

# LIST OF COMMONLY ENCOUNTERED PETROLEUM AND PETROLEUM PRODUCTS<sup>1</sup>

May 11, 2006

PETROLEUM OR PETROLEUM PRODUCT GROUP <sup>1</sup>	TYPE	GRADE	SYNONYMS	USES	COMMENTS
Crude Oil <sup>1</sup>			Petroleum	Crude oil is converted at the refinery to petroleum products that are later used for fuel and non-fuel applications.	Crude oil is unrefined oil. The viscosity of crude oil varies from a light volatile fluid to a very viscous fluid that is difficult to pour.
Natural Gas <sup>1</sup>				Used as a fuel and as a raw material for creating petrochemicals.	A gaseous mixture of hydrocarbons that primarily consist of methane.
Motor Gasoline	Unleaded Gasoline	Regular	Plus	Motor vehicle and equipment fuel for spark-ignition internal combustion engines.	<p>MTBE is an oxygenate additive that is blended (15% or less by volume) with unleaded gasoline. Unleaded gasoline also contains numerous other additives such as detergents and rust inhibitors.</p> <p>Leaded <u>motor gasoline</u> use has been discontinued in the United States. Common additives include: tetraethyl and tetramethyl lead, 1, 2-dichloroethane (also called ethylene dichloride or EDC), and 1,2-dibromoethane (also called ethylene dibromide or EDB).</p> <p>Gasohol consists of a blend of 10% or less by volume of alcohol (generally ethanol, but sometimes methanol) and unleaded gasoline. The alcohol serves as an oxygenate additive replacement for MTBE.</p> <p>Ethanol (E85) consists of a blend of 85% by volume of ethanol and 15% by volume of unleaded gasoline.</p>
		Midgrade			
	Premium	Super, Supreme, Ultimate			
	Leaded Gasoline				
	Gasohol		Gasoline-Alcohol Blend		
	Ethanol (E85)		Grain Alcohol, Ethyl Alcohol		
Aviation Gasoline	AVGAS	AVGAS 80 AVGAS 100 AVGAS 100LL		Airplane fuel for spark-ignition internal combustion engines.	Aviation gasoline is a <u>leaded</u> fuel that is in current use today. AVGAS 100LL is the most commonly used grade and is a lower-lead content version of AVGAS 100.
White Gas			Camp Fuel, Stove Fuel, Lantern Fuel	Portable camp stoves and lanterns.	White gas is similar to unleaded gasoline, but white gas does not contain any of the additives that are present in unleaded gasoline. It is a clean burning gasoline fuel.
Kerosene <sup>2</sup>	Kerosene (non-jet fuel)	No. 1K (low sulfur) No. 2K (high sulfur)	Fuel Oil No. 1 <sup>2</sup>	Primarily used for heating and for stoves.	No. 1K does not need a flue for burning. No. 2 K requires a flue for burning.
Jet Fuel	Kerosene-Based Jet Fuel	JP-5	Aviation Turbine Fuel	Commercial and military turbojet and turboprop engines.	JP stands for jet propulsion. Jet A, Jet A-1, and Jet B are commercial-grade fuels. Jet A is the primary commercial and general aviation jet fuel that is used in the United States. JP-4 through JP-8 are military-grade jet fuels.
		JP-6			
JP-7					
JP-8					
Jet A					
Jet A-1					
Naphtha-Based Jet Fuel	JP-4				
	Jet B				

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Distillate Diesel Fuel <sup>3</sup>	Diesel Fuel No. 1	Diesel No. 1 (low sulfur) Diesel No. 1 (high sulfur)		High speed diesel engines operated under frequent speed and load changes (i.e., city buses).	Consists of a blend of kerosene and diesel fuel no. 2.
	Diesel Fuel No. 2	Diesel No. 2 (low sulfur) Diesel No. 2 (high sulfur)	Automotive Diesel, On-Road Diesel Off-Road Diesel, Farm Diesel, Red Diesel	High speed diesel engines operated under uniform speeds and loads (i.e., cars and trucks).	A middle distillate used primarily by motor vehicles for on-highway use. Used by off-road vehicles such as construction and farm vehicles.
Distillate Diesel Fuel or a Light Residual Diesel Fuel <sup>3</sup>	Diesel Fuel No. 4		Marine Diesel Fuel, Distillate Marine Diesel Fuel, Diesel Fuel No. 4-D, Railroad Diesel	Non-automotive applications for low- to medium-speed diesel engines under constant speeds and loads. Railroad diesel. Also used for large, low-speed ship propulsion engines.	A heavy distillate or a blend of distillate and residual oil.
Distillate Fuel Oil <sup>3</sup>	Fuel Oil No. 1 <sup>2</sup>	Fuel Oil No. 1 (low sulfur) Fuel Oil No. 1 (high sulfur)	Kerosene <sup>2</sup>	Primarily used for heating and for stoves.	A middle distillate fuel. It is intended for use in vaporizing type burners (oil is converted to a vapor upon contact with a heated surface or radiation).
	Fuel Oil No. 2	Fuel Oil No. 2 (low sulfur) Fuel Oil No. 2 (high sulfur)	Home Heating Oil	Primarily used for domestic heating and for medium-sized industrial/commercial burners.	A middle distillate fuel that is slightly heavier than no. 1 fuel oil. It is intended for use in atomizing type burners (oil is sprayed into droplets into a chamber and burn while in suspension).
Heavy Distillate or Light Residual Fuel Oil <sup>3</sup>	Fuel Oil No. 4	Light Fuel Oil No. 4 Heavy Fuel Oil No. 4	Light Residual Fuel	Primarily used for industrial/commercial burners.	A heavy distillate fuel or a distillate/residual oil blend. Usually a heavy distillate/residual fuel oil blend, but also can be a heavy distillate fuel.

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Residual Fuel Oil	Fuel Oil No. 5 <sup>4</sup>	Light Fuel Oil No. 5	Bunker B, Navy Special, Heating Oil No. 5	For commercial/industrial burners that are capable of burning fuel more viscous than fuel oil no. 4 without preheating. Also used for marine bunkering <sup>5</sup> and by power plants.	Light fuel oil no. 5 is a residual fuel of intermediate viscosity.
		Heavy Fuel Oil No. 5		Use is similar to light fuel oil no. 5, except that preheating is necessary in some burner types and in cold climates. Used mostly in large-size commercial and industrial heating.	Heavy fuel oil no. 5 is more viscous than light fuel oil no. 5.
	Fuel Oil No. 6 <sup>4</sup>	Bunker C, Grade 6, Heating Oil No. 6, Black Oil	Also used in power plants to generate electricity and for marine bunkering <sup>5</sup> .	Heavyweight residual fuel that is a high viscosity oil. It is difficult to pump and requires preheating prior to use.	
Used Oil			Waste Oil, Spent Oil, Used Crankcase Oil	Recycled used oil may be utilized as a fuel.	Used oil is defined in Rule 62-770.200(64), FAC.
Oil/Water Separator Petroleum			Liquid Trap Petroleum	Recycled oil/water separator petroleum may be utilized as a fuel.	Oil/water separators are liquid trap systems that are designed to separate the liquid petroleum fraction and to temporarily store the petroleum.
Lubricating or Mineral Oils (Automotive Applications) <sup>7</sup>	Gear Oil	Various	Manual Transmission Oil	Lubricating automotive manual transmissions and transaxles.	Applies only to gear oils, automatic transmission fluids, power steering fluids, brake fluids, motor oils, and hydraulic oils that contain petroleum distillates.
	Automatic Transmission Fluid		ATF	Lubricating automatic transmissions.	
	Power Steering Fluid			Automotive power steering systems.	
	Brake Fluid		Hydraulic Brake Fluid	Automotive disc or drum braking systems.	
	Motor Oil		Engine Oil	Automotive engine oil lubricant.	
	Hydraulic Oil		Hydraulic Lift Oil	Used in hydraulic lift systems at service station repair facilities.	

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Lubricating or Mineral Oils (Non-Automotive Applications) <sup>7</sup>	Specialty Oils	Various	Penetrating Oil, Bar and Chain oil, etc.	Various	Applies to all other lubricating or mineral oils that are not specified above under the Lubricating or Mineral Oils (Automotive Application) product group.
	Electrical Oils		Transformer Oil, Circuit Breaker Oil, etc.		
	Manufacturing Process Oils		Mineral Seal Oil, Textile Oil, Chemical and Rubber Industry Oil, etc.		
	General Lubricant Oils		Spindle Oil, General Machine Oil, Railroad Diesel Oil, Steam Cylinder Oil, etc.		
	Metalworking Oils Miscellaneous Oils		Quenching Oils, Cutting Oils, etc.		
Asphalt and Road Oils <sup>4</sup>			Bitumen, Asphaltene	Asphalt and Road Oils are used for paving, roofing, and waterproofing.	Asphalt and road oils are very heavy petroleum oils.
Petrochemical Feedstocks <sup>4</sup>	Benzene, Toluene, Xylenes, Naphthalene, Ethylene, Propylene, Butadiene, etc.			Used for the manufacturing of <u>non-fuel</u> products such as chemicals, synthetic rubber, and plastics.	Chemical feedstocks (inputs) that are used by industry and are derived from petroleum products.
Liquified Petroleum Gases <sup>4</sup>	Principal Gases (Propane and Butane) Other Gases (Ethane, Ethylene, Propylene, Butylene, Isobutane, Isobutylene, etc.)		LPGs	The major non-fuel use is as inputs (feedstocks) for the petrochemical industry. Fuel uses include domestic heating, cooking, and as alternative to gasoline for internal combustion engines.	Gaseous hydrocarbons that have been liquified and stored in tanks for use as a fuel.

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PETROLEUM SOLVENT GROUP <sup>1</sup>	TYPE	GRADE	SYNONYMS	USES	COMMENTS
Mineral Spirits <sup>8</sup>	Industrial Spirit (SBP or Special Boiling Point)		Rubber Solvent, Lacquer Diluent, Benzine, Special Naphtholite, Petroleum Benzine and Ether, etc.	Main use is in the rubber industry for tires. Also used in cements and adhesives.	Mineral Spirits generally consist of various solvents that are derived from refined petroleum-based products. Mineral Spirits are sometimes referred to as Special Naphthas or Petroleum Solvents.
	White Spirit		Stoddard Solvent, Dry Cleaning Safety Solvent, Naphthal Safety Solvent, Spotting Naphtha, High and Low Aromatic White Spirits, Mineral turpentine, Solvent naphtha, etc.	Uses include paints, varnishes, paint thinners, photocopier toners, adhesives, dry cleaning solvent, and a general cleaner and degreaser.	
	High Boiling Aromatic Solvents		Caromax, Shellsol A-150, Benzene, Toluene, Xylenes, etc.	Uses include paint thinners, fuel additives, cleaners, printing inks, rubber and textile industry.	

NON-PETROLEUM PRODUCT GROUP <sup>1</sup>	TYPE	GRADE	SYNONYMS	USES	COMMENTS
Additives Not Blended With Petroleum Products	Injection Cleaners	Techron, Techroline, etc.		Used for cleaning the fuel injectors in automobiles.	Consists of various chemicals that are stored either at manufacturing sites, oil refineries, oil terminals, or other bulk storage facilities. Tanks at oil terminals are sometimes labeled as "Exxon Additive", "Techron", etc. The additives are blended with the gasoline at the refinery or at the terminals before it is delivered to the retail station. If the additives have already been blended into the gasoline or the fuel oil, then the cleanup of the <u>gasoline or the fuel oil discharge</u> is regulated by Chapter 62-770, F.A.C. If the additives have not been blended into the gasoline or the fuel oil, then the <u>discharge of the additive</u> should be regulated by Hazardous Waste rule (Chapter 62-730, F.A.C.) or by the Contaminated Site Cleanup Criteria rule (Chapter 62-780, F.A.C.).
	Lead substitutes			Additive typically used for older vehicles that require leaded gasoline.	
	Fuel Oil Treatments			Uses include home heating oil and diesel engine treatments.	

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## FOOTNOTES

<sup>1</sup> Section 376.301(30), F.S., defines "petroleum" as all crude oil that is produced at the well in liquid form and natural gas, and all other hydrocarbons. Section 376.301(31), F.S., defines "petroleum product" as "any liquid fuel commodity made from petroleum" and specifically excludes as petroleum products liquified petroleum gas, no. 5 and no. 6 residual oils, bunker C residual oils (bunker C and fuel oil no. 6 are synonymous), intermediate fuel oils used for marine bunkering with a viscosity of 30 and higher, asphalt oils, and petrochemical feedstocks. All of the petroleum products listed in this table can be classified as petroleum, but only the petroleum substances that can be used for fuel and are not specifically excluded from the petroleum product definition in Section 376.301(31), F.S. can be classified as petroleum products. Additives not blended with petroleum products and mineral spirits are also listed in this table to clarify that they are classified as petroleum solvents (mineral spirits) or as non-petroleum derivatives (additives not blended with petroleum products).

<sup>2</sup> Kerosene and fuel oil no. 1 are sometimes listed in the literature as being synonymous. Other sources list kerosene as a type of fuel oil no. 1.

<sup>3</sup> The terms "diesel fuel" and "fuel oil" are often used interchangeably for diesel fuel no.1, no. 2, and no. 4 and fuel oil no. 1, no. 2, and no. 4. The term "diesel fuel" is most often used when referring to fuel for diesel engines. The term "fuel oil" is most often used when referring to fuel used for heating purposes. For example, diesel fuel no. 2 and fuel oil no. 2 are very similar in physical and chemical respects. The main differences between diesel fuel no. 2 and fuel oil no. 2 are the intended use of the two petroleum products and the additives that are added to each product for the particular use. Biodiesel can contain no petroleum or it can consist of a blend of petroleum and fatty acids derived from the refining of vegetable oils. Biodiesel that does not contain any petroleum (biodiesel B100), is not considered a petroleum product. Biodiesel that contains any petroleum (i.e., biodiesel B20, which contains 20% biodiesel and 80% petroleum diesel) is considered a petroleum product.

<sup>4</sup> Section 376.301(31), F.S., specifically excludes liquified petroleum gas, no. 5 and no. 6 residual oils, bunker C residual oils (bunker C is synonymous with fuel oil no. 6), intermediate fuel oils used for marine bunkering<sup>5</sup> with a viscosity of 30 and higher<sup>6</sup>, asphalt oils, and petrochemical feedstocks in the definition of petroleum products.

<sup>5</sup> Bunkering is the process of refueling the fuel tanks (bunkers) on marine ships.

<sup>6</sup> The viscosities of the fuel oils have a wide range and will vary based on temperature and the degree of blending. Blending of heavy fuel oil with lighter fuel oils is often performed by the refiner to change the viscosity of the oil. This makes it easier to handle for transport and delivery to the user.

<sup>7</sup> The general terms "lubricating oil" and "mineral oil" are often used interchangeably by industry.

<sup>8</sup> Mineral spirits consist of a variety of products that are often used as solvents. Section 206.9925(6), F.S., includes mineral spirits as one of the group of organic compounds that are listed in the definition of solvents. In Section 376.301(31), F.S., mineral spirits are not specifically excluded from the definition of a petroleum product; however, Section 376.3071(4)(o), F.S., states that solvent contamination is not eligible for funding under the Inland Protection Trust Fund. Depending on the particular type and use, mineral spirits should be regulated by either the Drycleaning Solvent Cleanup Criteria rule (Chapter 62-782, F.A.C.), the Hazardous Waste rule (Chapter 62-730, F.A.C.), or by the Contaminated Site Cleanup Criteria rule (Chapter 62-780, F.A.C.).