wear testing was completed to ASTM D2596/87.

The test consists of loading the grease into equipment that has four balls under a defined rotation and pressure loads are introduced onto those four balls. The load increases according to a logarithm function. For extreme pressure greases this load can start at 120 Kgf.

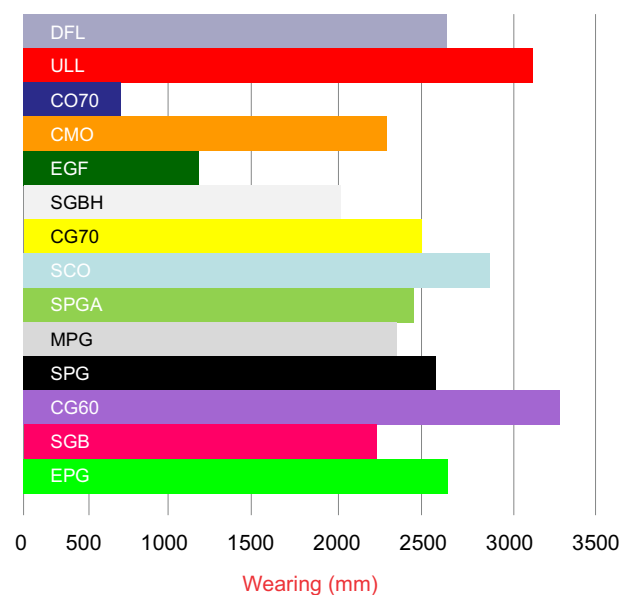
The results are given as a pass value and a wearing value at the pass value. The wearing value is measured in mm and quantifies the amount of wear observed on the balls utilised in the test.

The weld point is the end of the test where the wearing of the balls was more than 4 mm (the maximum according to the methodology). This value is usually only used for indication, the pass and wearing values are the most important for selection purposes.

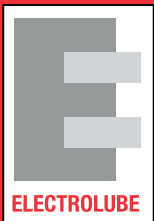
Comparison Data for 4-Ball Wear Tests



Wearing Results According to Pass Value



Should you require any further information,
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