Chemical Industry Glossary

ABS resin  Acrylonitrile-Butadiene-Styrene copolymer. A group of tough, rigid thermoplastics derived from the monomers in the name. Uses include automobile and boat parts and fittings, business machines, packaging and other articles.

Absorbent  A substance that penetrates the inner structure of another, used to remove or extract one of the compounds of a mixed stream. The component is subsequently separated from the absorbent, usually by distillation.

Accelerator  A compound, usually organic, that greatly reduces the time for a reaction to take place.

Acetylene  A colorless gas derived by cracking hydrocarbons with steam or by partial oxidation of natural gas. In the chemical industry, it is a by-product of ethylene. It is used as an industrial gas and to produce vinyl chloride, acrylonitrile, and carbon black.

Acrylonitrile  A monomer derived mainly from the reaction of propylene or acetylene with HCN. This is a key raw material used in the fiber, plastics, and rubber industries.

Additive  A substance, added to a base material, in low concentrations, to perform a specific function such as to preserve, thicken, disperse or color. Chevron Phillips Specialty Chemicals and PAO organizations sell a range of additives and additive feedstocks that are used in industries such as mining, drilling, fuels, food, and personal care.

Adsorbent  A substance that can trap molecules of other substances on its surface.

Alcohol  The family name of a group of organic chemical compounds composed of carbon, hydrogen, and oxygen. The series of molecules vary in chain length and are composed of a hydrocarbon plus a hydroxyl group; CH3-(CH2)n-OH (e.g., methanol, ethanol, and tertiary butyl alcohol).

Alkylate  The product of an alkylation reaction. It usually refers to the high octane product from alkylation units. This alkylate is used in blending high octane gasoline.

Alkylation  A petrochemical process in which an alkyl radical is introduced to another molecule. Chemicals produced using alkylation chemistry include cumene, dodecylbenzene, and ethylbenzene. In the oil industry, alkylation refers to a process for making a high-octane blending component for gasoline.

Alpha Olefins  A range of highly linear terminal olefins formed by oligomerization of ethylene. Examples include 1-butene (C4=), 1-hexene (C6=), and 1-octene (C8=). A.k.a. NAO (Normal Alpha Olefins) or LAO (Linear Alpha Olefins). Alpha olefins are major petrochemical building blocks, which serve as polyethylene co-monomers and as reagents to form surfactants, plasticizers, and additives. NAO’s and NAO derivatives are used in a wide range of applications including: synthetic motor oils for jet engines and automobiles, synthetic lubricants, synthetic drilling fluids, additives for lube oil and...
the upstream oil industry, paper sizing, flavors, candles, PVC lubes, detergents, and a number of personal care items. Chevron Phillips Chemical is one of the largest producers in the world.

API Gravity An arbitrary scale expressing the gravity or density of liquid petroleum products. The measuring scale is calibrated in terms of degrees API; it may be calculated in terms of the following formula: The higher the API gravity, the lighter the compound. Light crudes generally exceed 38 degrees API and heavy crudes are commonly labeled as all crudes with an API gravity of 22 degrees or below. Intermediate crudes fall in the range of 22 degrees to 38 degrees API gravity.

Aromatics A highly reactive group of hydrocarbons with unsaturated rings of carbon atoms, enabling the production of a wide variety of products. As the name suggests, aromatics have a distinctive odor.

Aromax® process A Chevron Phillips Chemical proprietary process for production of benzene.

Asphalt A dark-brown-to-black cement-like material containing bitumens as the predominant constituent obtained by petroleum processing; used primarily for road construction. It includes crude asphalt as well as the following finished products: cements, fluxes, the asphalt content of emulsions (exclusive of water), and petroleum distillates blended with asphalt to make cutback asphalts. Note: The conversion factor for asphalt is 5.5 barrels per short ton.

ASTM The acronym for the American Society for Testing and Materials.

Atmospheric Crude Oil Distillation The refining process of separating crude oil components at atmospheric pressure by heating to temperatures of about 600 degrees Fahrenheit to 750 degrees Fahrenheit (depending on the nature of the crude oil and desired products) and subsequent condensing of the fractions by cooling.

Aviation Gasoline (Finished) A complex mixture of relatively volatile hydrocarbons with or without small quantities of additives, blended to form a fuel suitable for use in aviation reciprocating engines. Fuel specifications are provided in ASTM Specification D 910 and Military Specification MIL-G-5572. Note: Data on blending components are not counted in data on finished aviation gasoline. Aviation Gasoline Blending Components Naphthas which will be used for blending or compounding into finished aviation gasoline (e.g., straight-run gasoline, alkylate, reformate, benzene, toluene, and xylene). Excludes oxygenates (alcohols, ethers), butane, and pentanes plus. Oxygenates are reported as other hydrocarbons, hydrogen, and oxygenates.

Barrel A unit of volume equal to 42 U.S. gallons.

Barrels Per Calendar Day The amount of input that a distillation facility can process under usual operating conditions. The amount is expressed in terms of capacity during a 24-hour period and reduces the maximum processing capability of all units at the facility under continuous operation see Barrels per Stream Day to account for the following limitations that may delay, interrupt, or slow down production: the capability of downstream facilities to absorb the output of crude oil processing facilities of a given refinery. No reduction is made when a planned distribution of intermediate streams through other than downstream facilities is part of a refinery’s normal operation; the types and grades of inputs
to be processed; the types and grades of products expected to be manufactured; the environmental constraints associated with refinery operations; the reduction of capacity for scheduled downtime due to such conditions as routine inspection, maintenance, repairs, and turnaround; and the reduction of capacity for unscheduled downtime due to such conditions as mechanical problems, repairs, and slowdowns.

Barrels Per Stream Day The maximum number of barrels of input that a distillation facility can process within a 24-hour period when running at full capacity under optimal crude and product slate conditions with no allowance for downtime.

Benzene One of the most important chemical building blocks. Derived from catalytic reforming of naphtha, toluene dealkylation or disproportionation, pygas recovery, and, to a small extent, coal tar. Benzene is a raw material for the production of cumene, cyclohexane and styrene. Chevron Phillips Chemical is one of the largest producer of benzene in North America and the world.

Biomass-Based Diesel Fuel Biodiesel and other renewable diesel fuel or diesel fuel blending components derived from biomass, but excluding renewable diesel fuel co-processed with petroleum feedstocks.

Blending Plant See Motor or Aviation Gasoline Blending Components.

Blow molding A process used for producing hollow plastic parts such as milk bottles or automobile fuel tanks, by extruding a parrison (tube-shaped form) into a hollow mold, and then inflating the form against the cool mold surface, where it freezes into shape.

Bonded Petroleum Imports A facility which has no refining capability but is either capable of producing finished motor gasoline through mechanical blending or blends oxygenates with motor gasoline.

BTX The acronym for the commercial petroleum aromatics benzene, toluene, and xylene. See individual categories for definitions.

Bulk Station A facility used primarily for the storage and/or marketing of petroleum products which has a total bulk storage capacity of less than 50,000 barrels and receives its petroleum products by tank car or truck.

Bulk Terminal A facility used primarily for the storage and/or marketing of petroleum products which has a total bulk storage capacity of 50,000 barrels or more and/or receives petroleum products by tanker, barge, or pipeline.

Butadiene A high volume chemical intermediate usually obtained by purifying the byproduct mixed C4 stream (butadiene, isobutylene, MTBE, 1-butene) produced by a stream cracker. It can also be made by dehydrogenation of butene or butane. Uses: ABS resin, SBC (styrene butadiene copolymer) resin, neoprene.
Butane A normally gaseous straight-chain or branch-chain hydrocarbon extracted from natural gas or refinery gas streams. It includes normal butane and refinery-grade butane and is designated in ASTM Specification D1835 and Gas Processors Association Specifications for commercial butane. Normal Butane: A normally gaseous straight-chain hydrocarbon that is a colorless paraffinic gas which boils at a temperature of 31.1 degrees Fahrenheit and is extracted from natural gas or refinery gas streams. Refinery-Grade Butane: A refinery-produced stream that is composed predominantly of normal butane and/or isobutane and may also contain propane and/or natural gasoline. These streams may also contain significant levels of olefins and/or fluorides contamination.

Butylene An olefinic hydrocarbon recovered from refinery processes.

By-product Substances that are coincidentally created, without a separate commercial intent, in the course of producing another substance. Usually of lesser volume or value than primary or coproducts.

Captive Refinery Oxygenate Plants Oxygenate production facilities located within or adjacent to a refinery complex.

Carbon black Finely divided particles of carbon in powder form used in the manufacture of tires and other rubber articles, plastics, inks, and many other applications. Made by the incomplete combustion of oil, acetylene or natural gas.

Catalyst Solids, liquids, or gases, which in small percentages accelerate or enable the reaction of two or more other chemicals without themselves being consumed itself in the reaction. Sometimes the catalysts react momentarily with the other chemicals, creating conditions that permit the desired reaction to take place.

Catalytic Cracking The refining process of breaking down the larger, heavier, and more complex hydrocarbon molecules into simpler and lighter molecules. Catalytic cracking is accomplished by the use of a catalytic agent and is an effective process for increasing the yield of gasoline from crude oil. Catalytic cracking processes fresh feeds and recycled feeds.

Catalytic Hydrocracking A refining process that uses hydrogen and catalysts with relatively low temperatures and high pressures for converting middle boiling or residual material to high-octane gasoline, reformer charge stock, jet fuel, and/or high grade fuel oil. The process uses one or more catalysts, depending upon product output, and can handle high sulfur feedstocks without prior desulfurization.

Catalytic Hydrotreating A refining process for treating petroleum fractions from atmospheric or vacuum distillation units (e.g., naphthas, middle distillates, reformer feeds, residual fuel oil, and heavy gas oil) and other petroleum (e.g., cat cracked naphtha, coker naphtha, gas oil, etc.) in the presence of catalysts and substantial quantities of hydrogen. Hydrotreating includes desulfurization, removal of substances (e.g., nitrogen compounds) that deactivate catalysts, conversion of olefins to paraffins to reduce gum formation in gasoline, and other processes to upgrade the quality of the fractions.
Catalytic Reforming  A refining process using controlled heat and pressure with catalysts to rearrange certain hydrocarbon molecules, thereby converting paraffinic and naphthenic type hydrocarbons (e.g., low-octane gasoline boiling range fractions) into petrochemical feedstocks and higher octane stocks suitable for blending into finished gasoline. Catalytic reforming is reported in two categories. They are:

Low Pressure: A processing unit operating at less than 225 pounds per square inch gauge (PSIG) measured at the outlet separator.

High Pressure: A processing unit operating at either equal to or greater than 225 pounds per square inch gauge (PSIG) measured at the outlet separator.

Charge Capacity  The input (feed) capacity of the refinery processing facilities.

Coal  A readily combustible black or brownish-black rock whose composition, including inherent moisture, consists of more than 50 percent by weight and more than 70 percent by volume of carbonaceous material. It is formed from plant remains that have been compacted, hardened, chemically altered, and metamorphosed by heat and pressure over geologic time.

Commercial  Kerosene-type jet fuel intended for use in commercial aircraft.

Commodity  A general term referring to materials typically sold in large volumes in bulk and likely to be further processed before being used by consumers.

Co-monomer  A monomer, which, in combination with another monomer, is reacted to form a polymer, resin, or elastomer. Often used to modify the properties of a product, e.g. polyethylene.

Co-polymerization  Polymerization of two or more dissimilar monomers such as the creation of SBR (styrene butadiene rubber) from styrene and butadiene.

Co-product  Two or more key substances that are jointly produced in a given process. Examples: (1) ethylene and propylene in a cracker (2) styrene and propylene oxide in a POSM (propylene oxide/styrene monomer) plant (3) benzene, toluene and xylenes in a reformer.

Cracking, thermal  In the chemical industry, a manufacturing process in which distillate is exposed to high temperatures to produce hydrocarbon gases. Example: thermal cracking of ethane or naphtha to produce ethylene.

Crude Oil  A mixture of hydrocarbons that exists in liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Depending upon the characteristics of the crude stream, it may also include:

Small amounts of hydrocarbons that exist in gaseous phase in natural underground reservoirs but are liquid at atmospheric pressure after being recovered from oil well (casinghead) gas in lease separators and are subsequently commingled with the crude stream without being separately measured. Lease condensate recovered as a liquid from natural gas wells in lease or field separation facilities and later mixed into the crude stream is also included;

Small amounts of nonhydrocarbons produced from oil, such as sulfur and various metals;
Drip gases, and liquid hydrocarbons produced from tar sands, oil sands, gilsonite, and oil shale. Liquids produced at natural gas processing plants are excluded. Crude oil is refined to produce a wide array of petroleum products, including heating oils; gasoline, diesel and jet fuels; lubricants; asphalt; ethane, propane, and butane; and many other products used for their energy or chemical content. Crude oil is considered as either domestic or foreign, according to the following: Domestic: Crude oil produced in the United States or from its Aouter continental shelf* as defined in 43 USC 1331. Foreign: Crude oil produced outside the United States. Imported Athabasca hydrocarbons (tar sands from Canada) are included.

Crude Oil Losses Represents the volume of crude oil reported by petroleum refineries as being lost in their operations. These losses are due to spills, contamination, fires, etc. as opposed to refinery processing losses.

Crude Oil Production The volume of crude oil produced from oil reservoirs during given periods of time. The amount of such production for a given period is measured as volumes delivered from lease storage tanks (i.e., the point of custody transfer) to pipelines, trucks, or other media for transport to refineries or terminals with adjustments for (1) net differences between opening and closing lease inventories, and (2) basic sediment and water (BS&W).

Crude Oil Qualities Refers to two properties of crude oil, the sulfur content and API gravity, which affect processing complexity and product characteristics.

Crude Oil, Refinery Receipts Receipts of domestic and foreign crude oil at a refinery. Includes all crude oil in transit except crude oil in transit by pipeline. Foreign crude oil is reported as a receipt only after entry through customs. Crude oil of foreign origin held in bonded storage is excluded.

Crystallization A manufacturing process in which low temperatures cause the feed stream to solidify in crystalline form. This is a means of purification through evaporation or centrifugation. Sometimes used in the production of p-xylene.

Cumene An intermediate commodity chemical derived from benzene and propylene. Used to produce phenol and acetone which when oxidized and cleaved, produce resins, plastics and other materials.

Cyclohexane A commodity chemical derived from benzene and hydrogen. Used in the manufacture of nyons, primarily in carpeting and for engineering resin applications. Chevron Phillips Chemical is a top producer of cyclohexane in North America and the world.

Degradation The degeneration of the chemical structure, physical properties, or appearance of a chemical substance such as a plastic due to exposure to light, heat, oxygen, or other reagents.

Delayed Coking A process by which heavier crude oil fractions can be thermally decomposed under conditions of elevated temperatures and pressure to produce a mixture of lighter oils and petroleum coke. The light oils can be processed further in other refinery units to meet product specifications. The
Coke can be used either as a fuel or in other applications such as the manufacturing of steel or aluminum.

Density  The mass per unit volume. A common specification for chemical substances.

Desulfurization  The removal of sulfur, as from molten metals, petroleum oil, or flue gases. Petroleum desulfurization is a process that removes sulfur and its compounds from various streams during the refining process. Desulfurization processes include catalytic hydrotreating and other chemical/physical processes such as adsorption. Desulfurization processes vary based on the type of stream treated (e.g., naphtha, distillate, heavy gas oil, etc.) and the amount of sulfur removed (e.g., sulfur reduction to 10 ppm). See Catalytic Hydrotreating.

Dimethyl-terephthalate  A.k.a. DMT. An intermediate petrochemical derived from p-xylene. DMT is a traditional raw material for polyester resins but production facilities are being phased out in favor of more efficient terephthalic acid (TPA) plants.

Disposition  The components of petroleum disposition are stock change, crude oil losses, refinery inputs, exports, and products supplied for domestic consumption.

Disproportionation  A chemical reaction in which a single compound serves as both oxidizing and reducing agent, such as the dealkylation of toluene to give benzene (the more reduced product) and xylene (the more oxidized product).

Distillate Fuel Oil  A general classification for one of the petroleum fractions produced in conventional distillation operations. It includes diesel fuels and fuel oils. Products known as No. 1, No. 2, and No. 4 diesel fuel are used in on-highway diesel engines, such as those in trucks and automobiles, as well as off-highway engines, such as those in railroad locomotives and agricultural machinery. Products known as No. 1, No. 2, and No. 4 fuel oils are used primarily for space heating and electric power generation.

No. 1 Distillate: A light petroleum distillate that can be used as either a diesel fuel or a fuel oil.
No. 1 Diesel Fuel: A light distillate fuel oil that has a distillation temperature of 550 degrees Fahrenheit at the 90-percent recovery point and meets the specifications defined in ASTM Specification D 975. It is used in high-speed diesel engines generally operated under frequent speed and load changes, such as those in city buses and similar vehicles. See No. 1 Distillate.
No. 1 Fuel Oil: A light distillate fuel oil that has distillation temperatures of 400 degrees Fahrenheit at the 10-percent recovery point and 550 degrees Fahrenheit at the 90-percent recovery point and meets the specifications defined in ASTM Specification D 396. It is used primarily as fuel for portable outdoor stoves and portable outdoor heaters. See No. 1 Distillate.
No. 2 Distillate: A petroleum distillate that can be used as either a diesel fuel or a fuel oil.
No. 2 Diesel Fuel: A distillate fuel oil that has a distillation temperature of 640 degrees Fahrenheit at the 90-percent recovery point and meets the specifications defined in ASTM Specification D 975. It is used in high-speed diesel engines that are generally operated under uniform speed and load conditions, such as those in railroad locomotives, trucks, and automobiles. See No. 2 Distillate.
Low Sulfur No. 2 Diesel Fuel: No. 2 diesel fuel that has a sulfur level no higher than 0.05 percent by weight. It is used primarily in motor vehicle diesel engines for on-highway use.
High Sulfur No. 2 Diesel Fuel: No. 2 diesel fuel that has a sulfur level above 0.05 percent by weight.
No. 2 Fuel Oil (Heating Oil): A distillate fuel oil that has a distillation temperature of 640 degrees Fahrenheit at the 90-percent recovery point and meets the specifications defined in ASTM Specification D 396. It is used in atomizing type burners for domestic heating or for moderate capacity commercial/industrial burner units.

No. 4 Fuel: A distillate fuel oil made by blending distillate fuel oil and residual fuel oil stocks. It conforms to ASTM Specification D 396 or Federal Specification VV-F-815C and is used extensively in industrial plants and in commercial burner installations that are not equipped with preheating facilities. It also includes No. 4 diesel fuel used for low- and medium-speed diesel engines and conforms to ASTM Specification D 975.

No. 4 Diesel Fuel: See No. 4 Fuel.

No. 4 Fuel Oil: See No. 4 Fuel.

Distillation: A common manufacturing process for separation/purification in which a liquid is converted to a vapor and the vapor is then condensed to a liquid.

EcoSolv® Dry Cleaning Fluid: Chevron Phillips Chemical’s proprietary clean alternative to most dry cleaning solvents that is chlorine-free, biodegradable, and is 100% hydrocarbon-based.

E-III® Fire Training Fluids: Chevron Phillips Chemical’s E-III® FTFs are specially blended fluids that provide a safe and cost-effective way to train firefighters.

Elastomers: Polymers characterized by their flexibility and stretch, in particular various forms of rubber.

Electricity (Purchased): Electricity purchased for refinery operations that is not produced within the refinery complex.


Ending Stocks: Primary stocks of crude oil and petroleum products held in storage as of 12 midnight on the last day of the month. Primary stocks include crude oil or petroleum products held in storage at (or in) leases, refineries, natural gas processing plants, pipelines, tank farms, and bulk terminals that can store at least 50,000 barrels of petroleum products or that can receive petroleum products by tanker, barge, or pipeline. Crude oil that is in-transit by water from Alaska, or that is stored on Federal leases or in the Strategic Petroleum Reserve is included. Primary Stocks exclude stocks of foreign origin that are held in bonded warehouse storage.

Endothermic: The characteristic of a chemical reaction indicating it absorbs or uses energy, typically in the form of heat.

ETBE (Ethyl tertiary butyl ether): An oxygenate blend stock formed by the catalytic etherification of isobutylene with ethanol.
Ethane A normally gaseous straight-chain hydrocarbon. It is a colorless paraffinic gas that boils at a temperature of -127.48 degrees Fahrenheit. It is extracted from natural gas and refinery gas streams.

Ether A generic term applied to a group of organic chemical compounds composed of carbon, hydrogen, and oxygen, characterized by an oxygen atom attached to two carbon atoms (e.g., methyl tertiary butyl ether).

Ethylbenzene An intermediate used in the production of styrene. Derived from benzene and ethylene. Also, a non-xylene impurity that is naturally present in mixed xylenes and is also created during its fractionation.

Ethylene A colorless, flammable gas, ethylene is the largest volume petrochemical in the world. Ethylene has a number of uses, including the production of plastics such as polyethylene (PE) and polyvinyl chloride (PVC). Chevron Phillips Chemical is a top ethylene manufacturer in North America. Ethylene is mainly produced through the steam cracking (steam pyrolysis) of hydrocarbon feedstocks. Feedstocks used for steam cracking range from ethane to naphtha and gas oils. Some ethylene is also produced as a byproduct of petroleum refining.

Exothermic The characteristic of a chemical reaction indicating it releases energy, typically in the form of heat.

Exports Shipments of crude oil and petroleum products from the 50 States and the District of Columbia to foreign countries, Puerto Rico, the Virgin Islands, and other U.S. possessions and territories.

Expoxidation The reaction in which an olefin is converted to a cyclic, three-membered ether, i.e. an epoxide or oxirane.

Extractive distillation A type of distillation involving a fractionating column and characterized by use of an additive, often a solvent, which modifies the vaporization characteristics of the materials being processed to make them easier to separate. Example: Extraction of crude xylenes to remove non-aromatics and other impurities.

Extrusion A technique for making flat plastic sheet or profiles from a variety of resins. Articles using this technique include containers for food, beverages and personal care items, flat sheets for truck liners, plastic pipe, and large extruded sheets for geomembrane, pipe, and window framing.

Feedstocks Raw materials required for an industrial process. In the chemical industry, common feedstocks include natural gas or natural gas liquids such as naphtha, gas oil, and ethane. Benzene, ethylene, propylene, and other olefins are examples of feedstocks used as the building blocks for the production of value added petrochemicals.

Fiber Intermediates An informal term referring to a range of intermediate products derived from benzene or xylenes, such as p-xylene, cyclohexane, and TPA, which may be further processed to create polymers for synthetic fibers such as polyester and nylon.
Field Production  Represents crude oil production on leases, natural gas liquids production at natural gas processing plants, new supply of other hydrocarbons/oxygenates and motor gasoline blending components, and fuel ethanol blended into finished motor gasoline.

Flexicoking  A thermal cracking process which converts heavy hydrocarbons such as crude oil, tar sands bitumen, and distillation residues into light hydrocarbons. Feedstocks can be any pumpable hydrocarbons including those containing high concentrations of sulfur and metals.

Fluid Coking  A thermal cracking process utilizing the fluidized-solids technique to remove carbon (coke) for continuous conversion of heavy, low-grade oils into lighter products.

Fresh Feed Input  Represents input of material (crude oil, unfinished oils, natural gas liquids, other hydrocarbons and oxygenates or finished products) to processing units at a refinery that is being processed (input) into a particular unit for the first time.

Examples:
(1.) Unfinished oils coming out of a crude oil distillation unit which are input into a catalytic cracking unit are considered fresh feed to the catalytic cracking unit.
(2.) Unfinished oils coming out of a catalytic cracking unit being looped back into the same catalytic cracking unit to be reprocessed are not considered fresh feed.

Fuel Ethanol  An anhydrous alcohol (ethanol with less than 1% water) intended for gasoline blending as described in Oxygenates definition.

Fuels  Chevron Phillips Chemical offers a variety of specialty fuels and fluids including racing fuels, reference fuels, performance fuels, and fire training fluids.

Fuels Solvent Deasphalting  A refining process for removing asphalt compounds from petroleum fractions, such as reduced crude oil. The recovered stream from this process is used to produce fuel products.

Gas Oil  A liquid petroleum distillate having a viscosity intermediate between that of kerosene and lubricating oil. It derives its name from having originally been used in the manufacture of illuminating gas. It is now used to produce distillate fuel oils and gasoline.

Gasohol  A blend of finished motor gasoline containing alcohol (generally ethanol but sometimes methanol) at a concentration of 10 percent or less by volume. Data on gasohol that has at least 2.7 percent oxygen, by weight, and is intended for sale inside carbon monoxide nonattainment areas are included in data on oxygenated gasoline. See Oxygenates.

Gasoline Blending Components  Naphthas which will be used for blending or compounding into finished aviation or motor gasoline (e.g., straight-run gasoline, alkylate, reformate, benzene, toluene, and xylene). Excludes oxygenates (alcohols, ethers), butane, and pentanes plus.

Gasoline Treated as Blendstock (GTAB): See Motor Gasoline Blending Components.
Gel  An imperfection in a film or sheet product characterized by a small globular mass not fully blended into the surrounding material.

HDPE  High-density polyethylene. See polyethylene.

Heater  The furnace-and-tube arrangement that provides the principal heating element in a processing unit.

Heavy Gas Oil  Petroleum distillates with an approximate boiling range from 651 degrees Fahrenheit to 1000 degrees Fahrenheit.

High-Sulfur Distillate Fuel Oil  Distillate fuel oil having sulfur content greater than 500 ppm.

Hydrodealkylation  The process of removing a methyl or larger alkyl group from a molecule as in the conversion of toluene to benzene. A hydrogen atom replaces the alkyl group.

Hydrogen  The lightest of all gases, occurring chiefly in combination with oxygen in water; exists also in acids, bases, alcohols, petroleum, and other hydrocarbons.

Idle Capacity  The component of operable capacity that is not in operation and not under active repair, but capable of being placed in operation within 30 days; and capacity not in operation but under active repair that can be completed within 90 days.

Imported Crude Oil Burned As Fuel  The amount of foreign crude oil burned as a fuel oil, usually as residual fuel oil, without being processed as such. Imported crude oil burned as fuel includes lease condensate and liquid hydrocarbons produced from tar sands, gilsonite, and oil shale.

Imports  Receipts of crude oil and petroleum products into the 50 States and the District of Columbia from foreign countries, Puerto Rico, the Virgin Islands, and other U.S. possessions and territories.

Inhibitor  A.k.a. retarder. An additive that retards or stops an undesired chemical reaction such as spontaneous polymerization.

Injection molding  A process for converting plastics into consumer goods, such as bottle caps and closures, pails, cups, solid plastic articles, and thin wall molded products. The process involves forcing molten plastic material from a cylinder into a relatively cool cavity that gives the article the desired shape. The mold is released when the plastic has hardened.

Iso  A prefix meaning “the same”. An alternative definition is a structure containing a –CH(CH3)2 group, such as in isobutylbenzene (C6H5CH2CH(CH3)2).

Isobutane  A normally gaseous branch-chain hydrocarbon. It is a colorless paraffinic gas that boils at a temperature of 10.9 degrees Fahrenheit. It is extracted from natural gas or refinery gas streams.
Isobutylene  An olefinic hydrocarbon recovered from refinery processes or petrochemical processes.

Isohexane  A saturated branch-chain hydrocarbon. It is a colorless liquid that boils at a temperature of 156.2 degrees Fahrenheit.

Isomer  Molecules having the same number and kind of atoms, but differing in the spatial arrangement as in n-butane and isobutane.

Isomerization  A refining process which alters the fundamental arrangement of atoms in the molecule without adding or removing anything from the original material. Used to convert normal butane into isobutane (C4), an alkylation process feedstock, and normal pentane and hexane into isopentane (C5) and isohexane (C6), high-octane gasoline components.

Isopentane  See Natural Gasoline and Isopentane.

Isoprene Feedstock  A byproduct of ethylene production, isoprene feedstock is used to make isoprene, which in turn, is used to produce polyisoprene rubber for tires. Chevron Phillips Chemical produces isoprene feedstock at its Cedar Bayou and Sweeny facilities.

Kerosene  A light petroleum distillate that is used in space heaters, cook stoves, and water heaters and is suitable for use as a light source when burned in wick-fed lamps. Kerosene has a maximum distillation temperature of 400 degrees Fahrenheit at the 10-percent recovery point, a final boiling point of 572 degrees Fahrenheit, and a minimum flash point of 100 degrees Fahrenheit. Included are No. 1-K and No. 2-K, the two grades recognized by ASTM Specification D 3699 as well as all other grades of kerosene called range or stove oil, which have properties similar to those of No. 1 fuel oil. See Kerosene-Type Jet Fuel.

Kerosene-Type Jet Fuel  A kerosene-based product having a maximum distillation temperature of 400 degrees Fahrenheit at the 10-percent recovery point and a final maximum boiling point of 572 degrees Fahrenheit and meeting ASTM Specification D 1655 and Military Specifications MIL-T-5624P and MIL-T-83133D (Grades JP-5 and JP-8). It is used for commercial and military turbojet and turboprop aircraft engines.

K-Resin® SBC  Chevron Phillips Chemical's brand of styrene-butadiene copolymers known for its glass-like clarity, high impact strength, and value. It is easily produced using conventional processes like blow molding, injection molding, injection-blow molding, extrusion, thermoforming, and blown and cast films.

LAO  Linear Alpha Olefins. See alpha olefins.

LDPE  Low-density polyethylene. See polyethylene.

Leaching  The process of extracting a soluble material by percolating a liquid through it to dissolve the material. Later the liquid and dissolved materials are separated by various means. Leaching is used to remove salts from ores.
Lease Condensate  A mixture consisting primarily of pentanes and heavier hydrocarbons which is recovered as a liquid from natural gas in lease separation facilities. This category excludes natural gas liquids, such as butane and propane, which are recovered at downstream natural gas processing plants or facilities. See Natural Gas Liquids.

Light Gas Oils  Liquid Petroleum distillates heavier than naphtha, with an approximate boiling range from 401 degrees Fahrenheit to 650 degrees Fahrenheit.

Liquefied Petroleum Gases (LPG)  A group of hydrocarbon-based gases derived from crude oil refining or natural gas fractionation. They include: ethane, ethylene, propane, propylene, normal butane, butylene, isobutane, and isobutylene. For convenience of transportation, these gases are liquefied through pressurization.

Liquefied Refinery Gases (LRG)  Liquefied petroleum gases fractionated from refinery or still gases. Through compression and/or refrigeration, they are retained in the liquid state. The reported categories are ethane/ethylene, propane/propylene, normal butane/butylene, and isobutane/isobutylene. Excludes still gas.

LLDPE  Linear low-density polyethylene. See polyethylene.


Low-Sulfur Distillate Fuel Oil  Distillate fuel oil having sulfur content greater than 15 ppm to 500 ppm. Low sulfur distillate fuel oil also includes product with sulfur content equal to or less than 15 ppm if the product is intended for pipeline shipment and the pipeline has a sulfur specification below 15 ppm.

Lubricants  Substances used to reduce friction between bearing surfaces or as process materials either incorporated into other materials used as processing aids in the manufacture of other products, or used as carriers of other materials. Petroleum lubricants may be produced either from distillates or residues. Lubricants include all grades of lubricating oils from spindle oil to cylinder oil and those used in greases.

Marflex™ polyethylene  Flexible packaging resin used for blown and cast film, as well as extrusion coating/lamination.

Marlex® polyethylene  Extrusion and rigid packaging polyethylene resin used for pharmaceutical, cosmetic and liquid food bottles, pails and crates.

Marlex® polypropylene  Phillips Sumika Polypropylene Company brand name for its line of polypropylene products.

MDPE  Medium density polyethylene. See polyethylene.
Mercaptan  A.k.a. thiol. A typically odorous sulfur compound used in diverse applications, ranging from agricultural supplements to polymerization modifiers. Chevron Phillips Chemical offers a wide range of mercaptan structures, including linear, branched, and functionalized.

Merchant Oxygenate Plants  Oxygenate production facilities that are not associated with a petroleum refinery. Production from these facilities is sold under contract or on the spot market to refiners or other gasoline blenders.

Metalloocene  An organometallic coordination compound, or more specifically, a cyclopentadienyl derivative of a transition metal or metal halide. Metallocenes are best known as catalysts for polymerizing ethylene and propylene.

Metaxylene  A.k.a. m-xylene, 3-methyltoluene or 1,3-dimethylbenzene. Chevron Phillips Chemical’s Specialty Chemicals division sells high purity m-xylene.

Methanol  A light, volatile alcohol intended for gasoline blending as described in Oxygenate definition.

Middle Distillates  A general classification of refined petroleum products that includes distillate fuel oil and kerosene. Military Kerosene-Type Jet Fuel: See Kerosene-Type Jet Fuel.

Military  Kerosene-type jet fuel intended for use in military aircraft.

Miscellaneous Products  Includes all finished products not classified elsewhere (e.g., petrolatum, lube refining byproducts (aromatic extracts and tars), absorption oils, ram-jet fuel, petroleum rocket fuels, synthetic natural gas feedstocks, and specialty oils). Note: Beginning with January 2004 data, naphtha-type jet fuel is included in Miscellaneous Products.

Mole  The mass of a specific chemical defined as the weight of 6.02 x 10²³ atoms or molecules of that chemical.

Monomer  A molecule of relatively simple structure and low molecular weight that is capable of being polymerized with itself or co-monomers into polymers, synthetic resins, or elastomers. Examples of monomers include as ethylene, propylene, styrene, butadiene, and vinyl chloride.

Motor Gasoline (Finished)  Motor Gasoline (Finished): A complex mixture of relatively volatile hydrocarbons with or without small quantities of additives, blended to form a fuel suitable for use in spark-ignition engines. Motor gasoline, as defined in ASTM Specification D 4814 or Federal Specification VV-G-1690C, is characterized as having a boiling range of 122 to 158 degrees Fahrenheit at the 10 percent recovery point to 365 to 374 degrees Fahrenheit at the 90 percent recovery point. "Motor Gasoline" includes conventional gasoline; all types of oxygenated gasoline, including gasohol; and reformulated gasoline, but excludes aviation gasoline. Volumetric data on blending components, such as oxygenates, are not counted in data on finished motor gasoline until the blending components are blended into the gasoline. Note: E85 is included only in volumetric data on finished motor gasoline production and other components of product supplied.
Conventional Gasoline: Finished motor gasoline not included in the oxygenated or reformulated gasoline categories. Note: This category excludes reformulated gasoline blendstock for oxygenate blending (RBOB) as well as other blendstock.

Ed 55 and Lower: Finished conventional motor gasoline blended with a maximum of 55 volume percent denatured fuel ethanol.

Greater than Ed55: Finished conventional motor gasoline blended with denatured fuel ethanol where the volume percent of denatured fuel ethanol exceeds 55%.

OPRG: "Oxygenated Fuels Program Reformulated Gasoline" is reformulated gasoline which is intended for use in an oxygenated fuels program control area.

Oxygenated Gasoline (Including Gasohol): Oxygenated gasoline includes all finished motor gasoline, other than reformulated gasoline, having oxygen content of 2.0 percent or higher by weight. Gasohol containing a minimum 5.7 percent ethanol by volume is included in oxygenated gasoline. Oxygenated gasoline was reported as a separate product from January 1993 until December 2003 inclusive. Beginning with monthly data for January 2004, oxygenated gasoline is included in conventional gasoline. Historical data for oxygenated gasoline excluded Federal Oxygenated Program Reformulated Gasoline (OPRG). Historical oxygenated gasoline data also excluded other reformulated gasoline with a seasonal oxygen requirement regardless of season.

Reformulated Gasoline: Finished gasoline formulated for use in motor vehicles, the composition and properties of which meet the requirements of the reformulated gasoline regulations promulgated by the U.S. Environmental Protection Agency under Section 211(k) of the Clean Air Act. It includes gasoline produced to meet or exceed emissions performance and benzene content standards of federal-program reformulated gasoline even though the gasoline may not meet all of the composition requirements (e.g., oxygen content) of federal-program reformulated gasoline. Note: This category includes Oxygenated Fuels Program Reformulated Gasoline (OPRG). Reformulated gasoline excludes Reformulated Blendstock for Oxygenate Blending (RBOB) and Gasoline Treated as Blendstock (GTAB).

Reformulated (Blended with Alcohol): Reformulated gasoline blended with an alcohol component (e.g., fuel ethanol) at a terminal or refinery to raise the oxygen content.

Reformulated (Blended with Ether): Reformulated gasoline blended with an ether component (e.g., methyl tertiary butyl ether) at a terminal or refinery to raise the oxygen content.

Reformulated (Non-Oxygenated): Reformulated gasoline without added ether or alcohol components.

Motor Gasoline Blending: Mechanical mixing of motor gasoline blending components, and oxygenates when required, to produce finished motor gasoline. Finished motor gasoline may be further mixed with other motor gasoline blending components or oxygenates, resulting in increased volumes of finished motor gasoline and/or changes in the formulation of finished motor gasoline (e.g., conventional motor gasoline mixed with MTBE to produce oxygenated motor gasoline).

Motor Gasoline Blending Components: Naphthas (e.g., straight-run gasoline, alkylate, reformate, benzene, toluene, xylene) used for blending or compounding into finished motor gasoline. These components include reformulated gasoline blendstock for oxygenate blending (RBOB) but exclude oxygenates (alcohols, ethers), butane, and pentanes plus. Note: Oxygenates are reported as individual components and are included in the total for other hydrocarbons, hydrogens, and oxygenates.

MSDS: Material Safety Data Sheet. An international regulatory compliance document used to provide the physical and health hazards and exposure characteristics of a product to employees, customers, and known users. The document includes product name, chemical content,
physical properties, emergency and first aid procedures, and general safe handling precautions, including known operational, maintenance, and personal protective equipment controls.

MTBE (Methyl tertiary butyl ether): An ether intended for gasoline blending as described in Oxygenate definition.

NAO Normal Alpha Olefins or n-olefins. See alpha olefins.

Naphtha A generic term referring to a class of colorless, volatile, flammable liquid hydrocarbon mixtures. Naphtha is produced through fractionation of petroleum, natural gas, or coal tar and is one of the highest volume liquid fractions of crude oil. Light naphtha (aka natural gasoline or straight run gasoline) generally ranges from C5-C7. Light naphtha is a major raw material for production of gasoline, petrochemicals (especially ethylene), and solvents. Chevron Phillips Chemical is also able to use light naphtha as a feedstock to its Aromax® process.

Natural Gas A gaseous mixture of hydrocarbon compounds, the primary one being methane.

Natural Gas Field Facility A field facility designed to process natural gas produced from more than one lease for the purpose of recovering condensate from a stream of natural gas; however, some field facilities are designed to recover propane, normal butane, pentanes plus, etc., and to control the quality of natural gas to be marketed.

Natural Gas Liquids Those hydrocarbons in natural gas that are separated from the gas as liquids through the process of absorption, condensation, adsorption, or other methods in gas processing or cycling plants. Generally such liquids consist of propane and heavier hydrocarbons and are commonly referred to as lease condensate, natural gasoline, and liquefied petroleum gases. Natural gas liquids include natural gas plant liquids (primarily ethane, propane, butane, and isobutane; see Natural Gas Plant Liquids) and lease condensate (primarily pentanes produced from natural gas at lease separators and field facilities; see Lease Condensate).

Natural Gas Plant Liquids Those hydrocarbons in natural gas that are separated as liquids at natural gas processing plants, fractionating and cycling plants, and, in some instances, field facilities. Lease condensate is excluded. Products obtained include ethane; liquefied petroleum gases (propane, butanes, propane-butane mixtures, ethane-propane mixtures); isopentane; and other small quantities of finished products, such as motor gasoline, special naphthas, jet fuel, kerosene, and distillate fuel oil.

Natural Gas Processing Plant Facilities designed to recover natural gas liquids from a stream of natural gas that may or may not have passed through lease separators and/or field separation facilities. These facilities control the quality of the natural gas to be marketed. Cycling plants are classified as gas processing plants.

Natural Gasoline and Isopentane A mixture of hydrocarbons, mostly pentanes and heavier, extracted from natural gas, that meets vapor pressure, end-point, and other specifications for natural gasoline set by the Gas Processors Association. Includes isopentane which is a saturated branch-chain hydrocarbon, (C5), obtained by fractionation of natural gasoline or isomerization of normal pentane.
Net Receipts The difference between total movements into and total movements out of each PAD District by pipeline, tanker, and barge.

Normal A hydrocarbon chain containing a single unbranched chain of carbon atoms usually indicated by the prefix n-.

Normal Butane See Butane.

Odorant A substance, such as thiol that is added to a substance to give it a detectable odor. When you smell a gas leak, you are actually smelling the odorant added to it, as gas itself is odorless and therefore not easily detected.

Olefins A class of unsaturated aliphatic hydrocarbons having one or more double bonds. Created by thermal cracking of naphtha or gas fractions. Examples: ethylene, propylene.

Oligomer A low molecular weight polymer molecule formed by reacting a monomer with a catalyst. Oligomers consist of relatively few monomer units (dimer, trimer, tetramer, and up to about twelve) as compared with polymers. See alpha olefins.

OPEC An intergovernmental organization whose stated objective is to coordinate and unify petroleum policies of member countries. It was created at the Baghdad Conference on September 10–14, 1960. Current members (with years of membership) include Algeria (1969-present), Angola (2007-present), Ecuador (1973-1992 and 2007-present), Iran (1960-present), Iraq (1960-present), Kuwait (1960-present), Libya (1962-present), Nigeria (1971-present), Qatar (1961-present), Saudi Arabia (1960-present), United Arab Emirates (1967-present), and Venezuela (1960-present). Countries no longer members of OPEC include Gabon (1975-1994) and Indonesia (19622008).

Operable Capacity The amount of capacity that, at the beginning of the period, is in operation; not in operation and not under active repair, but capable of being placed in operation within 30 days; or not in operation but under active repair that can be completed within 90 days. Operable capacity is the sum of the operating and idle capacity and is measured in barrels per calendar day or barrels per stream day.

Operable Utilization Rate Represents the utilization of the atmospheric crude oil distillation units. The rate is calculated by dividing the gross input to these units by the operable refining capacity of the units.

Operating Capacity The component of operable capacity that is in operation at the beginning of the period.

Operating Utilization Rate Represents the utilization of the atmospheric crude oil distillation units. The rate is calculated by dividing the gross input to these units by the operating refining capacity of the units.

Organometallics Organic compounds comprised of one or more a metals attached directly to at least one carbon atom.
Organosol  A mixture of polymer and plasticizer used for molding, such as PVC (polyvinyl chloride).

Organosulfur chemicals  Includes functionalized mercaptans, sulfides, disulfides, polysulfides, methanesulfonic acid, methanesulfonyl chloride, and sulfolane. Has a wide array of uses such as poultry feed, agricultural materials, and polymer property control.

Orthoxylene  A.k.a. o-xylene, 2-methyltoluene, 1,2-dimethylbenzene, or OX. An isomer of xylene. Chevron Phillips Chemical produces high purity o-xylene at its plant in Borger, TX.

Other Hydrocarbons  Materials received by a refinery and consumed as a raw material. Includes hydrogen, coal tar derivatives, gilsonite, and natural gas received by the refinery for reforming into hydrogen. Natural gas to be used as fuel is excluded.

Other Oils Equal To or Greater Than 4010 F: See Petrochemical Feedstocks.

Other Oxygenates  Other aliphatic alcohols and aliphatic ethers intended for motor gasoline blending (e.g., isopropyl ether (IPE) or n-propanol).

Oxygenates  Substances which, when added to gasoline, increase the amount of oxygen in that gasoline blend. Fuel Ethanol, Methyl Tertiary Butyl Ether (MTBE), Ethyl Tertiary Butyl Ether (ETBE), and methanol are common oxygenates.

Fuel Ethanol: Blends of up to 10 percent by volume anhydrous ethanol (200 proof) (commonly referred to as the “gasohol waiver”).

Methanol: Blends of methanol and gasoline-grade tertiary butyl alcohol (GTBA) such that the total oxygen content does not exceed 3.5 percent by weight and the ratio of methanol to GTBA is less than or equal to 1. It is also specified that this blended fuel must meet ASTM volatility specifications (commonly referred to as the “ARCO” waiver).

Blends of up to 5.0 percent by volume methanol with a minimum of 2.5 percent by volume cosolvent alcohols having a carbon number of 4 or less (i.e., ethanol, propanol, butanol, and/or GTBA). The total oxygen must not exceed 3.7 percent by weight, and the blend must meet ASTM volatility specifications as well as phase separation and alcohol purity specifications (commonly referred to as the “DuPont” waiver).

MTBE (Methyl tertiary butyl ether): Blends up to 15.0 percent by volume MTBE which must meet the ASTM D4814 specifications. Blenders must take precautions that the blends are not used as base gasoline for other oxygenated blends (commonly referred to as the “Sun” waiver).

Paraxylene  A.k.a. p-xylene, p-methyltoluene, 4-methyltoluene, 1,4-dimethylbenzene, or PX. A high volume chemical intermediate that is an isomer of xylene. Primarily used as a raw material in the manufacture of terephthalic acid (TPA), purified terephthalic acid (PTA), and dimethyl-terephthalate (DMT) used to produce polyester. Chevron Phillips Chemical is one of the largest marketers of high purity paraxylene in the world.

Pentanes Plus  A mixture of hydrocarbons, mostly pentanes and heavier, extracted from natural gas. Includes isopentane, natural gasoline, and plant condensate.
Performance fuels  Chevron Phillips Chemical Performance Fuels meet many established industry and military specifications. The company also formulates fuels designed to meet API, EPA, CARB, IP, ISO, DIN, ECE, and other specifications.

Persian Gulf  The countries that comprise the Persian Gulf are: Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, and the United Arab Emirates.

Petrochemical Feedstocks  Chemical feedstocks derived from petroleum principally for the manufacture of chemicals, synthetic rubber, and a variety of plastics. The categories reported are "Naphtha Less Than 401° F" and "Other Oils Equal To or Greater Than 401° F."

Petroleum Coke  A residue high in carbon content and low in hydrogen that is the final product of thermal decomposition in the condensation process in cracking. This product is reported as marketable coke or catalyst coke. The conversion is 5 barrels (of 42 U.S. gallons each) per short ton. Coke from petroleum has a heating value of 6.024 million Btu per barrel.

Catalyst Coke: In many catalytic operations (e.g., catalytic cracking) carbon is deposited on the catalyst, thus deactivating the catalyst. The catalyst is reactivated by burning off the carbon, which is used as a fuel in the refining process. This carbon or coke is not recoverable in a concentrated form.

Marketable Coke: Those grades of coke produced in delayed or fluid cokers which may be recovered as relatively pure carbon. This “green” coke may be sold as is or further purified by calcining.

Petroleum Products  Petroleum products are obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds. Petroleum products include unfinished oils, liquefied petroleum gases, pentanes plus, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.

Phenolics  A class of thermoset resins made by the condensation of phenol or phenol-containing compounds with aldehydes such as acetaldehyde or formaldehyde.

Pipeline (Petroleum)  Crude oil and product pipelines used to transport crude oil and petroleum products respectively, (including interstate, intrastate, and intracompany pipelines) within the 50 States and the District of Columbia.

Plant Condensate  One of the natural gas liquids, mostly pentanes and heavier hydrocarbons, recovered and separated as liquids at gas inlet separators or scrubbers in processing plants.

Plasticizers  Compounds added to high molecular weight polymers to give them flexibility, softness, and stretch. Plasticizers can be added mechanically at the compounding or shaping stage or chemically by co-polymerization.

Polyalphaolefins  A.k.a. PAO. A synthetic hydrocarbon widely used for high-quality synthetic lubricants and hydraulic fluid, having excellent lubricity and oxidative stability, first developed commercially by Gulf Oil Products Co., now Chevron Phillips Chemical Co. LP.
Polymer  A large molecule formed by chemical reaction of one or more lower molecular weight reagents of five or more several identical combining units (monomers).

Polymerization  A chemical reaction, typically catalytic in nature in which monomers and possibly co-monomers are reacted to form a high molecular weight material. It can occur spontaneously or by introduction of reactive substances.

Polypropylene  A.k.a. PP. Found in everything from flexible and rigid packaging to fibers and large molded parts for automotive and consumer articles, polypropylene is a low-density plastic. Chevron Phillips Chemical produces and markets polypropylene through a partnership with Sumitomo Chemical Company Ltd., known as Phillips Sumika Polypropylene Company.

Polystyrene  A.k.a. PS. A versatile plastic derived from styrene that can be produced as foam or rigid packaging. Chevron Phillips Chemical produces and markets general-purpose polystyrene for use in containers, lids, cups, and other applications.

Polysulfides  In addition to their use as catalyst sulfidation agents, polysulfides are commonly used in the formulation of lubricant additives for extreme pressure functionality. Chevron Phillips Chemical’s polysulfides are of the general formula RSnR, where R is a linear or branched alkyl group and n = 3-5. The name polysulfides also refers to substances of general structure (R-S-R-S-R)n where R is an alkyl group. From this molecule class, Chevron Phillips Chemical offers only one product: Ryton® polyphenylene sulfide.

PPS  See Ryton® polyphenylene sulfide.

Processing Gain  The volumetric amount by which total output is greater than input for a given period of time. This difference is due to the processing of crude oil into products which, in total, have a lower specific gravity than the crude oil processed.

Processing Loss  The volumetric amount by which total refinery output is less than input for a given period of time. This difference is due to the processing of crude oil into products which, in total, have a higher specific gravity than the crude oil processed.

Product Supplied, Crude Oil  Crude oil burned on leases and by pipelines as fuel.

Products Supplied  Approximately represents consumption of petroleum products because it measures the disappearance of these products from primary sources, i.e., refineries, natural gas processing plants, blending plants, pipelines, and bulk terminals. In general, product supplied of each product in any given period is computed as follows: field production, plus refinery production, plus imports, plus unaccounted for crude oil, (plus net receipts when calculated on a PAD District basis), minus stock change, minus crude oil losses, minus refinery inputs, minus exports.

Propane  A normally gaseous straight-chain hydrocarbon. It is a colorless paraffinic gas that boils at a temperature of -43.67 degrees Fahrenheit. It is extracted from natural gas or refinery gas streams. It includes all products designated in ASTM Specification D1835 and Gas Processors Association Specifications for commercial propane and HD-5 propane.
Propylene is an olefin molecule of chemical formula C3H6 produced from natural gas liquids and refinery streams in steam crackers. Chevron Phillips Chemical uses propylene internally to manufacture polyethylene, polypropylene, alpha olefins, and styrene and sells it to external customers who produce these and other materials such as polyester, acrylics, ethylene glycol antifreeze, polyvinyl chloride (PVC), propylene oxide, oxo alcohols, and isopropanol.

PTA
Purified terephthalic acid (TPA).

Purity
A chemical product characteristic measured as 100% minus the sum of impurities proscribed in a given specification.

Pyrolysis
A process in which high heat alone (i.e. without oxygen) is used to transform one compound into one or more lower molecular weight materials.

Pyrolysis gasoline
A.k.a. pygas. A by-product of ethylene production used as a source for benzene.

Reactive
A chemical which in the pure state, or as produced or transported, will vigorously polymerize, oligomerize, oxidize, decompose, condense, or will otherwise be readily converted to another material if contacted with a second reagent, or if conditions are suitable to sustain a reaction (including shock, pressure or temperature).

Reference fuels
Chevron Phillips Chemical reference fuels help establish the quality of transportation vehicle fuels in standardized test procedures. The company supplies a broad range of reference fuels and fluids, including primary and secondary standards for gasoline, diesel, and aviation fuel. It also supplies a variety of test fluids used as reagents in various ASTM, SAE, and MilSpec tests.

Refinery
An installation that manufactures finished petroleum products from crude oil, unfinished oils, natural gas liquids, other hydrocarbons, and oxygenates.

Refinery Input
The raw materials and intermediate materials processed at refineries to produce finished petroleum products. They include crude oil, products of natural gas processing plants, unfinished oils, other hydrocarbons and oxygenates, motor gasoline and aviation gasoline blending components and finished petroleum products.

Refinery Production
Petroleum products produced at a refinery or blending plant. Published production of these products equals refinery production minus refinery input. Negative production will occur when the amount of a product produced during the month is less than the amount of that same product that is reprocessed (input) or reclassified to become another product during the same month. Refinery production of unfinished oils, and motor and aviation gasoline blending components appear on a net basis under refinery input.

Refinery Yield
Refinery yield (expressed as a percentage) represents the percent of finished product produced from input of crude oil and net input of unfinished oils. It is calculated by dividing the sum of crude oil and net unfinished input into the individual net production of finished products. Before calculating the yield for finished motor gasoline, the input of natural gas liquids, other
hydrocarbons and oxygenates, and net input of motor gasoline blending components must be subtracted from the net production of finished motor gasoline. Before calculating the yield for finished aviation gasoline, input of aviation gasoline blending components must be subtracted from the net production of finished aviation gasoline.

Reformate A mixed composition stream produced by a catalytic or thermal reformer. Reformate is a feedstock for benzene and xylene.

Renewable Diesel Fuel Diesel fuel and diesel fuel blending components produced from renewable sources that are coprocessed with petroleum feedstocks and meet requirements of advanced biofuels.

Renewable Fuels Fuels and fuel blending components, except biomass-based diesel fuel, renewable diesel fuel, and fuel ethanol, produced from renewable biomass.

Residual Fuel Oil A general classification for the heavier oils, known as No. 5 and No. 6 fuel oils, that remain after the distillate fuel oils and lighter hydrocarbons are distilled away in refinery operations. It conforms to ASTM Specifications D 396 and D 975 and Federal Specification VV-F-815C. No. 5, a residual fuel oil of medium viscosity, is also known as Navy Special and is defined in Military Specification MIL-F-859E, including Amendment 2 (NATO Symbol F-770). It is used in steam-powered vessels in government service and inshore power plants. No. 6 fuel oil includes Bunker C fuel oil and is used for the production of electric power, space heating, vessel bunkering, and various industrial purposes.

Residue Residue from crude oil after distilling off all but the heaviest components, with a boiling range greater than 1000 degrees Fahrenheit.

Road Oil Any heavy petroleum oil, including residual asphaltic oil used as a dust palliative and surface treatment on roads and highways. It is generally produced in six grades from 0, the most liquid, to 5, the most viscous.

Rotational molding A high-temperature, low-pressure process used to form hollow parts through the application of heat to biaxially rotated molds. Articles manufactured this way include recreational equipment and storage tanks for agriculture, industrial chemicals or waste.

Ryton® Polyphenylene Sulfide (PPS) An engineering thermoplastic, Ryton® PPS offers thermal stability, dimensional stability, chemical resistance, and flame resistance in addition to excellent mechanical and electrical properties. Ryton® PPS is used in a variety of industries for automotive, appliance, electronic, and industrial applications.

SBC resin Styrene-butadiene copolymer. See K-Resin® SBC.

Scentinel® odorant Chevron Phillips Chemical’s proprietary trademark for its line of odorants used to give natural gas and propane a distinctive odor.

Shell Storage Capacity The design capacity of a petroleum storage tank which is always greater than or equal to working storage capacity.
Soltex® additive  Chevron Phillips Chemical’s proprietary brand of drilling mud additive. Soltex®
additive is used in water, oil and synthetic-based drilling fluids to stabilize shale formations and
increase hole lubricity for oil and gas drilling.

Soltrol® isoparaffin  Chevron Phillips Chemical’s proprietary trademark for its line of isoparaffin
solvents used for parts cleaning and degreasing applications as well as solvents in inks, paints, and
agrochemicals.

Solute  A substance that has been completely dissolved in a solvent.

Solvent  A substance, typically in the liquid state, capable of dissolving another substance.
Chemical solvents are made of chemical building blocks (e.g. ethylene, propylene and butene). Their
molecular structures are well defined and they are sold based their specifications.

Special Naphthas  All finished products within the naphtha boiling range that are used as paint
thinners, cleaners, or solvents. These products are refined to a specified flash point. Special naphthas
include all commercial hexane and cleaning solvents conforming to ASTM Specification D1836 and
D484, respectively. Naphthas to be blended or marketed as motor gasoline or aviation gasoline, or that
are to be used as petrochemical and synthetic natural gas (SNG) feedstocks are excluded.

Specification  A.k.a. spec, spec sheet, or product spec. A specification is a list of product quality
measures that represent a requirement if designated by a user and a guarantee if designated by a
producer. Qualities of interest may include one or more characteristics such as density, specific
impurities, melting point, boiling point, flash point, or color. The listed qualities generally predict
product performance. When referring to a product sample, specification indicates the characteristics of
the sample as determined by lab testing. See Technical Data Sheet.

Steam  Steam, purchased for use by a refinery, that was not generated from within the
refinery complex.

Still Gas (Refinery Gas)  Any form or mixture of gases produced in refineries by distillation,
cracking, reforming, and other processes. The principal constituents are methane, ethane, ethylene,
normal butane, butylene, propane, propylene, etc. Still gas is used as a refinery fuel and a petrochemical
feedstock. The conversion factor is 6 million BTU’s per fuel oil equivalent barrel.

Stock Change  The difference between stocks at the beginning of the reporting period and stocks
at the end of the reporting period. Note: A negative number indicates a decrease (i.e., a drawdown) in
stocks and a positive number indicates an increase (i.e., a buildup) in stocks during the reporting period.

Stoichiometry  A calculation commonly used in chemistry in which the moles of one chemical are
compared to the moles of a second chemical.

Strategic Petroleum Reserve (SPR)  Petroleum stocks maintained by the Federal Government for use
during periods of major supply interruption.
Styrene  An aromatic monomer derived from benzene and ethylene used to produce a wide variety of polymers with diverse end uses that include packaging, automotive applications, electronic parts, rubber articles, paper, housewares, tires, luggage, construction materials, carpeting, and toys.

Sulfur  A yellowish nonmetallic element, sometimes known as “brimstone.” It is present at various levels of concentration in many fossil fuels whose combustion releases sulfur compounds that are considered harmful to the environment. Some of the most commonly used fossil fuels are categorized according to their sulfur content, with lower sulfur fuels usually selling at a higher price. Note: No. 2 Distillate fuel is currently reported as having either a 0.05 percent or lower sulfur level for on-highway vehicle use or a greater than 0.05 percent sulfur level for off-highway use, home heating oil, and commercial and industrial uses. Residual fuel, regardless of use, is classified as having either no more than 1 percent sulfur or greater than 1 percent sulfur. Coal is also classified as being low-sulfur at concentrations of 1 percent or less or high-sulfur at concentrations greater than 1 percent.

Supply  The components of petroleum supply are field production, refinery production, imports, and net receipts when calculated on a PAD District basis.

Surfactant  Any compound that reduces the surface tension between two liquids or between a liquid and a solid when it is dissolved into the liquid. Surfactants can be wetting agents, emulsifiers, or detergents.

Synfuid® PAO  The registered trademark used for Chevron Phillips Chemical’s PAO product line.

TAME (Tertiary amyl methyl ether)  An oxygenate blend stock formed by the catalytic etherification of isoamylene with methanol.

Tank Farm  An installation used by gathering and trunk pipeline companies, crude oil producers, and terminal operators (except refineries) to store crude oil.

Tanker and Barge  Vessels that transport crude oil or petroleum products. Data are reported for movements between PAD Districts; from a PAD District to the Panama Canal; or from the Panama Canal to a PAD District.

TBA (Tertiary butyl alcohol)  An alcohol primarily used as a chemical feedstock, a solvent or feedstock for isobutylene production for MTBE; produced as a co-product of propylene oxide production or by direct hydration of isobutylene.

Technical Data Sheet  A.k.a. TDS or Tech Data Sheet. A listing of typical and guaranteed characteristics of a product as manufactured by a specific facility or company. See specification.

Thermal Cracking  A refining process in which heat and pressure are used to break down, rearrange, or combine hydrocarbon molecules. Thermal cracking includes gas oil, visbreaking, fluid coking, delayed coking, and other thermal cracking processes (e.g., flexicoking). See individual categories for definition.
Thermoplastics  Polymers that can be resoftened by the application of heat or pressure and can be dissolved into solvents.

Thiol  See mercaptan.

Toluene  A high-octane aromatic product formed by catalytic reforming of petroleum or by fractional distillation of coal tar light oil. Used as an octane enhancer in the refined products industry. In the chemical industry, toluene is a raw material for benzene, xylene, p-xylene and solvents. Toluene disproportionation  A.k.a. TDP. A chemical reaction in which toluene is converted to benzene and xylene.

TPA  Terephthalic Acid. In its highly pure form, it is known as PTA (Purified Terephthalic Acid). TPA is a chemical intermediate that is used to produce PET resin and other polyester materials. TPA is the primary consumer of p-xylene.

TrackTek® Racing Fuels  Chevron Phillips Chemical’s proprietary racing fuel for high-performance engines such as NASCAR racecars, trucks, motorcycles, ATVs, boats, jet skis and snowmobiles. TrackTek® fuels are 100% petroleum derived hydrocarbons and contain detergent additives, corrosion inhibitors, and antioxidant additives that are added in concentrations similar to those found in commercial fuels.

Ultra-Low-Sulfur Distillate Fuel Oil  Distillate fuel oil having sulfur content of 15 ppm or lower. Ultra-low sulfur distillate fuel oil that will be shipped by pipeline must satisfy the sulfur specification of the shipping pipeline if the pipeline specification is below 15 ppm. Distillate fuel oil intended for pipeline shipment that fails to meet a pipeline sulfur specification that is below 15 ppm will be classified as low-sulfur distillate fuel oil.

Unaccounted for Crude Oil  Represents the arithmetic difference between the calculated supply and the calculated disposition of crude oil. The calculated supply is the sum of crude oil production plus imports minus changes in crude oil stocks. The calculated disposition of crude oil is the sum of crude oil input to refineries, crude oil exports, crude oil burned as fuel, and crude oil losses.

Unfinished Oils  All oils requiring further processing, except those requiring only mechanical blending. Unfinished oils are produced by partial refining of crude oil and include naphthas and lighter oils, kerosene and light gas oils, heavy gas oils, and residuum.

Unfractionated Streams  Mixtures of unsegregated natural gas liquid components excluding, those in plant condensate. This product is extracted from natural gas.

Vacuum Distillation  Distillation under reduced pressure (less the atmospheric) which lowers the boiling temperature of the liquid being distilled. This technique with its relatively low temperatures prevents cracking or decomposition of the charge stock.

Vinyl Compound  Compounds containing one or more the unsaturated end groups commonly referred to as vinyl or olefin groups. Examples: vinyl chloride, vinyl acetate, acrylonitrile, and styrene. These
highly reactive compounds polymerize easily and are the basis for important plastics such as PVC and polystyrene.

Visbreaking  A thermal cracking process in which heavy atmospheric or vacuum-still bottoms are cracked at moderate temperatures to increase production of distillate products and reduce viscosity of the distillation residues.

Wax  A solid or semi-solid material at 77 degrees Fahrenheit consisting of a mixture of hydrocarbons obtained or derived from petroleum fractions, or through a Fischer-Tropsch type process, in which the straight-chained paraffin series predominates. This includes all marketable wax, whether crude or refined, with a congealing point (ASTM D 938) between 80 (or 85) and 240 degrees Fahrenheit and a maximum oil content (ASTM D 3235) of 50 weight percent. Maximum safe fill capacity and the quantity below which pump suction is ineffective (bottoms).

Xylene  A.k.a. mixed xylenes or MX. A benzene co-product usually extracted or distilled from reformate or created by toluene disproportionation. Xylene is an aromatic comprised of three isomers: p-xylene, o-xylene, and m-xylene (metaxylene). Mixed xylenes vary in composition and include a variety of impurities with ethylbenzene being the largest. The mixture is processed to concentrate and separate the isomers with p-xylene being the most desired product. Mixed xylenes are used directly as an octane enhancer in gasoline or as a solvent.

Zeolyte  A natural or artificial compound that is comprised of an aluminosilicate. Common zeolites include those used as molecular sieves, used in the chemical industry as solid acid catalysts and as gas or liquid impurity adsorbents, such as drying agents and catalysts.