

HFA-1204 is a high quality antiwear product with the technical support of Shanghai Jiao Tong University, which was generated from our constant pursuit of technological progress and development. It is mainly composed of polymer modified aliphatic ester and possesses good stability. Due to the functional groups of long alkyl chain, carboxyl group and unsaturated double bond, HFA-1204 exhibits excellent antiwear performance in diesel oil.

Vital functions:

In the recommended dosage, HFA-1204 antiwear can exhibit the follow important functions:

- Show the excellent response performance in the HFRR test;
- Anti-corrosion performance;
- No reaction with engine oil;
- No reaction with diesel oil and other additives;
- Completely compatible with the materials of engine and fuel system.

Antiwear mechanism:

Due to the efficient formation of absorption film of the polar group in HFA-1204 on the metal surface, HFA-1204 performs good antiwear property. Meanwhile, because of the long unsaturated carbon chain, HFA-1204 presents good compatibility with diesel oil and low temperature performance. It is inclined to generate good tribofilm, resulting in excellent antiwear performance.

High frequency reciprocating rig (HFRR) test

The HFRR test result indicates that it will effectively reduce the wear scar diameter with a proper dosage of HFA-1204, which will fully meet the user's requirement of diesel oil lubricity.



Typical physicochemical and performance characteristics

Items		Index			
Acid value/(mgKOH/g)		≤ 1			
Condensation point/ °C		≤ -16			
Flash point (closed-cup) / °C		≥ 160			
Density (20°C) / (kg/M) ³		950±20			
Kinematic viscosity (40°C) /(mm ² /s)		< 100			
N/(mg/Kg)		≤ 200			
S / (mg/Kg)		≤ 100			
Metal (Na + K + Mg + Ca + Zn + Fe) / (mg/Kg)		≤ 50			
P/ (mg/Kg)		≤ 15			
B/ (mg/Kg)		≤ 15			
Si/ (mg/Kg)		≤ 15			
Cl/ (mg/Kg)		≤ 15			
Saturated fatty acid/ (wt. %)		≤ 2.5			
Water/ (vol. %)		Trace			
Mechanical impurities		None			
Low temperature storage performance (100mL sample , 2°C , 5h)		No precipitation			
Demulsification property (dosage:6 00mg/Kg)		No cloudy in water phase			
Total pollutants (dosage: 2% of mass) / (mg/Kg)		≤ 50			
H F R R	Blank diesel WS1.4/μm	460-520	521-600	601-700	> 700
	Diesel with additive WS1.4/μm	≤ 390	≤ 390	≤ 390	≤ 390
T e s t	Dosage/(mg/Kg)	≤ 80	≤ 150	≤ 200	≤ 300

Dosage

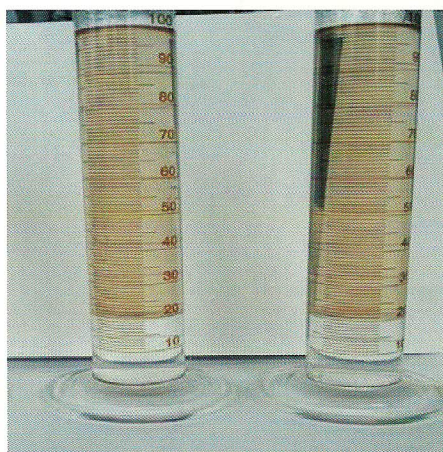
The recommended additive dosage is 80~300 mg/Kg. The specific dosage depends on the lubricity and susceptibility of base diesel oil and the user's requirement of the target lubricity of the diesel oil.

Innocuousness test

Plentiful innocuousness tests demonstrate that HFA-1204 antiwear exhibits no negative effects on the properties of diesel oil and it is fully compatible with the general additives of diesel oil and diesel engine oil.

Demulsification test

The demulsification test followed the standard of Sinopec and the result shows that HFA-1204 will not cause the emulsification of diesel oil. The details are shown as follow,



Compatibility test

Test results indicate that HFA-1204 is fully compatible with the general antiwear additives of diesel oil. Please confirm the compatibility of other new diesel additive before mixed application with HFA-1204.

Foaming resistance test

The foaming resistance test followed the GB/T 12579. The method is described briefly as follow: the diesel oil was impelled through a gas diffuser into a measuring cylinder. The volume of foam is measured at the end of both periods. The results indicate that HFA-1204 will not influence the anti-foaming property of diesel oil.

Stability test

The results of test and industrial application demonstrate that HFA-1204 can maintain quality stable in 12 months under the specific storage condition.

Material compatible test

HFA-1204 is compatible with the following plastic and rubber materials: nylon 66, nylon 11, acetaldehyde diethyl acetal, high density polyethylene (HDPE), polybutylene terephthalate (PBT), polyurethane (PU), polyester, nitrile-butadiene rubber (NBR), fluoro rubber. Meanwhile, HFA-1204 is completely compatible with the materials of fuel system.

Notes of storage, transportation and use

HFA-1204 is packed with 200L plastic drum in 180Kg and also can follow the user's requirement.

The product shall not be transported together with corrosive, inflammable or explosive cargo and avoid rain, exposure and fire during transportation. Please load and unload gently and do not throw and turn over.

The product shall store in a cool and dry place and keep away from heat source. Please keep it under seal and avoid mixing with water and impurities. Also keep ventilation in summer. For more information please refer to the MSDS of the product.

Technical support and service

Base on the research and application of different lubricant oils and as the developer and supplier of HFA-1204, we have relatively rich experience on the application of this product. Our technology professionals will do their best to provide comprehensive technical support and services for the users.

