For more information on how Innospec's Fuel Specialties team can work with you, please contact our regional sales office.

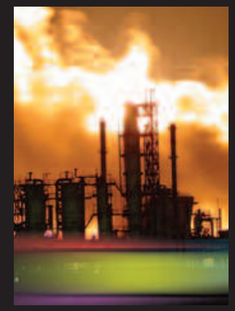
Our international office network offers unrivalled product support and it has the resources to deliver the required fuel additive treatments to customers anywhere in the world.

Innospec Fuel Specialties LLC
8375 South Willow Street
Littleton, Colorado 80124
Tel: 303-792-5554

Innospec Limited
Innospec Manufacturing Park
Oil Sites Road, Ellesmere Port
Cheshire, CH65 4EY, UK
Tel: +44 (0)151 355 3611

Innospec Limited
Branch Office Singapore
47 Scotts Road
#02-03 Goldbell Towers
Singapore 228233
Tel: +65-6336 6286

www.innospecinc.com



Fuel Additives Product Summary

innospec
fuel specialties

Refinery Specialties

The purpose of an antioxidant additive is to extend the induction period and control gum formation by terminating the free radical chain reactions involved in hydrocarbon oxidation. The antioxidant selection and concentration levels depend on various factors, including storage conditions and petroleum fuel composition.

Fuel Antioxidants

AO-22: N,N'-di-sec-butyl-p-phenylenediamine. Readily soluble in gasoline in all proportions. Sp. Gr. 0.94. USE: Sweetens gasoline and retards formation of gum. In turbine, transformer and hydraulic oils, waxes and greases to retard oxidation. CONC.: 2-15 ptb (6-43 mg/L). CONTAINERS: 55-gal. (419 lb) steel drums, T/T, Totes.

AO-24: A 50% A.I., principally N,N'-di-sec-butyl-p-phenylenediamine, in a high flash solvent. Sp. Gr. 0.92. USE: Sweetens gasoline and retards formation of gum. In turbine, transformer and hydraulic oils, waxes and greases to retard oxidation. Specially blended for low temperature handling. CONC.: 4-30 ptb (11-86 mg/L). CONTAINERS: 55-gal. (408 lb) steel drums, T/T, Totes.

AO-29: 2,6-di-tert-butyl-4-methylphenol. A light colored, finely divided solid, and readily soluble in oils. Sp. Gr. 1.05. USE: In turbine, transformer and hydraulic oils, waxes and greases to retard oxidation and in gasoline to reduce the formation of gum. CONC.: 2-20 ptb (6-57 mg/L). CONTAINER: 30-gal. (100 lb) fiber drums.

AO-30: 100% alkylated phenols, principally 2,4-dimethyl-6-tert-butylphenol (97% min.). A straw colored liquid, readily soluble in gasolines and oils. Sp. Gr. 0.96. USE: In jet fuels and gasolines to retard oxidation and in gasolines to reduce gum formation. CONC.: 1-10 ptb (3-29 mg/L). CONTAINER: 55-gal. (419 lb) steel drums.

AO-31: 100% alkylated phenols, principally 2,4-dimethyl-6-tert-butylphenol (72% min.). A straw colored liquid, readily soluble in gasolines and oils. Sp. Gr. 0.97. USE: In jet fuels and gasolines to retard oxidation, and in gasolines to reduce gum formation. CONC.: 1-10 ptb (3-29 mg/L). CONTAINER: 55-gal. (419 lb) steel drums.

AO-32: 100% alkylated phenols, principally 2,4-dimethyl-6-t-butylphenol (55% min.) and 2,6-di-tert-butyl-4-methylphenol (15% min.). Sp. Gr. 0.96. USE: In jet fuels and gasolines to retard oxidation, and in gasolines to reduce gum formation. CONC.: 1-10 ptb (3-29 mg/L). CONTAINER: 55-gal. (419 lb) steel drums.

AO-36: 100% alkylated phenols, principally propylated and butylated phenols. An amber liquid with excellent low temperature properties. Sp. Gr. 0.94. USE: In gasolines to retard oxidation and reduce gum formation. CONC.: 1-10 ptb (3-29 mg/L). CONTAINERS: 55-gal. (419 lb) steel drums, T/T. Also available as AO-36D (80% A.I.), in solvent.

AO-37: 100% alkylated phenols, principally 2,6-di-tert-butylphenol. An amber liquid readily soluble in gasoline. Sp. Gr. 0.94. USE: In jet fuels and gasolines to retard oxidation and reduce gum formation. Widely approved for aviation fuels. CONC.: 1-10 ptb (3-29 mg/L). CONTAINERS: 55-gal. (419 lb) steel drums, T/T. Also available as AO-37D (80% active) and AO-37/70 (70% active) in solvent.

AO-29, AO-31 and **AO-37** are acceptable for use in aviation gasoline and turbine fuels. Request further product information bulletins for additional details of additive properties and performance - Technical Memo 10,001 describes the use and approval status of Innospec Fuel Specialties additives for aviation fuels.

Lubricity improvers are non-metallic, phosphorous-free additives which provide boundary lubrication between moving fuel system components. Middle distillates typically contain trace materials, which have the ability to provide boundary lubrication between moving metallic parts in vehicle fuel systems. If, however, the fuels are processed to remove sulfur or reduce aromatic levels, a typical side effect is the removal of these species, with a resultant drop in fuel lubricity.

Fuel Lubricity Improvers

DCI-4A: A corrosion inhibitor lubricity additive for aviation and motor gasolines, jet fuels and other distillate fuels. Amber liquid. Sp. Gr. 0.94. USE: Widely approved and preferred for use in jet fuels. CONC.: 2-4 ptb (6-11 mg/L). CONTAINERS: 55-gal. (419 lb) steel drums, T/T, Totes.

OLI-9070.x: The only fully synthetic, ester based, non-interacting, non-acidic, sulfur compliant lubricity additives for use in low sulfur and ultra low sulfur diesel fuels. Available in dilute blends for low temperature handling. CONTAINERS: 55-gal. (425 lb) steel drums, T/T, Totes.

OLI-9101.x: Combination package of OLI-9070.x lubricity improver with Stadis® 425 conductivity improver. Available in dilute blends for low temperature handling. Also available in various concentrations of Stadis® 425 conductivity improver. CONC.: 25-105 ptb (71-299 mg/L) based on properties desired. CONTAINERS: 55-gal. (419 lb) steel drums, drums, T/T, Totes.

Refinery Specialties

Multifunctional gasoline additives can provide optimal metal deactivation, fuel stabilization and corrosion inhibition in a single additive package. These additives are often custom formulated and blended to meet specific fuel needs.

Multifunctional Gasoline Packages

DGS 105, 108, 109, 118, 119Y, 126, 132, 135, 136, 138, 139: Various combinations of antioxidants, metal deactivator and corrosion inhibitors. USE: Provide gasoline stability for severe service. CONC.: Varies by product/application. CONTAINERS: 55-gal. steel drums, T/T, Totes.

Conductivity improvers help reduce the electrostatic hazards associated with the transfer, mixing, and loading of distillate fuels and solvents. Stadis® 450 is the only approved conductivity improver for use in aviation turbine fuels and military jet fuels.

Fuel Conductivity Improvers

Stadis® 425: Non-metallic, low viscosity, straw colored liquid conductivity improver. Sp. Gr. 0.85. USE: Improves conductivity to reduce electrostatic hazards during transfer of distillate fuels and solvents without affecting fuel stability or water contact properties. CONC.: 0.1-1.0 ptb (0.3-3.0 mg/L). CONTAINERS: 35 lb pails, 55-gal. (386 lb) steel drums, T/T, Totes.

Stadis® 450: Non-metallic, low viscosity, amber liquid conductivity improver. Sp. Gr. 0.92. USE: Improves conductivity to reduce electrostatic hazards during transfer of distillate and jet fuels and solvents, without affecting fuel stability or water contact properties. Complete worldwide approval for jet fuels. CONC.: 0.1-1.0 ptb (0.3-3.0 mg/L). CONTAINERS: 35 lb pails, 55-gal. (410 lb) steel drums, T/T, Totes.

Internal corrosion is a serious problem since it gives rise to particulate contamination. Corrosion inhibitors impart antirust properties to hydrocarbon fuels and afford excellent corrosion protection to the fuel distribution system. Corrosion inhibitors are surface active molecules which attach to the metal surface and repel water. Widespread use of fuel oxygenates has increased the need for effective corrosion inhibitors.

Corrosion Inhibitors

DCI-4A: A corrosion inhibitor lubricity additive for aviation and motor gasolines, jet fuels and other distillate fuels. Widely approved and preferred for use in jet fuels. Amber liquid. Sp. Gr. 0.939. CONC.: 2-4 ptb (6-11 mg/L). CONTAINERS: 55-gal. (419 lb) steel drums, T/T, Totes.

DCI-6A: A corrosion inhibitor for motor gasoline and distillate fuels. Amber liquid. Sp. Gr. 0.944. CONC.: 1-3 ptb (3-9 mg/L). CONTAINERS: 55-gal. (419 lb) steel drums, T/T, Totes. Also available as DCI-6A 80/20 (80% A.I.) in solvent.

DCI-11: Corrosion inhibitor for gasolines containing oxygenates and for use in alcohols. Amber liquid. Sp. Gr. 0.942. CONC.: Preferably added to the alcohol to provide 2-3 ptb (6-9 mg/L) in the finished gasoline/oxygenate blend. CONTAINERS: 55-gal. (419 lb) steel drums, T/T, Totes.

DCI-30: Synthetic, caustic insensitive, sulfur compliant corrosion inhibitor which provides excellent corrosion protection in gasoline and distillate fuels during pipeline transfers and storage. Sp. Gr. 0.930. CONC.: 1-3 ptb (3-9 mg/L). CONTAINERS: 55-gal. (400 lb) steel drums, T/T, Totes. Also available as DCI-30.n/50 (50% A.I.) in solvent.

The FOA range of distillate additives stabilizes heating oils and diesel fuels by retarding the formation of gums, insoluble residues and color bodies. Fuel oil additives act as either antioxidants that prevent fuel degradation or as dispersants to prevent sludge-forming residues. Optimized fuel performance can be obtained by combining FOA's with other functional Innospec Fuel Specialties additives.

Fuel Oil Additives

FOA-3: A complex amine, clear, straw colored liquid. Sp. Gr. 0.86. USE: Ashless antioxidant and color stabilizer. Broader properties obtained by blending with metal deactivator. CONC.: 1-20 ptb (3-57 mg/L). CONTAINERS: 55-gal. (386 lb) steel drums, T/T, Totes.

FOA-5: A new advanced dispersant. A viscous, amber, ashless liquid in xylene. Sp. Gr. 0.90. USE: Retards formation of insolubles and disperses sludge in diesel fuels and heating oils. CONC.: 2-10 ptb (6-29 mg/L). CONTAINERS: 55-gal. (386 lb) steel drums, T/T.

FOA-6: A new advanced liquid antioxidant and color stabilizer for burner and diesel fuels. Sp. Gr. 0.83. CONC.: 1-12 ptb (3-34 mg/L). CONTAINERS: 55-gal. (380 lb) steel drums, T/T.

FOA-31A: An advanced multifunctional additive providing dispersancy, antioxidant properties, color stability, copper deactivation, and antihaze additive. Sp. Gr. 0.89. USE: Antioxidant, color stabilization, metal deactivation and reduction of organic sediment formation during storage. CONC.: 5-30 ptb (14-86 mg/L). CONTAINERS: 55-gal. (410 lb) steel drums, T/T.

Refinery Specialties

FOA-35A: An advanced multifunctional additive providing rust inhibition, dispersancy, antioxidant properties, color stability and copper deactivation. Sp. Gr. 0.898. USE: Antioxidant, color stabilization, metal deactivation, rust inhibition and reduction of organic sediment formation during storage. CONC.: 5-30 ptb (14-85 mg/L). CONTAINERS: 55-gal. (397 lb) steel drums, T/T.

FOA-405: Amber, ashless liquid. Sp. Gr. 0.91. USE: Imparts antioxidant and color stabilizing properties, corrosion inhibition and metal deactivation. CONC.: 3-8 ptb (9-23 mg/L). CONTAINERS: 55-gal. (410 lb) steel drums, T/T.

FOA-414: Amber, ashless liquid. Sp. Gr. 0.91. USE: Provides a convenient blend of DCI-6A and Stadis® 425 to impart conductivity and corrosion inhibition. CONC.: 3-4 ptb (9-11 mg/L). CONTAINER: T/T.

FOA-415: Amber, ashless liquid. Sp. Gr. 0.95. USE: Provides a convenient blend of DCI-6A and DMD to impart corrosion inhibition and metal deactivation. CONC.: 3-5 ptb (8-15 mg/L). CONTAINER: T/T.

De-icer

DIEGME: Sp. Gr. 1.023. USE: To inhibit icing in aviation fuel systems in both military (MIL-PRF-5624 and 83133) and commercial (ASTM D1655) jet fuels. CONC.: 0.10-0.15 vol %. CONTAINERS: 55-gal. (460 lb) steel drums, T/T.

Metal deactivators help stabilize fuels when naturally-occurring acidic compounds catalyze undesirable reactions with certain metals during distribution, storage and usage.

Metal Deactivators

DMD: A 75% solution of N, N'-Disalicylidene-1, 2-propanediamine. USE: Metal deactivator for improving storage and color stability of petroleum distillates containing dissolved copper. Particularly useful in jet fuel to improve JFTOT performance. CONC.: Varies widely with application. Also available as DMD-2 (50% A.I.) in solvent. CONTAINERS: 30-gal. (258 lb) and 55-gal. (483 lb) steel drums, T/T, Totes.

Hydrocarbon soluble dyes and markers facilitate fuel identification for both fiscal and security purposes.

Dyes and Markers

Hydrocarbon Soluble Dyes: USE: Impart distinctive colors to gasoline and other petroleum products.

Oil Blue A Powder	Oil Color IAR Liquid	Oil Red B4 (D50) Liquid
Oil Blue B Liquid	Oil Orange M2 Liquid	Oil Red B4 AS Liquid
Oil Bronze Liquid	Oil Purple M2 Liquid	Oil Red B4 ASW Liquid
Oil Brown M2 Liquid	Oil Red B4 Liquid	Oil Yellow R Liquid
Oil Green M2 Liquid	Oil Red B4 (D75) Liquid	

Cetane Improvers increase the ignition quality of distillate stocks and are considered a direct means of upgrading diesel fuels. These compounds readily decompose to generate free radicals which enhance the initiation of combustion.

Cetane Number Improvers

CI-0801: Alkyl nitrate. Sp. Gr. 0.967. USE: In diesel fuels to raise the cetane number. CONC.: 0.05-0.50 vol. %. CONTAINERS: R/C, T/T, 55-gal. (419 lb) steel drums, T/T.

CI-0802: An advanced cetane number improver. USE: Increase cetane number rating of diesel fuels, improves cetane quality of distillate stocks and imparts thermal stability to diesel fuels. Some fuels undergo thermal stability degradation when exposed to high concentrations of 2-EHN loading. CI-0802 contains a proprietary fuel stabilizer which restores thermal stability. CONC.: 0.05-0.50 vol. %.

CI-0808: Di-tert-butyl peroxide (50 wt %) in diesel fuel. Sp. Gr. 0.801. USE: In diesel fuels to raise the cetane number without increasing nitrogen content. CONC.: Up to 1.0 vol. %. CONTAINERS: R/C, T/T, 55-gal. (370 lb) steel drums, T/T.

Refinery Specialties

Changes in crude slates, fuel specifications, economics and refining requirements demand refiners take a new approach to handle wax related performance (pour point and cloud point) issues. Innospec Fuel Specialties can help refiners balance low temperature performance, quality and economics with next generation cold flow improvers.

Cold Flow Improvers

PPD-2000, 5000, 7000 Series: A wide variety of EV and copolymers in various types of solvents. USE: Depress the pour point and low temperature handling properties of middle distillate fuels. CONC.: Fuel dependent, varies from 8 to 150 ptb. CONTAINERS: T/T, Totes.

Innospec Fuel Specialties Next Generation of Pour Point Depressants allow for smaller dose levels, excellent thermal memory characteristics and dependable performance in ultra low sulfur diesel (ULSD). These benefits, combined with improved economic performance, allow the refiner to meet the required specifications while exceeding bottom line expectations. Our PPDs are based on the latest growth arrestor/nucleation polymers and are designed to be synergistic with downstream low temperature operability additives.

CPD-1000 Series: A variety of copolymers and terpolymers in various solvents. USE: Depress the cloud point and low temperature handling properties of middle distillate fuels. CONC.: Fuel dependent, varies from 8 to 150 ptb. CONTAINERS: T/T, Totes.

Cloud Point Depressants allow refiners flexibility in managing their jet/kero streams, thus maximizing their profits. CPDs can afford refiners the ability to upgrade valuable light-middle distillate components for higher value sales, while still meeting industry cloud point specifications.

DFI-600, DFI-700: Neat cold flow improver polymers designed to control the growth characteristics of the waxes found in middle distillate fuels. Benefits include improved low temperature pumpability, filterability and metering. CONTAINERS: R/C, T/T.

The current trend toward fuel efficiency and emissions reductions requires fuel intake system deposit control to ensure a smooth running engine. Innospec Fuel Specialties DMA-5XX series product range of multifunctional gasoline detergents can help maintain a clean engine.

Gasoline Deposit Control Additives

At the recommended treat rates the DMA-5XX series offers the following benefits:

- Intake Valve Deposits (IVD) keep clean
- Port Fuel Injector (PFI) keep clean
- Port Fuel Injector clean up
- Combustion Chamber Deposit (CCD) control
- Excellent corrosion protection
- Complete compatibility with component materials of the engine and fuel system
- Top tier performance

DMA-580: Base product of this series developed to meet all of the fuel industry's performance requirements. CONTAINERS: 55-gal. (408 lb) steel drums, T/T. Available in dilute blends for low temperature handling.

Innospec Fuel Specialties offers a wide variety of formulations to meet customer operability requirements. In addition, the DMA-5XX series meets the specified performance requirements of both the EPA and CARB.

Performance Specialties

When faced with low temperatures and varying fuel qualities, diesel engine performance can be greatly improved by using high performance fuel additives. Innospec's Winter Operability Additives not only improve cold flow and lubricity. They also utilize de-icer chemistry to prevent fuel filter and fuel line freezing.

Winter Operability Additives

1400: Multifunctional middle distillate fuel additive for improved winter operability. It functions as a wax modifier to improve low temperature operability of diesel fuel. This product lowers the Cold Filter Plugging Point and Pour Point. It also prevents fuel gelling in low temperatures. Disperses wax during extended engine shutdowns in cold climates. Aids against fuel system icing. Increases cetane by 1-3 numbers. Also contains a fully synthetic lubricity improver, a caustic resistant corrosion inhibitor and antioxidants to protect thermal and oxidative stability. Designed and reformulated specifically for Ultra Low Sulfur Diesel. CONTAINERS: T/T, 275 gal. totes, 55-gal. steel drums, 5-gal. steel pails, 2.5-gal. plastic containers.

1400 LFH: A low flash multifunctional middle distillate fuel additive for improved winter operability. It functions as a wax modifier to improve low temperature operability of diesel fuel. This product lowers the Cold Filter Plugging Point and Pour Point. It also prevents fuel gelling in extreme low temperatures. Disperses wax during extended engine shutdowns in cold climates. Aids against fuel system icing. Increases cetane by 1-3 numbers. Also contains a fully synthetic lubricity improver, a caustic resistant corrosion inhibitor and antioxidants to protect thermal and oxidative stability. Designed and reformulated specifically for Ultra Low Sulfur Diesel. CONTAINERS: T/T, 275-gal. totes, 55-gal. steel drums, 5-gal. steel pails, 2.5-gal. plastic containers.

1750: Multifunctional middle distillate fuel additive for improved winter operability. It functions as a wax modifier to improve low temperature operability of diesel fuel. This product lowers the Cold Filter Plugging Point and Pour Point. It also prevents fuel gelling in extreme low temperatures. Disperses wax during extended engine shutdowns in cold climates. Aids against fuel system icing. Increases cetane by 3-5 numbers. Also contains a fully synthetic lubricity improver, a caustic resistant corrosion inhibitor and antioxidants to protect thermal and oxidative stability. Designed and reformulated specifically for Ultra Low Sulfur Diesel. CONTAINERS: T/T, 275-gal. totes, 55-gal. steel drums, 5-gal. steel pails, 2.5-gal. plastic containers.

8500 HEC 40/80: A Low Flash winterized middle distillate fuel additive for improved winter operability. This product is designed for regions that require an additive with a low pour point for extreme storage conditions. 8500 HE C40/80 lowers the Cold Filter Plugging Point to prevent fuel gelling in low temperatures. Disperses wax during extended engine shutdowns in cold climates, aids against fuel system icing and contains a fully synthetic lubricity improver, a caustic resistant corrosion inhibitor and antioxidants to protect thermal and oxidative stability. Designed and reformulated specifically for Ultra Low Sulfur Diesel. CONTAINERS: T/T, 275-gal. totes, 55-gal. steel drums, 5-gal. steel pails, 2.5-gal. plastic containers.

9000HE: A multifunctional middle distillate fuel additive for improved winter operability. It functions as a wax modifier to improve low temperature operability of diesel fuel. Disperses wax during extended engine shutdowns in cold climates. Aids against fuel system icing. Also contains a fully synthetic lubricity improver, a caustic resistant corrosion inhibitor and antioxidant to protect thermal and oxidative stability. Designed specifically for fleet applications. Designed and reformulated specifically for Ultra Low Sulfur Diesel. CONTAINERS: T/T, 275-gal. totes, 55-gal. steel drums, 2.5-gal. plastic containers.

CFI-1902: A multifunctional middle distillate fuel additive for improved winter operability. This regionally blended additive functions as a wax modifier to improve low temperature operability of diesel fuel. This product lowers the Cold Filter Plugging Point and Pour Point. It also prevents fuel gelling in extreme low temperatures in the toughest to treat fuels. Disperses wax during extended engine shutdowns in cold climates, aids against fuel system icing, and contains a fully synthetic lubricity improver, a caustic resistant corrosion inhibitor and antioxidants to protect thermal and oxidative stability. Designed and reformulated specifically for Ultra Low Sulfur Diesel. CONTAINERS: T/T, 275-gal. totes, 55-gal. steel drums, 5-gal. steel pails, 2.5-gal. plastic containers.

AP-75 Type III: A concentrated multifunctional middle distillate fuel additive for improved winter operability in extreme temperatures. This regionally blended additive functions as a wax modifier to improve low temperature operability of diesel fuel. This product lowers the Cold Filter Plugging Point and Pour Point. It also prevents fuel gelling in extreme low temperatures in the toughest to treat fuels. Disperses wax during extended engine shutdowns in cold climates. Aids against fuel system icing. Also contains a fully synthetic lubricity improver, a caustic resistant corrosion inhibitor and antioxidant to protect thermal and oxidative stability. Designed and reformulated specifically for Ultra Low Sulfur Diesel. CONTAINERS: T/T, 275-gal. totes, 55-gal. steel drums, 5-gal. steel pails, 2.5-gal. plastic containers.

Performance Specialties

Effective fuel additive treatment is the best way to achieve optimum engine performance across a range of operating conditions. Our All Year Multifunctional Additives are designed to restore lost power, improve fuel economy and prolong engine life while reducing maintenance and harmful emissions.

All Year Multifunctional Additives

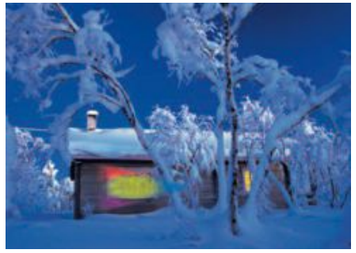
2400: A multifunctional middle distillate fuel additive that improves and maintains fuel efficiency. Passes class 8 Fuel Filter Plugging test, reduces exhaust emissions, effectively removes water on a gradual basis. Increases cetane by 2-4 numbers. It also includes a fully synthetic lubricity improver, a caustic resistant corrosion inhibitor and antioxidants to protect thermal and oxidative stability. Designed and reformulated specifically for Ultra Low Sulfur Diesel. CONTAINERS: T/T, 275-gal. totes, 55-gal. steel drums, 5-gal. steel pails, 2.5-gal. plastic containers.

2750: A multifunctional middle distillate fuel additive that improves and maintains fuel efficiency. Passes class 8 Fuel Filter Plugging test, reduces exhaust emissions, effectively removes water on a gradual basis. Increases cetane by 4-6 numbers. It also includes a fully synthetic lubricity improver, a caustic resistant corrosion inhibitor and antioxidants to protect thermal and oxidative stability. Designed and reformulated specifically for Ultra Low Sulfur Diesel. CONTAINERS: T/T, 275-gal. totes, 55-gal. steel drums, 5-gal. steel pails, 2.5-gal. plastic containers.

7000: A concentrated multifunctional middle distillate fuel additive that improves and maintains fuel efficiency. Passes class 8 Fuel Filter Plugging test, reduces exhaust emissions, effectively removes water on a gradual basis. It also includes a fully synthetic lubricity improver, a caustic resistant corrosion inhibitor and antioxidants to protect thermal and oxidative stability. Designed specifically for fleet applications and reformulated specifically for Ultra Low Sulfur Diesel. CONTAINERS: T/T, 275-gal. totes, 55-gal. steel drums, 5-gal. steel pails, 2.5-gal. plastic containers, 1-gal. plastic containers.

7725: A multifunctional middle distillate fuel additive that improves and maintains fuel efficiency. Passes class 8 Fuel Filter Plugging test, reduces exhaust emissions, effectively removes water on a gradual basis. It also includes a fully synthetic lubricity improver, a caustic resistant corrosion inhibitor and antioxidants to protect thermal and oxidative stability. Designed and reformulated specifically for Ultra Low Sulfur Diesel. CONTAINERS: T/T, 275-gal. totes, 55-gal. steel drums, 5-gal. steel pails, 2.5-gal plastic containers.

The specialist home heating oil market requires products that can deliver a combination of performance enhancements. From cleaning the fuel system and burner nozzles, to protecting key components against corrosion and improving low temperature operation, our multifunctional additives provide a complete solution.



Home Heating Oil Additives

3000: A multifunctional home heating fuel oil additive designed to enhance a wide spectrum of performance properties. This product cleans the fuel system by dispersing and removing sludge allowing it to pass harmlessly through fuel screens and filters. 3000 also cleans burner nozzles, protects metallic components and prevents catalytic degradation induced by free metals including copper. It reduces opportunity for microbial growth and water related corrosion and contains antioxidants to protect thermal and oxidative stability. This product also contains defoamers for quicker fuel tank filling. CONTAINERS: T/T, 275-gal. totes, 55-gal. steel drums, 5-gal. steel pails, 2.5-gal. plastic containers.

3100: A multifunctional home heating fuel oil additive designed to enhance a wide spectrum of performance properties. More specifically this product lowers the Pour Point and Cold Filter Plugging Point of the fuel. It also disperses wax to prevent gelling in low temperatures. This product cleans the fuel system by dispersing and removing sludge allowing it to pass harmlessly through fuel screens and filters. 3100 also cleans burner nozzles, protects metallic components and prevents catalytic degradation induced by free metals including copper. It reduces opportunity for microbial growth and water related corrosion and contains antioxidants to protect thermal and oxidative stability. This product also contains defoamers for quicker fuel tank filling. CONTAINERS: T/T, 275-gal. totes, 55-gal. steel drums, 5-gal. steel pails 2.5-gal. plastic containers.

Performance Specialties

Many of our market leading fuel additive chemistries are available as Packaged Products. With application by the end-user, these products provide a quick and efficient route to improved performance. We have additives specifically designed for home heating systems, marine applications, fleet vehicles and winter motorists.

Packaged Good Products

ECOHEAT: A multifunctional home heating fuel oil additive designed to enhance a wide spectrum of performance properties. More specifically this product lowers the Pour Point and Cold Filter Plugging Point of the fuel. It also disperses wax to prevent gelling in low temperatures. This product cleans the fuel system by dispersing and removing sludge allowing it to pass harmlessly through fuel screens and filters. EcoHeat also cleans burner nozzles, protects metallic components and prevents catalytic degradation induced by free metals including copper. It reduces opportunity for microbial growth and water related corrosion and contains antioxidants to protect thermal and oxidative stability. This product also contains defoamers for quicker fuel tank filling. CONTAINER: 32 oz. bottle.

ECOCLEAN: A multifunctional middle distillate fuel additive designed specifically for light duty applications. It functions as a product that improves and maintains fuel efficiency. Passes class 8 Fuel Filter Plugging test, reduces exhaust emissions, effectively removes water on a gradual basis. Increases cetane by 2-4 numbers. It also includes a fully synthetic lubricity improver, a caustic resistant corrosion inhibitor and antioxidants to protect thermal and oxidative stability. Designed and reformulated specifically for Ultra Low Sulfur Diesel. CONTAINER: 32 oz. bottle.

AQUACLEAN: A multifunctional middle distillate fuel additive designed specifically for marine applications. It functions as a product that improves and maintains fuel efficiency. Passes class 8 Fuel Filter Plugging test, reduces exhaust emissions, effectively removes water on a gradual basis. Increases cetane by 2-4 numbers. It also includes a fully synthetic lubricity improver, a caustic resistant corrosion inhibitor and antioxidants to protect thermal and oxidative stability. Designed and reformulated specifically for Ultra Low Sulfur Diesel. CONTAINER: 32 oz. bottle.

WINTERFLOW : A multifunctional middle distillate fuel additive for improved winter operability. This product lowers Cold Flow Filter Plugging Point to prevent fuel gelling in extreme low temperatures. Winterflow also contains wax modifiers; aids against fuel system icing and contains inhibitors to protect thermal and oxidative stability. Designed for fleet applications and reformulated specifically for Ultra Low Sulfur Diesel. CONTAINER: 32 oz. bottle.

EXTREME WINTERFLOW: A multifunctional middle distillate fuel additive for improved winter operability. This product lowers Cold Flow Filter Plugging Point to prevent fuel gelling in extreme low temperatures. Extreme Winterflow also contains wax modifiers; aids against fuel system icing and contains inhibitors to protect thermal and oxidative stability. Designed for fleet applications and reformulated specifically for Ultra Low Sulfur Diesel. CONTAINER: 16 oz. bottle.

RED ALERT: A winterized middle distillate fuel additive for use in emergency situations when fuel has gelled, or anticipated extreme circumstances that are beyond normal winter conditions. The anti-gel and de-icer combination dissolves gelled fuel that has already accumulated throughout the fuel system. This product is intended for emergency use only and is not recommended for continuous use. This product has a low flash point. See MSDS for further precautions. CONTAINER: 32 oz. bottle.

DIESEL SHIELD: A middle distillate fuel additive designed to impart lubricity to all middle distillate fuels. This patented chemistry has been developed to meet rigorous requirements of today's highly desulfurized diesel fuels. It is a fully synthetic chemistry that will not interact with lubricants, other fuel additives or adulterants (e.g. addition of used lubricants.) CONTAINER: 16 oz. bottle.

DRITEK: A middle distillate fuel additive designed to reduce water contamination in fuel storage tanks; specifically to inhibit microbial growth, as well as to act as a water "anti freeze" during severely cold weather. CONTAINER: 32 oz. bottle.

6000: Antibacterial and antifungal agent for preserving middle distillate fuels. 6000 partitions between the fuel and water phase providing protection in the fuel phase, the water phase, and the fuel/water interface. CONTAINER: 1-gal. container.

Performance Specialties

LEGAL DIESEL™ Fuel Additives

Innospec Fuel Specialties LLC was the first company to launch an entire ULSD product line that contains <15 ppm sulfur. Our LEGAL DIESEL™ Fuel Additives are all certified using proper Product Transfer Documents (PTDs). The PTDs clearly state:

"40CFR80.591(d) (1):

- *This diesel fuel additive complies with the federal low sulfur content requirements for use in diesel motor vehicles and nonroad engines."*
- *This is a LEGAL DIESEL™ Fuel Additive Product."*

Product 1400	CFI-1902	Product 7725	Product 1400 LFH
AP-75 Type III	Eco Clean	Product 1750	Product 2400
Aqua Clean	8500 HEC 40/80	Product 2750	WinterFlow
9000 HE	Product 7000	Extreme WinterFlow	Red Alert
Diesel Shield	DriTek	Product 6000	OLI-9070.x
CI-0801	CI-0802	PPD Series Products	CPD Series Products
CFI Series Products	DFI Series Products	SynLub	

Marine Specialties

Fuel treatment for marine applications is complex given the difficulties caused by today's high-density, poor quality marine fuels. Our additives are designed to optimize engine reliability, boost engine performance and reduce engine maintenance. They have been used successfully by the industry for many years.

Marine Specialties

Octamar™ BT-8: Octamar™ BT-8 is an asphaltene dispersant-stabilizer that keeps the fuel homogenized and the fuel system clean. The dispersant-stabilizer prevents fuel from stratification and the asphaltenes from agglomerating. This will greatly reduce sludge formation in fuel tanks and helps to keep separators, filters, fuel heaters, viscometers and injector (burner) tips clean, resulting in less maintenance and downtime. CONTAINER: 53-gal. steel drums (410 lb).

Octamar™ BT-8 PLUS: Octamar™ BT-8 PLUS is an asphaltene dispersant-stabilizer uniquely combined with a combustion catalyst that keeps the fuel system clean and improves the combustion of fuel. The dispersant-stabilizer prevents fuel from stratification and the asphaltenes from agglomerating. This will reduce sludge formation in fuel tanks and helps to keep separators, filters, fuel heaters, viscometers and injector (burner) tips clean, resulting in less maintenance and downtime. CONTAINER: 53-gal. steel drums (445 lbs).

Octamar™ F: Octamar™ F is a highly concentrated combustion improving agent, to optimize the combustion for marine fuel oils. A higher burn-out of carbon and hydrocarbon will reduce the build-up of deposits, reduces maintenance and increase the time between overhauls. The risk of T/C breakdown and boiler fires is significantly reduced. CONTAINER: 54kg pails (119 lbs).

Octamar™ MP-3 Plus: Octamar™ MP-3 PLUS is a concentrated combustion catalyst specially formulated to improve combustion of fuels with high C/H ration which are slow burning fuels. Faster and more complete combustion will reduce unburned carbon deposits, maintaining the cleanliness of engines and boilers. Octamar™ MP-3 PLUS is particularly valuable on vessels that are having smoke problems. CONTAINER: 53-gal. steel drums (414 lbs).

Octamar™ CP 3500: Octamar™ CP3500 is a metal free, organic combustion improver formulated to improve combustion in engines and boilers. A more complete combustion will reduce unburned carbon deposits and maintain engine and exhaust system cleanliness. CONTAINER: 55-gal. steel drums (399 lbs).

Marine Specialties

Octamar™ MP-55: Octamar™ MP-55, an ash inhibitor and combustion catalyst, is a highly concentrated organo-metallic additive for marine boilers burning heavy fuel oil. Octamar™ MP-55 allows shipping companies to successfully burn lower quality and less expensive residual fuels. Octamar™ MP-55 is very effective in reducing high and low temperature corrosion and reducing ash and soot deposits throughout the boiler. CONTAINER: 53-gal. steel drums (494 lbs).

Octamar™ MP-4: Octamar™ MP-4, an ash inhibitor and combustion catalyst, is a highly concentrated organo-metallic additive for residual marine fuels. Octamar™ MP-4 maintains exhaust valves, turbocharger and super-heater tubes free from ash and unburned carbon. Octamar™ MP-4 is soluble in all grades of residual fuel and is intended for use in diesel engines and boilers. CONTAINER: 53-gal. steel drums (450 lbs).

Octamar™ EB-1: is a concentrated, oil based slop oil emulsion breaker formulated to resolve high solid and water content slop oil emulsions.

Octamar™ SEA-L-SAVER: Octamar™ SEA-L-SAVER is a premium lubricant that blends with all petroleum based oils and fluids, improving their efficiency and extending their operating life. It extends the life of seals in stern tubes, bow thrusters and hydraulic systems and will stop, or substantially reduce, oil leaks from lubricating and hydraulic systems. CONTAINER: 55-gal. steel drums (417 lbs).

Industrial Detergent

Separ 8: is a fast breaking solvent emulsifier containing petroleum solvents and surfactants. CONTAINERS: 5-gal. pails, 55-gal. steel drums.

Multi Functional Marine Diesel

Octamar™ MMD Series: Octamar™ MMD series additives are dispersant-stabilizers uniquely combined with a combustion catalyst that keeps the fuel system clean and improves the combustion of fuel. It improves cetane number, provides injector detergency, lubricity, corrosion inhibition, and fuel stabilization. It removes and prevents deposits in the fuel system which can deteriorate fuel economy and emissions. Designed for handling at low temperatures. CONTAINERS: 5-gal. pails, 55-gal. drums, T/T.

Octamar™ 2600C MMD, Octamar™ 2650C MMD, Octamar™ 2700C MMD