



DISTILLATE FUEL CLASSIFICATIONS

What is the difference between distillate fuel grades? Let's start with the numbering system; e.g., No. 1, No. 2, etc. The numbering system identifies the grade of the fuel as defined by the American Society for Testing and Materials (ASTM). ASTM maintains a set of minimum specifications which a fuel must meet to be classified in a specific grade. These specifications were developed for each fuel grade based on the fuel's end use. We will discuss the six most widely used grades of distillate fuels: 1-K, 2-K, 1-D, 2-D, 1, and 2.

1-K and 2-K

The K indicates the fuel as a kerosene. Kerosene is the lightest, most volatile of the distillate fuel grades and is used in aviation, stationary turbine engines, and certain heating appliances. 1-K (also known as K-1) is a special low sulfur kerosene suitable for non-flue connected applications such as "pot type" space heaters, Timken-type burners, and centralized or home heating systems. 2-K is a higher sulfur kerosene suitable for flue-connected applications. BP and Amoco's 1-K is our premium quality kerosene. Its low end point, low sulfur, and high gravity make it an outstanding, clean burning fuel with excellent storage stability. ASTM D-3699 specifies the ASTM test requirements that 1K and 2-K fuels must meet.

1-D and 2-D Diesel

The D designates the fuel as "diesel." Diesel fuels are designed for use in internal combustion engines with compression ignition, such as heavy duty trucks, farming equipment, construction equipment and, passenger cars.

The grade 1-D (also known as #1 or No. 1) is a kerosene based diesel fuel having a higher volatility, but lower viscosity, density (higher API gravity), cloud/pour point, and less BTU per gallon than 2D. This fuel is designed for low temperature operation and is commonly blended with 2D fuel to improve winter cold flow characteristics (see PI Sheet on, "Preventing Winter Diesel Fuel Filter Plugging").

Grade No. 1-D and kerosene are very similar in their physical characteristics although different in their specifications. Therefore, sometimes their names are used interchangeably by customers. The specification for 1-D fuels is based on the fuel's ability to perform in a diesel engine as opposed to the specification for 1-K fuels, which is based on heating appliance applications. 1-D and 1-K have different specifications, but because they are so similar, one fuel is often made to meet both 1-D and 1-K specifications. Check with your BP, Amoco or Arco supplier to determine if 1-K can be substituted with 1-D. The biggest difference between 1-K and 1-D is in their end use, the application of road taxes, and maximum sulfur content levels.

The grade 2-D (also called #2 or No. 2 diesel fuel) is designed for use in heavy duty trucks, construction equipment, farm equipment, diesel passenger cars, etc. Most diesel engines are designed to burn 2-D fuel. It's a "heavier" fuel than 1-D (lower API gravity than 1-D) and it has higher BTU/gallons (more miles/gallon and more power). No. 2 diesel fuel from Arco, BP, and Amoco is an economic 40-cetane minimum, high BTU, ASTM No. 2 grade diesel fuel.

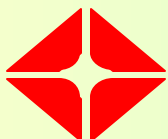
Premium Diesel Fuels

BP markets several premium No. 2 diesel fuels under the Amoco, ARCO and BP brands.

ARCO's ECD-1 is a superior, low sulfur reduced-pollution No. 2 diesel fuel, now available in Southern California. ECD-1 enables the use of next generation pollution control equipment on trucks.

BP offers a premium diesel fuel called Diesel Supreme that has a reputation for excellent diesel performance. Diesel Supreme is made from special basestocks giving it improved combustion characteristics. This means faster starts, less smoke and noise and extended engine life. Diesel Supreme also has excellent cold weather performance and improved lubricity and high (50+) cetane.

In certain areas of the country (Eastern and Southern U.S.), Amoco offers a premium diesel No. 2 fuel called PowerBlend. With high cetane and our exclusive Guardian additive package, PowerBlend offers premium diesel performance.



Amoco Premier Diesel Fuel (APDF) is a premium No. 2 diesel fuel that goes far beyond ASTM specifications. APDF's 50 cetane number, D-Guard additive and premium blended base fuel gives APDF the improved combustion characteristics of faster starts, less smoke, better cold weather performance, and extended engine life. Premier Diesel Fuel is made with a specially blended base fuel for improved lubricity, cold flow performance, and high cetane. APDF also contains our exclusive Guardian additive which helps keep fuel injectors clean, prevents rust formation in fuel systems, improves fuel stability, and reduces the formation of gum deposits.

1 and 2 Furnace/Heat Oils

Grades 1 and 2 are designations for distillate fuels for use in domestic or small industrial burners. They are sometimes referred to as heater or furnace oil and are not to be confused with kerosene, which is described above.

Grade 1 is a light distillate intended for use in burners of the vaporizing type in which the oil is converted to a vapor by contact with a heated surface or by heat radiation. High volatility is necessary to ensure that evaporation proceeds with a minimum of residue.

Grade 2 is a heavier distillate than Grade 1. It is intended for use in atomizing type burners which spray the oil into a combustion chamber where the tiny droplets burn while in suspension. This grade of oil is used in most domestic burners and in many medium capacity commercial-industrial burners where its ease of handling and ready availability sometimes justify its higher cost over the residual fuels. The Grade 1 is sometimes mixed with Grade 2 to improve winter cold flow properties, particularly in cold climates.

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