



FIA Legal replacement for competition engines

Millers CVL (Competition Valve Lubricant)

Competition Valve Lubricant has been specially developed as a lubricant to protect valve seats in highly rated engines. The demise of lead from 'pump fuels' by 1st January 2000 may have very serious consequences for many engines originally designed to run on leaded petrol.

Background

Since catalytically equipped cars were marketed there has been a steady decline in the sales volume of leaded 4 star petrol. The older 5 star (101 octane) petrol specified for many cars produced in the early 1960's has long since disappeared from the market.

Competition vehicles have over the last few years been run on many different cocktails of fuel, many of which would be considered illegal by motor sports governing bodies. The best legal solution has been to use a 50/50 mixture of super plus unleaded (98 octane) and BS4040 4 Star leaded petrol (97 octane). This type of mixture resulted in a fuel which would lubricate the valve seats yet at the same time provide a fuel with approximately 99 octane. (The lead reacted with the SPL fuel to increase octane).

Some competitors have followed other routes which have ranged from a mild bending of the rules to blatant cheating in order to increase octane and hence achieve better power outputs. Obviously formula which run with a standard reference fuel cannot deviate from the specified fuel.

Some fuel companies have produced special racing fuels, some of which have been specified for, or approved for, use in certain championships. Such fuels tend to be expensive and are often a mild bending of the rules since they rarely come from a fuel pump.

For clarification of the fuel regulations in motor sport, the FIA governing body specifies in Appendix V the following:-

Section 9

- 9.1** The fuel must be commercial petrol, which comes from a service station pump without any additive other than that of a **LUBRICANT** on current sale. The fuel must comply with the following specifications:
102.2 RON and 90.0 MON max etc.

Millers Competition Valve Lubricant (CVL) treatment is a commercially available **LUBRICANT** for valves and valve seats to prevent Valve Seat Recession.

Valve and Seat Lubrication

The lead in petrol, which is known as Tetra Ethyl Lead (TEL), or Tetra Methyl Lead (TML) has a dual function.

1. It raises the octane of petrol
2. It forms lead oxides during the combustion process which coat the exhaust valve and seat to give a protective anti-wear lubricant. This prevents Valve Seat Recession when the engine valve seats are made from relatively soft metals, ie. cast iron.

With the withdrawal of leaded petrol from the marketplace by 1st January 2000 or earlier, and increasing difficulty of finding super unleaded, the competition driver may face varying problems:

- a) Severe Valve Seat Recession unless the valve seats have been modified or are originally produced using materials which can tolerate a lack of protection.
- b) Using a lower octane fuel (95) with commensurate power reductions.
- c) Buying very expensive racing fuels.
- d) Adding octane enhancers which are illegal.

Millers Competition Valve Lubricant has been exhaustively tested in a wide range of engines often found in racing which are known to require a lubricant to prevent recession. These results confirm that recession protection is the equivalent of present day 4 Star leaded petrol to BS 4040.

Millers CVL can be added to either 95 octane unleaded or 98 octane super plus unleaded to provide valve seat lubrication and performance equivalent to 4 or 5 Star leaded petrol respectively.