



X-1R Global Ltd

To: All X-1R distributors From: Nigel (Mac) McKenzie

Cc: Date 1st December 2015

Subject: Organic Molybdenum Compounds (OMC)

Within the South East Asian region we are constantly in competition with products that have as their main active ingredient some form of Organic Molybdenum Compound also known as OMC or AOMC, and thus I am being asked a number of questions about this type of additive. Manufacturers of Organic molybdenum claim it to be a second or third generation additive as it is an oil soluble moly compound and not a solid film lubricant, however the solubility claim is open for debate. OMC's function as friction modifier with anti-wear and antioxidant properties. There are few types of organic molybdenum compounds, three being most widely used are molybdenum dithiocarbamate, molybdenum-sulfur combination and molybdenum-sulfur-Phosphorus combination.

There are a few oil manufacturers that offer these as friction reducers/anti-wear/antioxidant in their Engine Oil, mainly in passenger car motor oil and also as an alternative to Chlorinated Paraffin in Metalworking fluids in industrial applications. In fact these OMC's are not a new technology they have been in use for many years and are present in small amounts in many Engine Oils. Few aftermarket brands (e.g. LIQUI MOLY, Bulls One and BluChem) offer these in retail packaging. There is a major drawback in the use of these organo-moly compounds as they are highly corrosive to copper (especially moly-sulfur combination), so these are most certainly **not** recommended in DIESEL ENGINE OIL.

OMC is quite a common and low cost additive, in fact even X-1R Engine Treatment uses a small amount of it, however, X-1R uses it as an as secondary aid rather than the primary active ingredient. So it all depends on which organo-moly compound is being used (along with what other synergistic additives and corrosion inhibitor). One cosmetic drawback of using solely organo-moly compound as retail product is that its appearance is quite dark in colour. But the key drawback of using a solely OMC product is the danger of overdosing the moly content in the engine oil, especially if that oil already contains moly compound added by oil manufacturer. This could lead to **severe** corrosion issue in engines.

To summarize, organo-moly compounds have been used as a friction modifier for several years now and in theory they can display adequate friction reducing and anti-wear properties, however, there is a major concern with the over-dosing of these products especially in Diesel Engines where there will be a copper corrosion issue. Additionally these compounds do not come close to the ability of the proprietary and patented formula of X-1R when it comes to Extreme Pressure (EP) properties.

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