

NEWSLETTER

Tamson Instruments

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Lubricants for Electric vehicles

In 2022, the global EV market share increased to 16% for new vehicles sales. EV require different lubricants compared to internal combustion engines (ICE). EV drivelines have fewer moving parts, incorporate different materials and operate under conditions that are, in many ways, different than those of ICE vehicles. The critical characteristics of the lubricants need to change. With the increasing sales of EV, this becomes more and more important.

There is a recent SAE instruction (SAE J3200™) with a focus on thermal and electrical conductivity, oxidation, and copper corrosion, to accommodate the needs for EV. This instruction includes the addition of CEC L-48-00 oxidation stability of lubricating oils used in automotive transmissions by artificial aging. An oxidation test to address future needs for electric driveline fluids. These future needs include longer oil service lifetime, better protection, fuel efficiency improvement and durability, reduced carbon emissions, and lower operating costs which have also led to higher

operating temperatures for axle lubricants. These higher operating temperatures have placed more severe demands on the thermal and oxidative performance of axle lubricants.

CEC L-48-00 assesses resistance of lubricants to high temperature oxidation and the ability to resist oil degradation and sludging. A lubricant is heated and aerated under controlled conditions. The samples are tested for kinematic viscosity change and infra-red spectroscopy (FTIR). The viscosity increase and the degree of oxidation are determined by comparing the fresh and aged oil. In both cases, the smaller the increase the better.

New Tamson CEC L 48-00 (B) Apparatus

Tamson is happy to introduce our new CEC L 48-00 (B) apparatus, a six position bath for this oxidation test. The robust and well insulated apparatus is delivered with six sets of glassware. Stand-rods with clamps to hold the glassware in the same position, six calibrated flowmeters, and tubing are included in the apparatus. Other accessories required for this test method are supplied by Tamson as well including viscosity baths.

Primary benefits of Tamson CEC L 48-00 (B) Apparatus:

- Equipped to hold up to six test tubes
- Levelling platform can be adjusted to line up the height of the bath fluid level with the glassware
- Large enough reservoir to keep the bath temperature stable during the entire period of sample heating
- Very precise temperature control (better than $\pm 0.02^{\circ}\text{C}$)
- Metal parts made from stainless steel
- Bath is equipped with a pump to circulate the bath medium to an external application when not used for oxidation tests
- Bath can be safely emptied using the bath drain
- Brackets to hold up to six flow meters
- Complete apparatus for six positions

Please visit [this link](#) to download the specification sheet. If you have any questions or would like to receive a quotation, please contact your local Tamson distributor or contact us at sales@tamson.nl



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