A

1990 Oxygenated Gasoline, Required annually from September 15 to March 15 for use in CO non-attainment areas. Oxygenated gasoline is defined as a spark-ignition engine fuel meeting ASTM D 4814 specifications and blended to include a minimum of 2.0% mass oxygen and a maximum of 1.0% volume benzene. (U.S.A.)

AAS, Atomic Absorption Spectroscopy

ADR, Alternative Dispute Resolution

ATF, Automatic Transmission Fluid

Abrasion, Common wear characterised by fairly regularly spaced grooves running in rubbing direction. Usually near top dead centre of the engine.

Acid, A substance which forms hydrogen ions in solution which may be replaced by a metal to form salts. Acids are usually sour, corrosive and turn blue litmus red. They neutralise and are neutralised by alkalis. pH values 0-6.

Acid Number, A measure of the KOH needed to neutralise all or part of the acidity of a petroleum product.

Additive, Any material added to a base stock to change its properties, characteristics or performance.

Address Commission, A commission paid to a buying company or an in house broker, by the seller.

Aframax tanker, An oil tanker smaller than 120,000 metric tons deadweight (DWT) and with a breadth above 32.31 m.

After Burning, Combustion continued in internal combustion engine after exhaust ports opened. Normally due to faulty injectors or lack of compression

Agent (Port), This is the ship owner’s local representative in a port, they are responsible for protecting the owners commercial interest and keeping the physical supplier updated with the vessel’s ETA and finalising the requirement and delivery schedule. The timing and all details should all be confirmed in writing.
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Agitator, Mixing devices, used to bring about intimate contact between liquids or solutions of dissolved solids or to keep solids suspended in liquids

Alkali, A chemical compound capable of neutralising an acid, e.g., Caustic Soda pH value of 7-14

Alkalinity, The extent to which a solution is alkali (pH value)

Aluminium, Symbol Al, Atomic number 13. Aluminium is in group 13 or (IIIa) of the periodic table. It is a lightweight, silvery metal which melts at 660 Degrees C, and boils at 2467 Degree C. Aluminium is the most abundant metallic constituent in the earth’s crust: only the non-metals Silicon and Oxygen are more abundant.

Aluminium - Repeatability, (Test Method IP377-91 or equivalent) Duplicate results by the same operator should be considered suspect if they differ by more than 0.066 x average Aluminium content

Aluminium - Reproducibility, (Test Method IP377-91 or equivalent) Results submitted by each of two laboratories should be considered suspect if they differ by more than 0.0.337 x average Aluminium content

Ambient Temperature, Surrounding atmospheric temperature

Amyl Nitrate, Ignition improver for Diesel Fuel

Aniline Point, The minimum temperature of complete mixing of equal volumes of aniline and oil under test. Used to determine aromatic content and (approx.) heat of combustion.

Antifoam agent, An additive used to suppress the foaming tendency of petroleum products in service. May be a silicone oil, to break up surface bubbles or a polymer to decrease the number of small entrained bubbles.

Antioxidant, See Oxidation Inhibitor

Antistatic Additive, An additive that increases the conductivity of a hydrocarbon fuel to hasten the dissipation of electrostatic charges during high speed dispensing, thereby reducing the fire/explosion hazard.

Antiwear agents, Additives or their reaction products, which form thin, tenacious films on highly loaded parts to prevent metal-to-metal contact.

API, American Petroleum Institute (website http://www.api.org)

API Gravity, An arbitrary scale adopted by API for expressing the relative density of oils: Its relation to relative density/specific gravity is:-

API Gravity (Degrees) = (_____________141.5_____________ ) - 131.5

(Specific Gravity at 60/60 Degrees F)

Apparent Viscosity, A measure of the viscosity of a Non-Newtonian fluid under specified temperature and shear rate conditions

Arbitrage, The (usually simultaneous) purchase of futures in one market against the sale of futures in a different market in order to profit from the difference in price

Arbitration, The process by which the parties to a dispute submit their differences to the judgment of an impartial person or group appointed by mutual consent or statutory provision.
Ash, Incombustible non- carbonaceous fuel residues usually containing a mixture of aluminium, calcium, iron, nickel, silicon, sodium and vanadium. Contamination may be derived from the crude oil stock or from catalytic fines, downstream storage and airborne dirt. If combustion has been complete, the ash will be entirely inorganic.

Ash (Sulphated), The ash content of an oil, determined by charring the oil, treating the residue with sulphuric acid, and evaporating to dryness. Expressed as % by mass.

Ash - Repeatability, (Test Method ISO 6245:1982 or equivalent) Duplicate results by the same operator should be considered suspect if they differ by more than 0.003 for ash content 0.001 to 0.079 and 0.007 for ash content 0.080 to 0.180.

Ash - Reproducibility, (Test Method ISO 6245:1982 or equivalent) Results submitted by each of two laboratories should be considered suspect if they differ by more than 0.005 for ash content 0.001 to 0.079 and 0.024 for ash content 0.080 to 0.180.

Asphalt, See Bitumen

Asphaltenes, An integral part of Fuel Oil which are combustible, insoluble particles, which contain a high Carbon to Hydrogen ratio and can entrap water, fuel ashes and other impurities.

Assets, Property, inventory or stock, plant, money etc. owned by a company

ASTM, American Society for Testing and Materials (website http://www.astm.org)

ASTM D. 129, A Standard Test method for Sulphur in Petroleum Products (General Bomb Method)


ASTM D. 1500, Colour of Petroleum Products - ASTM Colour Scale

ASTM D. 189, Carbon Residue, Conradson Test

ASTM D. 2500, A Standard Test method for Cloud Point of Petroleum Oils


ASTM D. 482, A Standard Test method for Ash from Petroleum Products

ASTM D. 524, A Standard Test method for Carbon Residue, Ramsbottom Test

ASTM D. 613, A Standard Test method for Cetane Number Test

ASTM D. 86, A Standard Test method for Distillation of Petroleum Products

ASTM D. 93, A Standard Test method for Flash point by Pensky-Martens closed Tester

ASTM D. 95, A Standard Test method for Flash point by Pensky-Martens closed Tester

ASTM D. 97, A Standard Test method for pour point of petroleum oils
ASTM D. 974, A Standard Test method for Neutralisation Value

ASTM D. 976, A Standard Test method for Cetane Index

Atmospheric Distillation, Primary distillation process in a refinery, the operation being carried out at normal atmospheric pressure.

Atmospheric Pressure. The pressure of air in the open atmosphere, exerted equally in all directions. The standard pressure at sea level is that which will support a column of mercury 760 millimeters high (29.91 inches). This is equivalent to 14.7 pounds per square inch, or 1.0133 bar.

Atomic Absorption Spectroscopy, A.A.S. - In analytical chemistry, atomic absorption spectroscopy is a technique for determining the concentration of a particular metal element in a sample. The technique can be used to analyze the concentration of over 70 different metals in a solution. In fuel testing this is a method of testing for Aluminium.

Atomisation, Subdivision of a material into its smallest parts, particularly applied to liquids reduced to fine spray or mist e.g. Diesel injection.

Attemporator, A heat exchanger which is used in control of the final superheat temperature of steam in main engine

Augmentor, A device to increase/improve performance of existing equipment, e.g. steam injector fitted to steam reciprocating engine.

Auto Start Valve, Fitted in main airline to the starting air valves of a diesel engine.

Automatic Sampling, An electromechanical device on the transfer line that takes a sample from the line during the entire transfer of the specific parcel - usually by drip method

Automatic Transmission Fluid (ATF), Fluid for automatic, hydraulic transmissions in motor vehicles
B

Back Pressure, Pressure on the exhaust side of an engine or system. The pressure caused by pumping oil up the sheer side of a vessel - particularly noticed/important in supplying a VLCC in ballast.

Backwardation, Price differential between nearby and forward position/quotations when nearby dates are at a premium. E.g. because of short-term physical shortage

Bactericide, Additive to inhibit bacterial growth in the aqueous component of fluids, preventing foul odours.

Bank Guarantee, A Bank guarantee constitutes an independent contractual obligation and the Guarantor is bound to pay the sum or sums mentioned in the guarantee on the presentation of a demand, and any other specified documentation, which appears to conform to the terms thereof.

Bar, Unit of pressure. One bar is equal to 0.987 standard atmospheric pressure, or 14.50 pounds per square inch.

Bare Boat Charter, Charterer hires a vessel for a long period, appoints the master and crew, and pays all operating expenses

Barge, A Tanker vessel designed and dedicated to the delivery of fuel and or bulk lubricant to vessels or terminals. Usually self powered, they can be dumb and towed or pushed by tugs.

Barge blend, The products are pumped into the barge and then this is circulated from one tank to another by pump so mixing the product more completely than splash blending

Barge Master, Master in charge of barge or tanker.

Barging Company, A Company which owns or operates barges

Barrel, Unit of volume measurement used for petroleum and petroleum products. 1 barrel = 42 US Gallons = Approx. 35 Imperial Gallons = 159 litres.

Base Number, The amount of acid (perchloric or hydrochloric) needed to neutralise all or part of a lubricant's basicity, expressed as KOH equivalents.

Base Oil, See Base Stock

Base Oil Credit, In lubricant cost calculations, the value of the base fluid displaced by additive package.

Base Risk or Basis Risk, The risk inherent in any hedge where the user of the physical oil is buying one product in one (or more) location(s), and is hedging the price movement risk in another commodity and/or location

Base Stock, The base fluid, usually refined petroleum fraction or selected synthetic material, into which additives are blended to produce finished lubricants

Bases, Compounds that react with acids to form salts plus water. Alkalis are water-soluble bases, used in petroleum refining to remove acidic impurities. Oil soluble bases are included in lubricating oil additives to neutralise acids formed during the combustion of fuel or oxidation of the lubricant.

Basis, The regular oil market commodity against which the hedge will be assessed.

BDR or BDN, Bunker Delivery Receipt or Bunker Delivery Note

Bear, One who believes a market will fall.
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**Best Endeavours**, When a nomination is placed with very short notice it may be confirmed on a ‘best endeavours basis’, this means that the supplier cannot guarantee to supply on arrival, but will do their best to start supply as soon as possible.

**BFO**, Bunker Fuel Oil

**Bill of Lading**, A document which is a receipt for cargo received on board and is evidence of the contract between shipper and shipowner. It is also evidence of title to the goods described on it.

**BIMCO**, Baltic & International Maritime Council (website [http://www.bimco.org](http://www.bimco.org))

**Bitumen**, Also called asphalt or tar, bitumen is the brown or black viscous residue from the vacuum distillation of crude petroleum. It also occurs in nature as asphalt "lakes" and "tar sands". It consists of high molecular weight hydrocarbons and minor amounts of sulphur and nitrogen compounds. It is used for road surfacing, roofing etc.

**Black Oils**, Lubricants containing asphalt materials, which impart extra adhesiveness, that are used for open gears and cables.

**Blended Fuel Oil**, A mixture of distillate and residual fuel oils, or a cutter stock and a residual fuel oil

**Blending**, The intimate mixing of various components, including base oils and additives, in the preparation of a product of specified properties. In fuel oils, refers to the mixing of fuels of differing viscosities and densities to obtain a product of the required viscosity and density.

**BLG**, Bulk Liquids and Gases sub-Committee, IMO

**Blow-by**, Passage of unburned fuel and combustion gases past the piston rings of internal combustion engines, resulting in fuel dilution and contamination of the crankcase oil.

**BN or TBN**, Base Number or Total Base Number - A measure of the alkaline reserve of a crankcase lubricant.

**Boiling point**, The temperature of a liquid at which its vapour pressure equals the external pressure. Boiling liquids are normally quoted for standard atmospheric pressure. At a fixed pressure, a liquid will not exceed its boiling point and further heating merely converts more liquid to vapour. (Boiling point of Fresh Water 100 Deg C).

**Boiling Range**, See Distillation range.

**Boom**, A floating structure used to confine an oil spill.

**Bottom Dead Centre**, Lowest position reached by a piston during the outward end of the stroke. Where the cylinder volume is the greatest

**Boundary Lubrication**, Lubrication between two rubbing surfaces without the development of a full fluid lubricating film. It occurs under high loads at low speeds and requires the use of antiwear or extreme pressure additives to reduce metal-to-metal contact and limits its effects.

**Bpd or Bcd**, Barrels Per Day or Barrels per Calendar Day

**Brackish Water**, A mixture of fresh water and salt water, as found in tidal estuaries

**Breadth**, The maximum width of the vessel
Bright Stock. A heavy residual lubricant stock with low pour point, used in finishing blends to provide good bearing film strength, prevent scuffing and reduce oil consumption. Usually identified by its viscosity, SUS at 210 Degrees F or cSt at 100 Degrees C.

British Thermal Unit (BTU). The quantity of heat required to raise the temperature of 1 lb of water through 1 degree Fahrenheit

Broker. A broker is an intermediary in a deal having no title to the product. The broker is normally employed by the buyer of the oil, but is traditionally paid by the seller. (I.e. the ship owners ask the broker to obtain quotes for them, but the seller pays the broker the commission.) The broker will obtain from the market sufficient quotes, taking into account the price, quality and service, which, allied to his knowledge of that market, will enable him to make his purchasing recommendations to the buyer. In most cases there will be a minimum of three but sometimes more, in some places where there is only one State Oil Company, or supplier it will only be possible to obtain one price.

Broker / Trader. This is a company who acts in two roles sometimes as a broker and sometimes as a trader, their responsibilities and risks change depending upon their chosen role in a specific deal. Buyers and Sellers should be clear which role the Broker/Trader is taking in their deal

Brokerage. The commission earned by a broking company in facilitating a deal

Brookfield Viscosity. Measure of apparent viscosity of a non-Newtonian fluid as determined by the Brookfield viscometer at a controlled temperature and shear rate.

BS & W. Bottom sediment and water


BS MA 100: 1982. The standard Specification for Marine fuels which came into force in 1982


BSI, British Standards Institute (website http://www.bsi.org.uk)

BTU, British Thermal Unit.

Bulk Carrier. A vessel capable of carrying dry cargo in bulk, i.e. not palletised or containerised

Bulk Modulus. The reciprocal of the compressibility of an oil. The higher the Bulk Modulus of a fluid the greater its incompressibility.

Bull. One who believes the market will rise.

Bunker Agreement. Contractual terms applying to a particular bunker transfer

Bunker C. A heavy residual fuel - usually 420-470 cSt, but can be lighter, Sulphur typically 2.5 – 3.5% but could also be higher, typically vanadium 100-350ppm. The heaviest fuel available in the port.
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**Bunker Delivery Receipt/ Bunker Delivery Note**, The proprietary document of the supplier providing details of the quality and quantity of the bunkers received by the vessel. The BDR/BDN must contain the details required by Appendix V of MARPOL Annex VI. i.e. Name and IMO Number of the receiving ship, Port, Date of commencement of delivery, Name, address and telephone number of the fuel supplier, Product name(s), Quantity in metric tonnes, Density at 15°C, kg/m³, Sulphur content (%m/m), A declaration signed and certified by the fuel oil supplier’s representative that the fuel oil supplied is in conformity with the applicable paragraph of regulation 14.1 and regulation 18.3 of the revised MARPOL Annex VI.

**Bunker (Nigeria)**, To steal oil or the oil stolen.

**Bunker Requisition Form**, The bunker requisition form should be completed before any bunker delivery confirming the amount, grade and specification of oil required, the pumping rate, required and available, and a confirmation that the vessel’s representative will witness, the sounding/ullaging or meter readings and the sampling of the oil to be delivered.

**Bunker Surveyor**, A Company or person appointed to check and confirm the delivery is made in accordance with local regulations and confirm the volume of oil supplied by the barge (and possibly received by the vessel) and ensure samples are taken appropriately as per the bunker agreement.

**Bunker Tanker**, Bunker Barge or tanker supplying bunkers to the vessel

**Bunkers**, The first ships to be driven by an engine used steam for power. The steam was manufactured by burning coal in the ship’s furnaces. The coal was stored in spaces on board the ship, which were called 'coal bunkers' When oil took over from coal the name remained - therefore currently Bunkers are distillate or residual fuel for a vessel’s consumption

**Butterworth**, General, A proprietary system for cleaning oil fuel and cargo tanks with heated sea water (80 Deg C) under high pressure

**Buyer**, This is the company who is responsible for making payment for the bunkers supplied to a vessel, it could be a ship owner, charterer, ship management company or a trader.

**By-product**, A substance obtained incidentally during the manufacture or production of some other substance
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C

Calcium. Symbol: Ca, Atomic Number: 20. A white metallic element that burns with a brilliant light; the fifth most abundant element in the earth's crust; an important component of most plants and animals.

Calibration tables. A set of tables which converts the soundings or ullages in Meters or Feet to a volume of oil. Each tank must be calibrated after being built so that each millimetre of sounding/ullage shows the correct volume of product in tank.

Calorie. Unit of quantity of heat, the amount of heat needed to raise one gram of water by one degree Centigrade

Calorific Value. The heat liberated by combustion of fuel. Also termed Specific Energy

Cams. Eccentric lobes attached to a camshaft, which are used in most internal combustion engines to open and close valves and operate fuel pumps.

Camshaft. The shaft carrying the cams

Capesize Bulk Carrier. Very Large Dry Bulk Carrier usually over 100,000MT DWT

Capesize O/O. Very Large Dry Bulk Carrier which can also carry oil instead of dry cargo usually over 100,000MT DWT

Carbon. Symbol C, Atomic number 6. Carbon is in group 14 or (IVa) of the periodic table. There are three forms of elemental carbon that occur in nature - diamond (white, crystalline), graphite (soft, flaky, greasy) and amorphous carbon (black, hard, solid i.e. coke & charcoal) - They are all solids with extremely high melting points.

Carbon Black. A solid of finely divided carbon used in compounding rubber, making inks, paints etc.

Carbon Dioxide. Inert Gas present in the products of fuel combustion. Used as a refrigerant gas and for fire fighting - specifically for electrical fires also recognised as a Greenhouse Gas

Carbon Residue. Coked material remaining after an oil has been exposed to high temperatures under controlled conditions there are three ways of testing, Micro, Ramsbottom or Conradson

Cargo Officer. Individual on the bunker tanker, RTW or shore installation who is responsible for the delivery and documentation

Cargo-Heating Coil. Tanks for heavy oils, molasses or other viscous fluids are fitted with heating coils to raise temperature in order that carried fuels may run more easily to pump suctions. Heating may be by steam, or oil.

Catalyst. A substance, which accelerates or changes the course of a reaction without undergoing any chemical change itself.

Catalyst Fines. Small (typically less than 50 microns) particles of aluminium silicate used as a catalyst in catalytic cracking (cat cracker) refineries. They are sometimes carried over in the refinery process and can be found in residual fuels. They are very abrasive and can cause excessive wear in engine - parts particularly fuel pumps, cylinder liners and piston rings.

Catalytic Converter. An integral part of vehicle emission control systems since 1975. Oxidising converters remove hydrocarbons and carbon monoxide (CO) from exhaust gases, while reducing converters control nitrogen oxide (NOx) emissions. Both use noble metal (platinum, palladium or rhodium) catalysts that can be "poisoned" by lead compounds in the fuel or lubricant.
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**Catalytic Cracking**, Secondary oil refining process using a catalyst in a high temperature environment to break down large molecules into smaller lighter range molecules. This process increases the volume of the more valuable, lighter products, particularly gasoline.

**CCAI/CII**, Calculated Carbon Aromaticity Index / Calculated Ignition Index - measure of the ignition quality of marine fuels.

**CEN**, European Committee for Standardisation

**Centipoise (cP)**, See viscosity and Poise

**centiStoke (cSt)**, See Stoke (Numerically equivalent to the SI Unit mm²/sec.)

**Cetane** (C₁₆H₃₄), A pure paraffinic hydrocarbon used as standard reference in order to determine the ignition quality of diesel fuel. Possesses the arbitrary Cetane number of 100.

**Cetane Index**, A measure of the ignition quality of a distillate fuel that is the relative ease with which the fuel will ignite when injected into a compression - ignition engine. Cetane Index is calculated from the API gravity and the mid boiling point of the fuel. Higher Cetane Indices indicate shorter ignition lags and are associated with better combustion performances.

**Cetane Number**, A measure of the ignition quality of a diesel fuel, as determined in a standard single cylinder test engine, which measures ignition delay compared to primary reference fuels. The higher the Cetane Number, the easier a high speed, direct-injection engine will start, and the less "white smoking" and "diesel knock" after start-up.

**Cetane Number Improver**, An additive (usually an organic nitrate) that boosts the Cetane Number of a fuel.

**CFPP**, Cold Filter Plugging Point

**CFU**, In microbiology, colony-forming unit (CFU) is a measure of viable bacterial or fungal numbers. Unlike direct microscopic counts where all cells, dead and living, are counted, CFU measures viable cells. For convenience the results are given as CFU/mL (colony-forming units per millilitre) for liquids, and CFU/g (colony-forming units per gram) for solids.

**Charter Party**, An agreement wherein the shipowner hires his vessel to the charterer subject to certain conditions

**Charterer**, This is a company who will charter (hire) the vessel from the owners for a voyage or a period.

**Chemical tanker**, Tanker carrying chemical and specialised wet cargoes usually up to 10,000MT DWT

**CIA**, Cash In Advance - The seller requires payment before a delivery will be made.

**CIF**, General, Cargo, Insurance and Freight


**Clarifier**, Centrifugal separator operated for removal of solid particles only. Typically older designs without a gravity disk. Also covers new models that no longer use gravity disks and cope with water by automatic blow-down of the bowl contents to a sludge tank.
Classification Society. Classification societies are at the heart of ship safety, classification embodies the technical rules, regulations, standards, guidelines and associated surveys and inspections covering the design, construction and through-life compliance of a ship’s structure and essential engineering and electrical systems. See International Association of Classification Societies

Cloud Point. The temperature at which a cloud or haze begins to appear in a previously dried oil when cooled under prescribed conditions, due to the separation of paraffin wax. Since a fuel must be clear and bright for the clouding to be observed, this only applies to certain distillate fuels. Clouding may be regarded as an advance warning of the onset of pour point problems due to either the low temperature or high wax content of the fuel.

COₓ. Oxides of Carbon - CO, Carbon Monoxide, CO₂ Carbon Dioxide etc

CO Non attainment Areas. Any of the continental U.S. that does not meet the 1990 Clean Air Act requirements for carbon monoxide or ground-level ozone pollutants.

Coal Liquefaction. A process in which a form of liquid fuel is manufactured from coal.

Cold Cranking Simulator. An intermediate shear rate viscometer that predicts the ability of an oil to permit a satisfactory cranking speed to be developed in a cold engine.

Cold Filter Plugging Point (CFPP). The measure of the ability of diesel fuels to flow at low temperature. A fuel with a low CFPP is capable of being used satisfactorily at low ambient temperatures and will not cause blockages in fuel systems through the precipitation of wax particles.

Combustion. The process of burning fuel, requiring the three elements of heat, fuel and oxygen.

Commercial Management. The chartering and operations of a vessel by a third party company this may or may not include insurance

Commission. The funds earned by a company or person for facilitating a deal

Compatibility. Ability of a petroleum product to form a homogeneous mixture that neither separates nor is altered by chemical, time or temperature interaction. When blending two or more fuels of different crude oil origins and / or different refinery processes, should the resultant blend precipitate asphaltenes, then two or more of the fuels are incompatible.

Composite sample. A container with a lid is dipped into the barges oil tank and when it is 1/6 of the way down the lid is removed and a sample taken, it is then taken up and poured into a container. This is repeated in the middle and at the bottom of the tank, the three samples are then thoroughly mixed and divided up to be delivered to the vessel and barge. See BS 3195: Part 1, Sampling Petroleum Products

Compression Ignition. Initiation of combustion of fuel in diesel engines due to high temperature and pressure.

Compression Ratio. In an internal combustion engine, the ratio of the volume of combustion space at bottom dead centre to that at top dead centre.

Condenser. Equipment for changing a material from its vapour state to its liquid state

Confirmation. A written document confirming all details agreed in a deal

Consortium. A group of unrelated companies who act together in a particular venture
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**Containment Boom**, A floating, flexible boom placed on the surface of the sea in order to contain an oil slick.

**Contango**, The opposite of Backwardation - see Forwardation.

**Contract**, The defined product which will be traded on an Exchange including its technical specification, lot size, and details of its physical place of delivery, etc.

**Convection**, Transference of heat through liquid or gas by the actual movement of the fluid.

**Copper Strip Corrosion**, A qualitative measure of the tendency of a petroleum product to corrode pure copper.

**Corrosion Inhibitor**, A substance added to a lubricant to protect against metal corrosion.

**Cost and Freight (C&F)**, The type of contract in which the seller provides the product and the vessel delivers the product to the nominated discharge port.

**Cost, Insurance and Freight (CIF)**, The type of contract in which the seller provides the product and the vessel, procures the insurance and delivers the product to the nominated discharge port.

**CP60**, The government of Singapore has published an operations manual for the delivery of bunkers in Singapore; all supplies must be made following the laid down procedures. This replaced the SBP - Singapore Bunkering Procedure. Now replaced by SS600:2008.

**CP77**, Singapore standard which describes the documentation and equipment requirements for surveying of a bunkering operation between a bunker barge/tanker and a vessel. It covers pre-delivery, actual delivery and post-delivery checks and documentation. Now replaced by SS600:2008.

**CPP**, Clean Petroleum Product.

**Cracking**, Conversion of molecular structure of a fuel to provide lighter oils from heavier, carried out either directly by heat and pressure (thermal cracking) or in presence of catalyst (catalytic or cat cracking).

**Credit**, The buyer promises to pay the seller within the agreed terms - usually 30 days from the date of delivery.

**Credit Period – i.e. 30 days from date of delivery**, The Credit period extended on a particular deal, i.e. 30 days from date of delivery the first day would be the day following the completion of the physical delivery of the oil.

**Crosshead Diesel Engine**, Slow-speed marine diesel engine with separate lubrication systems for cylinders and crankcase. Invariably operating on the 2-stroke cycle these engines derive their name from the crosshead bearing which couples the piston rod to the connecting rod.

**Crown**, The top of the piston in an internal combustion engine above the fire ring, exposed to direct flame impingement.

**Crude - Sour**, A crude oil, which contains high quantities of Sulphur or Sulphur compounds and produces much residual fuel once refined, i.e. Saudi Arabian Crude.

**Crude - Sweet**, A crude oil, which has a low sulphur content and does not leave much residual fuel oil once refined, i.e. North Sea Crude.

**Crude assay**, A procedure to determine the general distillation characteristics of crude oil.
Crude Oil, A naturally occurring mixture consisting predominantly of hydrocarbons and/or sulphur, nitrogen and/or oxygen derivatives.

Cutback, Reducing viscosity by blending

Cutter Stock, A product used to reduce the viscosity or density (occasionally other parameters) of oil.

Cylinder Oil, Lubricating Oil usually having a high TBN for the lubrication of the cylinders of crosshead marine diesel engines and cylinder lubrication on some types of trunk piston engines.
Dead freight. Freight which is paid on empty space in the vessel when the charterer is responsible for the freight rate of the full cargo.

Dead-weight. General, this is the actual number of tons of cargo, bunkers, stores etc., that can be put on board a ship to bring her down to her maximum summer loadline.

Debt. A sum of money owed by one person or organisation to another.

Delivered. Bunkers 'delivered' to the ship’s manifold, including all delivery costs.

Delivery Company. This is a company who physically makes the oil supply at the point of custody transfer to the vessel – see physical supplier.

Demand. The amount of oil required in a port or area (as opposed to the amount available for supply)

Demulsibility. The ability of an oil to withstand the formation of an emulsion when mixed with water. This property is measured by a test which times the separation of a well-mixed sample of oil and water, and gives a ‘Demulsification Number’ or ‘Value’

Demurrage. If a vessel is delayed in loading or discharge beyond that time provided for in the Charter Party or bunker agreement, the buyer is entitled to demurrage payment as compensation at the agreed rate.

Denaturants. Toxic or noxious components used in fuel ethanol to make it unfit for use as a beverage.

Density. A physical property of a material defined as the mass per unit volume at a certain temperature usually expressed in Kilograms per Cubic metre.

Density - Repeatability. (Test Method ISO 3675:1976 or equivalent) Duplicate results by the same operator should be considered suspect if they differ by more than 0.0006

Density - Reproducibility. (Test Method ISO 3675:1976 or equivalent) Results submitted by each of two laboratories should be considered suspect if they differ by more than 0.0015

Depreciation. The reduction in the value of plant or equipment over time due to wear, tear and obsolescence


Detergent. A substance added to a fuel or lubricant to keep parts clean. In motor oil formulations, the most commonly used detergents are metallic soaps with a reserve of basicity to neutralise acids formed during combustion.

Detergent/dispersant. An additive package that combines a detergent with a dispersant.

Detonation. Uncontrolled burning of the last portion (end gas) of the air/fuel mixture in the cylinder of a spark-ignition engine. Also known as "knock" or "ping".

Dew Point. The temperature at which air becomes saturated and produces dew at which vapour starts to condense to liquid.

Diesel Engine. An internal combustion engine, which runs on diesel oil, it does not have spark plugs to ignite the fuel – the combustion is caused by heat generated in the compression stage of the cycle.
**Diesel Index**, A method for determining the ignition value of a diesel fuel calculated from *Aniline Point* and *API Gravity*.

**Diesel Oil**, Oil used as fuel in diesel and other compression-ignition engines.

**Diluent**, In fuel blending, low-viscosity materials having suitably high *flash points* are used to reduce the viscosity of residues.

**Dilution of Engine Oil**, Contamination of *crankcase* oil by unburned fuel, leading to reduced *viscosity* and *flash point*. May indicate component wear or fuel system maladjustment.

**Dispersant**, An *additive* designed to disperse and maintain oil insoluble sludge in suspension, thus preventing harmful deposition in oil ways.

**Distillate**, Any liquid product obtained by condensing the vapours distilled from petroleum *crude oil* or its products.

**Distillation**, The basic test to characterise the volatility of a gasoline or distillate fuel.

**Distillation Ranges**, The range of temperatures, usually determined at *atmospheric pressure* by standard apparatus, over which boiling, or distillation, of a liquid proceeds. Only a pure substance has one definite *boiling point* at a particular pressure. Petroleum distillates contain a complex range of *hydrocarbon* compounds and consequently a range of *boiling points* is determined which are different for different distillates.

**DMA**, The 'normal' *Gasoil* burnt in marine engines

**DMB**, Normally a distillate *Diesel Oil*, but in some areas of the world there is a blended *diesel oil* which will meet all the stated parameters

**DMC**, A blended *Diesel oil* for use in low speed marine diesel when manoeuvering the vessel and in larger generators and auxiliaries

**DMX**, A low flash point *Gasoil* for use particularly in lifeboats and emergency generators. Due to it’s low flash point it should not be stored in hot tanks around the engine room.

**Doctor Test**, Standard refining procedure to determine "sweet" or "sour" odour imparted by Mercaptan Sulphur Compounds.

**Dolphin**, A single mooring point - usually a small distance from the main wharf or jetty

**Downstream**, The area of the oil industry covering the oil extraction from the ground to the refinery

**DPP**, Dirty Petroleum Product

**Draft / Draught**, The height of the vessel which is under the water in feet or meters

**Drip Sampling**, This sample is taken by equipment, which allows oil to drip into the sample containers consistently throughout the whole delivery. This is supposed to be the most representative type of sample, which can be taken.

**Drop point**, The temperature at which grease passes from a semi-solid to a liquid under specific test conditions.

**Dual Fuel Engine**, Engines designed to burn more than one type of fuel.
DWT, Dead-weight

Dynamic Positioning, The method whereby a vessel is kept on station by computer controlled thruster propellers rather than by anchors

Dynamic Viscosity, The resistance a fluid makes to motion or flow.

Dyne, The force which acting on a mass of one gram, produces an acceleration of one centimetre per second per second, equal to $10^{-2}$ of a Newton.
EGCS, Exhaust Gas Cleaning Systems, equipment fitted to a ship in order to reduce marine exhaust gas emissions.

Elastohydrodynamic Lubrication (EHD), A lubricant regime characterised by high unit loads and high speed in rolling elements where the mating parts deform elastically due to the incompressibility of the lubricant film under very high pressure.

Element, A substance which cannot be broken down into a more simple form.

Emissions (Mobile Sources), The combustion of fuel, leads to the emission of exhaust gases that may be regarded as pollutants. Water and Carbon Dioxide (CO₂) are not currently included in this category but Carbon Monoxide (CO), Nitrogen Oxides (NOₓ), Sulphur Oxides (SO₂) and hydrocarbons are subject to legislative control. Gasoline engines emit all three; diesel engines also emit particulates that are controlled.

Emissions (Stationary Sources), Fuel composition can influence emissions of Sulphur oxides and particulates from power stations. Local authorities control the sulphur content of heavy fuel oils used in such applications.

Emulsibility, The ability of an oil or other non-water soluble fluid to form an emulsion with water.

Emulsifier, A type of surfactant effective at producing stable emulsions.

Emulsion, An intimate mixture of two liquids which are not miscible, e.g. oil and water. An emulsion is said to 'break' when the particles join up and the liquids separate.

End Point (Final Boiling Point), The highest temperature indicated on the distillation thermometer when a light distillate is subjected to one of the standard laboratory methods of distillation.

End User, This would normally be the ship owner as this company is normally at the end of the chain.

Energy Institute, See Institute of Petroleum.

Engine Deposits, Accumulation of sludge, varnish and carbonaceous residues due to blow-by of unburned and partially burned fuel, or from partial breakdown of the crankcase lubricant. Water from condensation of combustion products, carbon, residues from fuel oil additives, dust and metal particles also contribute.

Engine Test, Use of an Internal Combustion Engine to evaluate lubricants. Parameters such as piston ring groove fill, piston varnish, component ware, oil viscosity etc. are measured.

Engler, A viscosity scale measured in degrees Engler.

Enquiry, Buyer comes to the market asking about the availability, quality and price of grades of oil for delivery within a specified date range to a vessel in a particular port or area. A reply time should also be stated.

EP Additive (Extreme Pressure Agent), Lubricant additive that prevents sliding metal surfaces from seizing under extreme pressure conditions.

EPA Complex model, Scheduled for implementation January 1, 1997. The model is more restrictive than the simple model, and contains limits on RVP, oxygen, olefins, benzene, sulphur and T-90. In addition, it will include requirements on aromatic content and T-50 temperatures.
EPA Simple Model. Used to define reformulated gasoline effective January 1 1995. The model includes \( RVP \) and oxygen content requirements to reduce volatile organic compound emissions. It caps oxygen, benzene, sulphur, olefins, and T-90 content at levels equal to or lower than a refiner’s 1990 baseline.

**Equity Capital**, Capital raised by issuing shares to investors

**Ester**, Compounds of alcohols and fatty acids which form the major constituent of many synthetic lubricating oils.

**ETA**, Estimated Time of Arrival

**ETB**, Estimated Time of Berthing

**ETD**, Estimated time of Departure

**ETS**, Estimated Time of Sailing

**Evaporation**, Conversion of a liquid to a vapour, without necessarily reaching the boiling point

**Exhaust Gas Cleaning System**, See EGCS

**Exhaust Gas Recirculation (EGR)**, System to reduce automotive emission of nitrogen oxides (\( NO_x \)). It routes exhaust gases into the carburettor or intake manifold where they dilute the air/fuel mixture and reduce peak combustion temperatures, thereby reducing the tendency for \( NO_x \) to form.

**Extreme Pressure (EP) Lubricants**, EP Oils and greases contain additives (usually based on sulphur, phosphorus or chlorine) which, under the effects of high temperature and pressure, form a protective film on metallic surfaces, preventing metal-to-metal contact if the normal hydrodynamic film breaks down under high pressure.
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F
FEI, Fellow of the Energy Institute

FAS, Free Along Side - the vessel, not delivered on board.

FEU, Forty Foot Equivalent Unit (Forty Foot Container)

Filter, Device for separating solids or suspended particles from liquid

Final Boiling Point, See End Point

Fire Point, The lowest temperature at which an oil vaporises rapidly enough to burn for at least five seconds after ignition under standard conditions.

Firm Counter, After negotiations have taken place a buyer may offer a firm counter to the seller. This means that if the seller will re-offer at the stated price, there will be no further negotiations and the business will be fixed. If the firm counter is rejected by the seller, the original offer is deemed to have lapsed, but may of course be reinstated

Fatigue, Old word for commission, not in general use now.

Flange, A projecting flat rim or collar by which pipes are held together; half of a bolted or clamped connection; The point of connection for bunker deliveries.

Flash Point, Minimum temperature at which a fluid will support instantaneous combustion (a flash) but before it will burn continuously (fire point). Flash Point is an important indicator of the fire and explosion hazards associated with a petroleum product.

Flash Point - Repeatability, (Test Method ISO 2719 or equivalent) Duplicate results by the same operator should be considered suspect if they differ by more than 2 Deg C

Flash Point - Reproducibility, Technical, Specification, (Test Method ISO 2719 or equivalent) Results submitted by each of two laboratories should be considered suspect if they differ by more than 3.5 Deg C

Flash Point, Closed, The lowest temperature at which the application of a small flame causes the vapour above a petroleum product to ignite when the product is heated in a 'closed' container under prescribed conditions.

Flash Point, Open, The lowest temperature at which the application of a small flame causes the vapour above a petroleum product to ignite when the product is heated in a 'open' container under prescribed conditions.

Floor Broker, A representative of a member firm of the commodity market or exchange e.g. the IPE in London

Fluid Friction, Occurs between the molecules of a gas or liquid in motion, and is expressed as shear stress. Unlike solid friction, fluid friction varies with speed and area.

Fo-Fo, Float on - Float Off

FOB, Free on board

Forwardation, The opposite of Backwardation, the forward price is higher than the nearby prices. This is the normal state of the market.

FOT, Free on truck
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**FPSO**. Floating Production Storage and Offloading system

**Free on Board.** The type of contract in which the buyer provides the ship and the seller provides the cargo at port of loading

**Freight Rate,** The charge for transporting goods

**Fresh Water.** Water containing no salt - (Pure water has a density of 1.000)

**Friction,** Resistance to motion of one object over another. Friction depends on the smoothness of the contacting surfaces, as well as the force with which they are pressed together.

**FSO,** Floating Storage and Offloading system

**Fuel Ethanol,** Ethanol (ethyl alcohol C$_2$H$_5$OH) with impurities, including water but excluding denaturants.

**Fuels - Gas Oil,** A distillate fuel with viscosity in the range 1.5 to 6.0 cSt at 40 Deg. C.

**Fuels - Marine,** A distillate or blended product containing some residue.

**Fuels - Marine Diesel,** A distillate or blended product containing residue, with a viscosity in the range of 5.5 to 11.0 cSt at 40 Deg C

**Fuels - Residual Fuel Oil,** The residue remaining after removal of the lighter products or the result of selective blending of various residues and distillate cutter stocks.

**Furnace Oil,** Term used in Sri Lanka for Fuel Oil

**Futures,** Contracts for the purchase and sale of commodities e.g. bunker fuel, for delivery sometime in the future on an organised exchange (such as Simex).
International Bunker Industry Association
Glossary of Bunker and Lubricating Oil Terminology

G

G.P. Tanker, General Purpose Tanker of between 16,500 - 24,999 MT DWT

Gas Oil, A petroleum distillate having a viscosity and distillation range intermediate to kerosene and light lubricating oil (1.5-6.0cSt at 40 Deg. C.)

Gas Turbine, Rotary heat engine using combustion gases as a working medium. See turbine

Gaseous Fuels, Liquefied or compressed hydrocarbon gases (propane, butane or natural gas), which are finding increasing use in motor vehicles as replacements for gasoline and diesel fuel.

Gasoline, A refined petroleum distillate boiling within the range 30 - 200 Deg. C.

Gasoline/Ethanol Blend, A spark-ignition automotive engine fuel containing denatured fuel ethanol in a base gasoline. It may be leaded or unleaded.

Glow Plug, Heater in combustion chamber of some diesel engines

GHG, Greenhouse Gases, emissions responsible for global warming

Gross Additive Treating Cost (GATC), The cost of additive in one volume unit of finished product not including base fluid credit or shipping costs.

Gross Delivered Treating Cost (GDTC), The cost of additive in one volume unit of finished product including shipping costs but not base fluid credit.

Gross Tonnage, Basically, the capacity in cubic feet of spaces within the hull plus the enclosed spaces above the deck available for cargo, stores, fuel, passengers and crew, with a few exceptions, divided by 100. Therefore 100 cubic feet of capacity is the same as 1 gross ton.

GRT, Gross Register Tonnage
Represents the total internal volume of a vessel, with some exemptions for non-productive spaces

GT, Gross Tonnage
Is a unitless index related to a ship's overall internal volume. Gross tonnage is different from gross register tonnage. Neither gross tonnage nor gross register tonnage are measures of the ship's displacement (mass) and should not be confused with terms such as deadweight tonnage, net tonnage, or displacement.

Guarantor, A party who undertakes to fulfil the obligations of another party to a third party in the event of that other party's default.
Handymax Bulker, A Bulk carrier of 40-55,000MT DWT

Handysized Bulker, A Bulk carrier usually of 20-40,000MT DWT

HCl, Hydrochloric Acid
Is the solution of hydrogen chloride (HCl) in water. It is a highly corrosive, strong mineral acid and has major industrial uses.

Heating Oils, Trade term for group of distillate fuels used for heating homes and buildings

Hedge, The establishment of an opposite position in the futures market to that held in the physical. Used to protect against changes in prices in the physical market by taking a position in the future market.

HFO, Heavy Fuel Oil - usually 380cSt and heavier

High Speed Marine Diesel Oil, A Marine Diesel Engine with a rotational speed of over 1200 revolutions per minute

High Sulphur Fuel, A Fuel oil with Sulphur content of 3.5% and above.

Homogeneous, A product is said to be Homogeneous when it is totally uniform throughout its structure. In bunkering terms Residual Fuel and Blended Diesel are unlikely to be Homogeneous as they are a blend/mixture of more than one product and contain asphaltenes. Gasoil, Distillate Diesel and Distillate Fuel Oil should be homogeneous so long as it has not been mixed with other products and is the straight run product from the refinery. Sometimes a blend of Distillate Fuel Oil and Distillate Gas/Diesel Oil from the same crude source/refinery process may be homogeneous, but not necessarily.

Hydrocarbon, A compound of Carbon and Hydrogen

Hydrofinishing, A process for treating raw extracted base stocks with hydrogen to saturate them for improved stability.

Hydrolytic Stability, Ability of additives and certain synthetic lubricants to resist chemical decomposition (hydrolysis) in the presence of water.

Hydrometer, An instrument used to measure the density or specific gravity of a liquid
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I
IAPH, International Association of Ports & Harbours (website http://www.iaphworldports.org/)

IMO, International Maritime Organisation (website http://www.imo.org)

IACS, International Association of Classification Societies (website http://www.iacs.org.uk)

IBIA, The International Bunker Industry Association (website http://www.ibia.net)

ICE, Owner and operator of the IPE and administrator of ICE Brent futures contracts. ICE is a leading global exchange and OTC market operator. (https://www.theice.com/about.jhtml)
See also IPE.

ICS, Institute of Chartered Shipbrokers (website http://www.ics.org.uk)

ICS, International Chamber of Shipping (website http://www.marisec.org/)

IEA, International Energy Agency (website http://www.iea.org)

IFO, Intermediate Fuel Oil - usually of Viscosity between 30 cSt and 180 cSt.

IG System (IGS), Inert Gas System - An oil tanker’s inert gas system is one of the most important parts of its design. Fuel oil itself is very difficult to ignite, however its hydrocarbon vapours are explosive when mixed with air in certain concentrations. The purpose of the system is to create an atmosphere inside tanks in which the hydrocarbon oil vapours cannot burn.
Inert gas systems deliver air with an oxygen concentration of less than 5% by volume.

In house broker, A broker who is owned/employed by the company they broke bunkers for.

In line blending, The process of using baffles within a blending chamber in the delivery system, which mixes and swirls the product on its way from the barge tanks to the vessel, to produce an even blend.

In Port, Within the port limits.

Incompatible, Incompatibility is the tendency of a residual fuel to produce a deposit on dilution or blending with other fuels.

Incoterm, A set of international rules for the interpretation of the chief terms used in foreign trade contracts. The International Chamber of Commerce publishes it.

Indication, This is an indication of current market levels in a port, but with no commitment from the indicator to sell at the stated levels.

Induction Period, In an oxidation test, the time period during which oxidation proceeds at a constant and relatively low rate. It ends at the point where oxidation rate increases sharply.

Inert, Non-reactive, not chemically active. Resistant to chemical reactions with other substances.

Inert Gas, A gas used to fill the head space in a tank (the area above the oil) to stop the chance of explosion or fire (Normally washed exhaust gases) An inert gas is a non-reactive gas used during chemical synthesis, chemical analysis, or preservation of reactive materials. Inert gases are selected for specific settings for which they are functionally inert since the cost of the gas and the cost of purifying the gas are usually a consideration.

Inert Gas System, A safety system to replace the atmosphere in oil cargo tanks with an inert gas. (Normally washed exhaust gases.)
**Inhibitor**, An *additive* substance which, when present in a petroleum product, prevents or retards undesirable change e.g. oxidation


**Inorganic**, A product of mineral origin and so not *Organic*

**Insolubles**, Contaminants found in used oils due to dust, dirt, wear particles or oxidisation products. Often measured as pentane or benzene insolubles to reflect insoluble character.

**Institute of Petroleum**, Now known as the Energy Institute and based in London, sets test procedures for petroleum products, as well as being heavily involved in Training and Education of Energy employees. (website [http://www.petroleum.co.uk](http://www.petroleum.co.uk)) Test procedures previously known as IPxxx now designated EI xxx

**Intercargo**, International Association of Dry Cargo Shipowners (website [http://www.intercargo.org](http://www.intercargo.org))

**Internal Combustion Engine**, An engine in which power is obtained from an explosion of vapourised oil and air in a cylinder (as opposed to a *turbine* engine).


**IP**, Institute of Petroleum now called the Energy Institute

**IP 309**, Standard Test method for *Cold Filter Plugging Point Test*

**IP377-91**, *Petroleum Products - Test for Aluminium and Silicon*

**IPE**, International Petroleum Exchange situated in London is one of the world's largest energy futures and options exchanges. It is the leading marketplace associated with energy contracts.

**Iron**, A metallic chemical element with the symbol Fe and atomic number 26. Iron is a group 8 and period 4 element and is therefore classified as a transition metal.

**ISGOTT**, International Safety Guide for Oil Tankers and Terminals


**ISO 12185**, Crude Petroleum and petroleum products - Determination of *density* - oscillating U-tube method
ISO 14597, Petroleum Products - Determination of Vanadium and nickel in liquids - Wavelength dispersive X-ray fluorescence method


ISO 3015:1992, Petroleum Products - Determination of cloud point


ISO 3171: 1988, Petroleum Liquids - Automatic pipeline sampling

ISO 3675: 1993, A revision of ISO 3675: 1976 Crude petroleum and liquid petroleum products - Laboratory determination of density or relative density - Hydrometer method


ISO 4264:1995, Petroleum Products - Calculation of Cetane index of middle-distillate fuels by the four-variable equation.

ISO 5165:1992, Diesel Fuels - Determination of Ignition quality - Cetane method


ISO 8216-1, Petroleum Products - Fuels (class F) - Classification - Part 1: Categories of marine fuels


ISO 91-1:1992, Petroleum measurement tables - Part 1: Tables based on reference temperatures of 15 Deg C and 60 Deg F

ISO/TR 13739, Petroleum products - Methods for specifying practical procedures for the transfer of bunker fuels to ships - first published 15/10/1998
J

**Joule.** A unit of work or energy, work done by a force of one Newton when its point of application moves one metre in the direction of action of the force. Electrical - the heat generated by a current of one ampere flowing for one second against a resistance of one ohm.)
Kinematic Viscosity, Measure of a fluid's resistance to flow under gravity at a specific temperature (usually 40, 50 or 100 Deg C).

Knocking, See Detonation

KOH, Potassium Hydroxide - A white, corrosive, solid compound used in bleaches and to make soaps and detergents. It is deliquescent, soluble in water and very soluble in alcohol. In solution, it forms lye. Chemical formula: KOH.
International Bunker Industry Association
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L
L.R.1, Tanker of between 45,000 - 79,999 MT DWT
L.R. 2, Tanker of between 80,000 - 159,999 MT DWT
Lands, The circumferential areas between the grooves of a piston
LASH, Lighter Aboard Ship (Barge Carrier)
LBP, Length Between Perpendiculars - The maximum water line length of the vessel (excluding the bow and stern overhangs)
Lead, Commonly used name for TETRA ethyl or TETRA methyl lead, an additive used in gasoline to improve octane ratings. Elemental lead is commonly used in sleeve bearings and bushing alloys.
Letter of Credit (L/C), A written undertaking by a Bank issued in the instructions of the buyer of goods to the seller of the goods and to effect payment under stated conditions: by making payment, or by accepting or negotiating drafts, up to a stated sum of money, within a stated time limit and against stipulated documents.
Letter of Protest, A letter issued by either side of a bunker delivery noting any condition which the party takes issue with. The letter serves as a written record that the particular action or finding was disputed at the time of the incident.
LFO, Light Fuel Oil - normally covering 20cSt up to 150cSt
Liquid, A futures market commodity/contract in which there are many lots traded daily which makes the market in that commodity difficult for any one buyer to influence.
Liquefied Natural Gas (LNG), Natural gas that has been liquefied by refrigeration or pressure in order to facilitate storage or transportation; it generally consists mainly of methane
Liquefied Petroleum Gas (LPG), A mixture of light hydrocarbons derived from oil bearing strata which is gaseous at normal temperatures but which has been liquefied by refrigeration or pressure in order to facilitative storage or transport; it generally consists mainly of propane and butane
LNG, Liquid Natural Gas
LNG Tanker, Tanker carrying Liquefied Natural Gas - usually between 30,000 and 100,000CBM.
Lo-Lo, Lift on - Lift Off
LOA, Length Over All - The maximum length of the vessel
Lot, The unit size of a commodity on an exchange - e.g. 100MT of Gas oil
Low Pour Point Fuel Oil, A Fuel oil with a Pour point of 15 Deg C or below.
Low Pour Point Gasoil, A Gas oil with a Pour point of 0 Deg C or below
Low Speed Marine Diesel Engine, A Marine Diesel Engine with a rotational speed of up to 300 revolutions per minute
Low Sulphur Fuel, A Fuel oil with a Sulphur content of 2% or below
Low Sulphur Gas Oil, A Gas oil with a Sulphur content of 0.5% or below
International Bunker Industry Association
Glossary of Bunker and Lubricating Oil Terminology

LPG, Liquid Petroleum Gas

LPG Tanker, Tanker carrying Liquefied Petroleum Gas - usually between 10,000 and 25,000CBM.

LT, Light Tonnage

Lubricant, A substance (generally based on heavy liquid hydrocarbons) used to reduce friction in an engine or machine.

Lubrication, Control of friction and wear by the introduction of a friction-reducing film between moving surfaces in contact. May be a fluid, solid or plastic substance.

Lubricity, Is the ability of an oil to lubricate. It is the property of oiliness or slipperiness.

Lump Sum Freight, A fixed rate freight, regardless of how much cargo is loaded.
Manifold, A piping arrangement which allows one stream of liquid or gas to be divided into two or more streams, The point of connection for bunker deliveries.

MARPOL, The International Convention for the Prevention of Pollution of the Sea from Ships

Mediation, A form of alternative dispute resolution (ADR) or "appropriate dispute resolution", aims to assist two (or more) disputants in reaching an agreement. The parties themselves determine the conditions of any settlements reached— rather than accepting something imposed by a third party. The disputes may involve (as parties) states, organizations, communities, individuals or other representatives with a vested interest in the outcome.

Medium Speed Marine Diesel Engine, A Marine Diesel Engine with a rotational speed of between 300 and 1200 revolutions per minute

Melting Point, The temperature at which solids melt.

MEPC, Marine Environment Protection Committee, IMO

Metal Content, Any metallic contaminants present in residual fuels

Metric Ton, Equivalent to 1000 kilos, 2204.61lbs or 0.9842 tons

MFO, Marine Fuel Oil - any viscosity for use in a Marine engine.

Micro Carbon Residue - Repeatability, (Test Method ISO 10370:1993 or equivalent) Duplicate results by the same operator should be considered suspect if they differ by more than (% Carbon Residue)2/3*0.0770

Micro Carbon Residue - Reproducibility, (Test Method ISO 10370:1993 or equivalent) Results submitted by each of two laboratories should be considered suspect if they differ by more than (% Carbon Residue) 2/3*0.2451

Miscible, Descriptive of substances, usually liquids, which mix together to form a homogenous mixture

Mixture, A co-mingling of two or more substances in which each retains its chemical nature and identity

Molecule, The smallest particle of a compound that is capable of independent existence while retaining its individual properties

MSC, Maritime Safety Committee, IMO

Multi-purpose Bulker, Usually between 5,000 and 25,000MT DWT and used for carrying containers, break bulk cargo, lumber, and general large bulky raw materials.
Multigrade Oil, Engine or gear oil that meets the requirements of more than one SAE viscosity grade classification and that can be used over a wider temperature range than a single grade oil.
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N
Naphthenic, A type of petroleum fluid derived from naphthenic crude oil, containing a high proportion of closed-ring methylene groups.

Nett Additive Treating Cost (NATC), The cost of additive in one unit of finished product including base fluid credit, but not shipping costs.

Nett Delivered Treating Cost (NDTC), The cost of additive in one unit of finished product including base fluid credit and shipping costs.

Net Tonnage, This is the gross tonnage less space used for accommodation of master, officers, crew, navigation and propelling machinery.

Neutral Oil, The basis of most commonly used automotive and diesel lubricants, they are light overhead cuts from vacuum distillation.

Neutralisation Number, A measure of the acidity or alkalinity of an oil. The number is the mass in milligrams of the amount of acid (HCl) or base (KOH) required to neutralise one gram of oil.

Newtonian Flow, Occurs in a liquid system where the rate of shear is directly proportional to the shearing force, as with straight grade oils which do not contain a polymeric viscosity modifier. When rate of shear is not directly proportional to the shearing force, flow is non-Newtonian, as it is with oils containing viscosity modifiers.

Nickel, A hard silver-white lustrous ductile metallic element used in many alloys. Symbol: Ni; atomic no.: 28.

Nitration, The process whereby nitrogen oxides attack petroleum fluids at high temperatures, often resulting in viscosity increase and deposit formation.

NOC, No Objection Certificate – A written statement from a physical supplier confirming that if the buyer has a named seller then his obligation to the physical supplier is discharged.

NOx, Oxides of Nitrogen - NO, Nitrous Oxide, NO2 Nitrogen Dioxide etc.

No. 2 Oil, American Gas oil, with max SG 0.855, Min Cetane 40 sulphur either 0.2 or 0.5 Max.

No. 6 Oil 3.0%, American Heavy Fuel Oil with Max SG 0.9861, Sulphur 3.0 Max, and viscosity of 200-250 ssf

Nomination, Placing an order with guaranteed availability

Non-OECD, Countries outside the Organisation for Economic Co-operation and Development (OECD)

Non-OPEC Producers, Countries outside the OPEC Group who produce and export Crude Oil

NRT, Nett Registered Tonnes now NT - Net Register Tonnage (NRT) is the volume of cargo the vessel can carry; i.e. the Gross Register Tonnage less the volume of spaces that will not hold cargo (e.g. engine compartment, helm station, crew spaces, etc., again with differences depending on which port or country is doing the calculations). It represents the volume of the ship available for transporting freight or passengers. It was replaced by net tonnage in 1994, under the Tonnage Measurement convention of 1969.

NT, Nett Tonnage - is a calculated representation of the internal volume of a ship's cargo holds.

NYMEX, New York Metal Exchange (Website http://www.nymex.com)
OPRC, The International Convention on Oil Pollution Preparedness, Response and Co-operation

OBO, Ore/Bulk/Oil Carrier

OCIMF, Oil Companies International Marine Forum (Website: http://www.ocimf.com)

Octane, Hydrocarbon of the paraffin series C_8H_{18}

Octane Number, The anti-knock quality of an internal combustion engine fuel expressed on a numerical scale which is based upon the "knocking" tendencies of two pure hydro-carbons.

Octane Number, A measure of a fuel's ability to prevent detonation in a spark-engine. Measured in a standard single-cylinder, variable-compression-ratio engine by comparison with primary reference fuels. Under mild conditions, the engine measures Research Octane Number (RON); under severe conditions (Motor Octane Number) MON. Where the law requires posting of Octane Numbers on dispensing pumps the Antiknock Index is used (AKI). This is the arithmetic average of RON and MON, (R+M)/2. It approximates the Road Octane Number, which is a measure of how an "average" car responds to the fuel.

Octane Requirement (OR), The lowest Octane Number reference fuel that will allow and engine to run knock-free under standard conditions of service. OR is a characteristic of each individual vehicle.

Octane Requirement Increase (ORI), As deposits accumulate in the combustion chamber, the ORI of an engine increases, usually reaching an equilibrium value after 10,000 to 30,000 Km. ORI is a measure of the increase, which may be in the range of three to ten numbers.

OECD, The Organisation for Economic Co-operation and Development. (website http://www.oecd.org)

Offer, An offer is a necessary stage towards the formation of a binding contract - the second and concluding stage being acceptance. An offer and acceptance together would, if other requirements are met, constitute a binding contract.

Oil, A mixture of liquid hydrocarbons of different molecular weights and will also, in its crude form, contain other minerals

Oil Shale, A compact sedimentary rock consisting mainly of organic matter which yields oil when heated.

OPA 90, Oil Pollution Act 1990

OPEC, Organisation of Petroleum Exporting Countries founded in 1960–. (website http://www.opec.org)

OPL, Outside port limits

Option, Literally a contract where one party has the option for a period to purchase and sell from the other at a fixed premium. A premium is paid for this facility.

Organic, For a product to be described as organic, it must have carbon in its molecular make up

Orimulsion, An emulsion of Bitumen and water used to fire power stations, emanating from the Orinoco River, hence Orimulsion

Oxidation, Occurs when oxygen attacks petroleum fluids. The process is accelerated by heat, light, metal catalysts and the presence of water, acids or solid contaminants. It leads to increased
viscosity and deposit formation.

**Oxidation inhibitor.** Substance added in small quantities to a petroleum product to increase its oxidisation resistance, thereby lengthening its service or storage life: also called antioxidant.

**Oxidation Stability.** Resistance of a petroleum product to oxidation and, therefore, a measure of its potential service or storage life

**Oxygenate.** An oxygen containing, ashless organic compound, such as alcohol or ether, that can be used as a fuel or fuel supplement.

**Oxygenated Fuels.** Fuels for internal combustion engines that contain oxygen combined in a molecule, e.g. alcohols, ethers and esters. Term also applies to blends of gasoline with oxygenates, e.g. Gasohol, which contains 10% by volume anhydrous ethanol in unleaded gasoline.

**Ozone & CO Non-attainment Areas.** Any are of the continental U.S. that does not meet the 1990 Clean Air Act requirements for carbon monoxide or ground-level ozone pollutants.
P &I Club, Protection & Indemnity Club - A mutual association formed by shipowners to provide protection from large financial loss to one member by contribution towards that loss by all members. The P&I Club covers liabilities not insurable by the ship-owner in the running of his ship, such as cost of defending claims made by cargo owners.

Panamax Bulk Carrier, Largest Bulk carrier that can transit the Panama Canal, usually 55-80,000MT DWT but with maximum beam 32.5m to allow vessel to fit in the locks on the canal

Panamax Tanker, Largest Tanker that can transit the Panama Canal usually 55-80,000MT DWT but with maximum beam 32.5m to allow vessel to fit in the locks on the canal

Paraffinic, A type of petroleum fluid derived from paraffinic crude oil and containing a high proportion of straight chain saturated hydrocarbons. Often susceptible to cold flow problems.

Pascal, A unit of pressure, one Newton per square metre

Percentage Permanent Viscosity Loss (PPVL), Measure of the PVL related to viscosities of the fresh oil; equals PVL divided by fresh oil viscosity multiplied by 100.

Percentage Temporary Viscosity Loss (PTVL), Difference between the viscosity of an oil measures at low and high shear stresses, divided by viscosity measured at low shear stress, multiplied by 100.

Permanent Viscosity Loss (PVL), Difference between the viscosity of fresh oil and that of the same oil after engine operation or special test conditions of polymer degradation.

Petroleum, Naturally occurring green to black coloured mixtures of crude hydrocarbon oils found as earth seepage's or obtained by boring. The principal producing land areas are North America, Venezuela, Arabian Gulf Are, Russia, West Africa and Indonesia. In the last two decades the search for petroleum has been extended to offshore continental shelves and production has been developed in the Gulf of Mexico and the North Sea.

pH, A measure of the acidity or alkalinity of a solution which is a function of the hydrogen-ion concentration. The pH scale is a logarithmic scale and ranges from 0, which represents a strong acid, to 13, which represents a strong alkali. A neutral solution, which is neither acidic nor alkali, and pure water, have a pH value of 7

Physical Supplier, This is a company who physically makes the oil supply at the point of custody transfer to the vessel, they may own the oil or they may only be a delivery company.

Piston Rings, Circular metallic elements that ride in the grooves of a piston and provide compression sealing during combustion. Also used to spread oil for lubrication.

Point of Custody Transfer, This is point at which title and risk passes from one company to the other - it is generally at the receiving vessel's manifold.

Poise (P), Measurement unit of a fluid's resistance to flow, i.e., viscosity, defined, by the shear stress (in dynes per square centimetre) required to move one layer of a fluid along another over a total layer thickness of one centimetre at a velocity of one centimetre per second. This viscosity is independent of fluid density, and directly related to flow resistance. Viscosity = Shear stress/shear rate = dynes/cm² divided by cm/s/cm = dynes/cm² divided by s = 1 poise.

Polishing (Bore), Excessive smoothing of the surface finish of the cylinder bore or cylinder liner in an engine to a mirror-like appearance, resulting in depreciation of ring sealing and oil consumption performance.
Positive Crankcase Ventilation (PCV), System for removing blow-by gases from the crankcase and returning them through the carburettor intake manifold to the combustion chamber where the re-circulated hydrocarbons are burned. A PC valve controls the flow of gases from the crankcase to reduce hydrocarbon emissions.

Pour Point, An indicator of the ability of an oil or distillate fuel to flow at cold temperatures. It is the lowest temperature at which the fluid will flow when cooled under prescribed conditions.

Pour Point Depressant, Additive used to lower the pour point or low temperature fluidity of a petroleum product.

Pour Point Upper - Repeatability, (Test Method ISO 3016:1974 or equivalent) Duplicate results by the same operator should be considered suspect if they differ by more than 3 Deg C

Pour Point Upper - Reproducibility, (Test Method ISO 3016:1974 or equivalent) Results submitted by each of two laboratories should be considered suspect if they differ by more than 6 Deg C

PPM, Part Per Million

Preignition, Ignition of the fuel/air mixture in a gasoline engine before the spark plug fires. Often caused by incandescent fuel or lubricant deposits in the combustion chamber, it wastes power and may damage the engine.

Pressure, The force of one body acting on another by weight or the application of power. Measured as force per unit area e.g. pounds per square inch

Principal, In a bunker deal is anyone who actually buys or sells oil, i.e. the Seller and the buyer, this may be a supplier, ship owner, charterer, manager or a trader

Product Tanker, Smaller tanker carrying Oil or food products - usually 10-55,000MT DWT

Pumpability, The low temperature, low shear stress-shear rate viscosity characteristics of an oil that permit satisfactory flow to and from the engine oil pump and subsequent lubrication of moving components.

Purifier, Centrifugal separator used for the removal of solids and water from lube and fuel oil.
Q
Quotation. This is the stage preliminary to an offer, really a statement of terms on which an offer might be made or accepted. Similar to an invitation to treat, though more detailed.
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R

RTW, Originally Rail Tank Wagon, but this is rarely used now, more often means Road Tank Wagon, a road truck of between 5 and 40MT capacity, used for all grades of Fuel Oil

RVP (Reid Vapour Pressure), Under the ASTM Method D 323 (Reid vapour pressure), it is the absolute vapour pressure exerted by a liquid at 100°F. The higher this value, the more volatile the sample and the more readily it will evaporate. Unlike distillation data, vapour pressure provides a single value that reflects the combined effect of the individual vapour pressure of the different petroleum fractions in accordance with their mole ratios. It is thus possible for two wholly different products to exhibit the same vapour pressure at the same temperature - provided the cumulative pressures exerted by the fractions are the same. A narrow-cut distillate, for example, may exhibit the same vapour pressure as that of a dumbbell blend, where the effect of heavy fractions is counterbalanced by that of the lighter ones. In conjunction with other volatility data. Reid vapour pressure plays a role in the prediction of gasoline performance.

Rated Value, The load expressed in brake horse power which an engine can carry for 12 hours at a rated speed under specific conditions.

Redwood No. 1, An SGS/Redwood viscosity scale measured in seconds at 100 Deg F

Refinery, A plant used to separate the various components present in crude oil and convert them into usable products or feedstock for other purposes

Refining, Series of processes to convert crude oil and its fractions into finished petroleum products, including thermal cracking, catalytic cracking, polymerisation, alkylation, reforming, hydrocracking, hydroforming, hydrogenation, hydrogen treating. Hydrotreating, solvent extraction, dewaxing, de-oiling, acid treating, clay filtration and de-asphalting.

Relative Density, The ratio of a given volume of a substance to that of the same volume of pure water at constant temperature. Relative density decreases with increase of temperature and increases with decrease of temperature. It can only be compared one with another at constant temperature. The standard temperature for quoting the relative density for most petroleum products is 15 Degrees C. Density is also referred to in absolute terms in units of kg/cbm at a particular reference temperature - usually 15 degrees C.

Repeatability, The difference between two test results, obtained by the same operator with the same apparatus under constant conditions on identical test material would, in the long run, in the normal and correct operation of the test method, exceed the 'expected' values only in one case in twenty.

Reproducibility, The difference between two single and independent results obtained by different operators working in different laboratories on identical test material would, in the long run, in the normal and correct operation of the test method, exceed the expected values only in one case in twenty.

Rerefining, A process of reclaiming used lubricant oil and restoring them to a condition similar to that of virgin stocks by filtration, clay absorption or more elaborate methods.

Residual Fuel, The Fuel oil burnt by most vessels, made from the residue of the refinery process

Residue, The un-evapourated liquid or solid material remaining after a process involving distillation or cracking.

RINA, Royal Institute of Naval Architects (website http://www.rina.org.uk)

Ring, The official trading location of an Exchange
Ring Sticking. The situation when the piston grooves become sufficiently full of deposits or covered in lacquer to prevent the piston rings moving freely. Ring sticking can occur under hot or cold conditions.

Rings. Circular metallic elements that ride in the grooves of a piston and provide compression sealing during combustion. Also used to spread oil for lubrication. (see Piston Rings)

RMA30, A light fuel oil of viscosity up to 30cSt at 50 Deg C

RMB30, A light fuel oil of viscosity up to 30cSt at 50 Deg C has higher density and pour point than RMA30

RMD80, A light fuel oil of viscosity up to 80cSt at 50 Deg C

RME180, A medium fuel oil of viscosity up to 180cSt at 50 Deg C has low vanadium, carbon and ash content

RMF180, A medium fuel oil of viscosity up to 180cSt at 50 Deg C has higher vanadium, carbon and ash content than RME 180

RMG380, A heavy fuel oil of viscosity up to 380cSt at 50 Deg C has low vanadium and carbon content

RMH380, A heavy fuel oil of viscosity up to 380cSt at 50 Deg C has higher vanadium, carbon and ash content than RMG380

RMH700, A heavy fuel oil of viscosity up to 700cSt at 50 Deg C with standard density

RMK380, A heavy fuel oil of viscosity up to 380cSt at 50 Deg C has higher vanadium and carbon content than RMG380 but also a higher Density

RMK700, A heavy fuel oil of viscosity up to 700cSt at 50 Deg C has higher Density than RMH700.

Ro-Ro, Roll On - Roll Off

ROB, Remain-on-board. The measurable fuel on board a vessel at any given time.

Rust Preventive, Compound for coating metal surfaces with a film that protects against rust. Commonly used for the preservation of equipment in storage.
SBM, Single Buoy Mooring

SPM, Single Point Mooring (See Single Buoy Mooring)

SS, Steam Ship

SS600, Singapore Standard Code of Practice for Bunkering effectively an amalgamation of CP60 and CP77

Sale of Goods Act, 1979, Under English Law good must be fit for the purposes under which they are sold - this law states how this should be calculated.

Salt Water, Sea water containing salt - Generally accepted to have density of 1.025)

Sample, A small amount of the oil supplied (about 3 – 5 litres) is taken into bottles at the time of delivery to be representative of the product supplied, it can then be tested at a later time to verify the actual quality delivered. Three samples should be taken, one for the vessel, one for the delivery vehicle and one for a surveyor (if in attendance).

Sampling, The process of obtaining a small quantity of material which is as representative as possible of the total delivery.

SAN, Strong Acid Number - The quantity of base, expressed as milligrams of potassium hydroxide per gram of sample, required to titrate a sample in the solvent from its initial meter reading to a meter reading corresponding to a freshly prepared non-aqueous acidic buffer solution or a well defined inflection point as specified in the test method.

Scuffing, Abnormal engine wear due to localised welding and fracture. It can be prevented through the use of anti-wear, extreme pressure and friction modifier additives.

Sediment (Distillate Fuels), (Test Method ISO3735:1975 or equivalent) Duplicate results by the same operator should be considered suspect if they differ by more than 0.048 x (the square root of the average value)

Sediment (Distillate Fuels) - Reproducibility, (Test Method ISO3735:1975 or equivalent) Results submitted by each of two laboratories should be considered suspect if they differ by more than 0.174 x (the square root of the average value)

Sediment (Residual Fuel) - Repeatability, (Test Method ISO10307:1993 Part 1 / 2 or equivalent) Duplicate results by the same operator should be considered suspect if they differ by more than 0.123 x (the square root of the average value)

Sediment (Residual Fuel) - Reproducibility, (Test Method ISO10307:1993 Part 1 / 2 or equivalent) Results submitted by each of two laboratories should be considered suspect if they differ by more than 0.341 x (the square root of the average value)

Segregated Ballast, Sea water used as ballast kept from contact with any cargo tanks. Loaded and discharged by its own piping and pumping system.

Seller, This is the company responsible for receiving the funds from a bunker supply, they may be the supplier, physical supplier or a trader.

Separator, See purifier and Clarifier - also a static device used for the removal of oil from water as in the oily water bilge separator.

Settlement Period, The period(s) during the duration of the hedge when the actual prices are compared with the strike/cap/floor prices, e.g. monthly
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SG. Specific Gravity, suggest refer to Specific Gravity
The ratio of the mass of a solid or liquid to the mass of an equal volume of distilled water at 4°C (39°F) or of a gas to an equal volume of air or hydrogen under prescribed conditions of temperature and pressure. Also called relative density.

Shaft Horse Power, SHP - Net power delivered to shafting from an engine after passing through gearboxes, thrust block, etc.

Shear Stability, The property of resisting physical change under high rates of shear when applied to a Viscosity Index Improver (polymer additive.) It is the ability of the Viscosity Improver molecules to withstand breakdown into smaller molecules.

Shear Stability Index (SSI), The measure of a viscosity modifier’s contribution to an oil's percentage Kinematic viscosity loss, when the oil is subjected to engine operation or special test conditions.

Ship Management Company, Some ship owners do not deal with the commercial or technical management of their vessels, but employ other ship management companies to perform this role for them.

Ship Owner, This is the company who holds the rights and responsibilities of ownership of the vessel.

SHP, Shaft Horse Power

Silicon, Symbol Si, Atomic number 14. Silicon is in group 14 or (IVa) of the periodic table
A non-metallic element occurring extensively in the earth's crust in silica and silicates, having both an amorphous and a crystalline allotrope, and used doped or in combination with other materials in glass, semi-conducting devices, concrete, brick, refractories, pottery, and silicones.

Silicon - Repeatability, (Test Method IP377-91 or equivalent) Duplicate results by the same operator should be considered suspect if they differ by more than 0.0643 x average Silicon content

Silicon - Reproducibility, (Test Method IP377-91 or equivalent) Results submitted by each of two laboratories should be considered suspect if they differ by more than 0.0.332 x average Silicon content


Single buoy Mooring, A floating chamber anchored near a production platform or on-shore terminal to serve as a flexible connection to a tanker loading or discharging oil; such a system has no storage capacity at the SBM. (also refers to SPM)

Sludge, Lubricating Oil - A thick, dark residue, which accumulates on non-moving engine interior surfaces. Generally removable by wiping unless baked to a carbonaceous consistency, its formation is associated with insolubles overloading of the lubricant.

Sludge, Fuel Oil – A dark residue that may be found in fuel oil as a result of instability.

Sodium, Symbol NA. Atomic number 11. A silvery soft waxy metallic element of the alkali metal group; occurs abundantly in natural compounds (especially in salt water); burns with a yellow flame and reacts violently in water; occurs in sea water and in the mineral halite (rock salt)

SOLAS, International Convention for Safety of Life at Sea (IMO)
Solvent Extraction, Refining process used to separate reactive components (unsaturated hydrocarbons) from lube distillates in order to improve the oils oxidation stability, viscosity index and response to additives.

Solvent Refining, A process for extracting lubricant base stocks from stripped heavy gas oil or other heavy, stripped crude stream using selective solvents such as furfural or phenol.

Sounding, Depth of oil or liquid in a tank, can be measured traditionally by a sounding tape dropped down the sounding pipe, or may be measured remotely by gauges.
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**Sounding Pipe.** The small pipe about 6cm in diameter which runs through the vessel's deck and tanktop to the bottom of the tank, allowing *sounding tapes* to be dropped down its length, hitting a striking plate on the bottom of the tank.

**Sounding Tape.** A tape measure, usually metallic which, is run down the *sounding pipe*. It is graduated in cm and mm, the oil sticks to the tape, which has been submerged, and so the depth of oil can easily be read. Volume of liquid can then be read off the *Calibration Tables*.

**Sour Crude.** *Crude – Sour*

**Specific Energy.** The amount of heat liberated by the combustion of a unit quantity under specified conditions. The gross specific energy is the sum of the heat produced by the total combustion of the fuel and the heat released by the condensation of the water formed by such combustion. This is applicable to a boiler. The net specific energy is the gross value minus the heat released by condensation of the water vapour formed by the combustion. The net value is applicable to a diesel engine.

**Specific Gravity.** Mass/unit volume of product at 60 Deg F divided by Mass/unit volume of water at 60 Deg F.

**Specification.** Negotiated, fixed set of product characteristics based on designated test methods, may be ISO 8217, or suppliers own specifications such as CPC Specifications or buyers own requirements

**Spent Lubricating Oil.** *Lubricating Oil* already used, either in a manufacturing process or an engine, which may contain either water or other contaminants.

**Splash Blend.** The products are pumped into a tank and left to mix as the *barge* moves around the harbour, this mix may not be *homogeneous*.

**Spot Sampling.** A *sample* which is taken either before or at different times throughout the delivery usually by dipping a container into the oil tanks before delivery.

**Stability.** Fuel stability is a complex matter that is relevant to *MFO* and Thin FO. In very simple terms it may be said that the *asphaltenes* in a stable fuel are dispersed in an even suspension and will not settle out as a sludge or deposit on heating surfaces, either with time or as a result of heating.

**Standard Bunker Contract.** *BIMCO* standard fuel purchasing contract endorsed by IBIA

**State Oil Company.** This is a company who supplies oil in a country or area and which is 100 percent owned by a government.

**Steam turbine.** See *Turbine*

**Stem.** Placing an order subject to availability of product.

**Stokes (St).** The unit of *Kinematic Viscosity*, i.e., The measurement of a fluid's resistance to flow defined by the ratio of the fluid's dynamic viscosity to its density; usually quoted as 'centiStokes' (cSt) = stokes/100.

**Straight Run.** Products produced by simple *refinery distillation* without *cracking* or any alteration to the structure of the constituent *hydrocarbon*.

**Strike Price.** The agreed datum price in a *swap* (or benchmark)

**STS.** Ship to ship transfer
Subject(s), An offer can be made with terms included i.e. Subject to product availability, subject to barge availability etc. This means the subjects will need to be lifted before a deal can be confirmed.

Suezmax Tanker, Largest Tanker that can transit the Suez Canal usually 120-170,000MT DWT

Sulphur, Symbol S, Atomic number 16 and is in group 16 or (IVa) of the periodic table. Sulphur is a tasteless, odourless, light yellow non-metallic element. Sulphur Di-oxide is released into the atmosphere in the combustion of fossil fuels, such as gas, petroleum and coal, and constitutes one of the most troublesome air pollutants, as it contributes towards acid rain.

Sulphur - Repeatability, (Test Method ISO 8754:1992 or equivalent) Duplicate results by the same operator should be considered suspect if they differ by more than 0.017 x (mean Sulphur Content + 0.8)

Sulphur - Reproducibility, (Test Method ISO 8754:1992 or equivalent) Results submitted by each of two laboratories should be considered suspect if they differ by more than 0.055 x (mean Sulphur Content + 0.8)

Supplier, This is the company who issues the Bunker Delivery Receipt for a supply. They may be the physical supplier or Delivery Company, but not necessarily.

Supply, The amount of oil available in a port or area (as opposed to the demand); The delivery of oil to a vessel

Supply/Demand Balance, The ratio of oil available to be supplied against the amount of oil demanded by purchasers.

Surfactant, Compounds able to reduce surface tension and commonly used to achieve emulsification, wetting or detergency.

SUS, Saybolt Universal Scale – a measurement of viscosity

Swap, Where the buyer and the seller of the hedge agree to pay the other the difference between the strike price and the average base price over the settlement period.

Sweet Crude, Crude - Sweet

Syncrude, Unconventional crudes such as those derived from tar sands, oil shale and coal liquefaction.

Synthetic Lubricant, Lubricating fluid made by chemically reacting materials of a specific chemical composition to produce a compound with planned and predictable properties.
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T

**TESS**, Turbo-Electric Steam Ship, a steam turbine powered vessel which produces electricity from its main engines and uses this to drive a motor to turn the propeller.

**Tanker**, A ship or vehicle used to transport oil, refined products of liquefied gas

**Tar Sands**, A Geological phenomenon found especially in Canada in which bitumen-saturated sands are found near or at the surface. The sand is mined by a form of open cast mining, separated from the bitumen which is then refined to produce a product known as synthetic crude oil or syncrude.

**TBN**, See **BN**

**Technical Management**, A company who looks after the non commercial side of a vessel’s operations i.e. stores and supplies to a vessel, dry-docking, repairs and surveys

**Temporary Shear Stability Index (TSSI)**, The measure of a viscosity modifier’s contribution to an oil’s percentage viscosity loss under high shear conditions. Temporary shear loss results from the reversible lowering of viscosity in high shear areas of the engine, an effect that can positively influence fuel economy and cold cranking speed.

**Temporary Viscosity Loss (TVL)**, Measure of decrease in dynamic viscosity under high shear rates compared to dynamic viscosity under low shear.

**Terms & Conditions of Sale**, The legal terms and conditions of sale and purchase of bunkers - each company has their own Terms and Conditions, **BIMCO** has also produced **Fuelcon** as a standard set.

**TEU**, Twenty Foot Equivalent Unit (Twenty Foot Container)

**Therm**, 100,000 British Thermal Units (BTU); The heat needed to raise 100,000 pounds of water 1 Deg Fahrenheit.

**Thermal Cracking (Visbreaking)**, An oil refinery process in which the reaction is produced by the action of heat and pressure

**Time Bar**, The time after which claims etc. will not be accepted.

**Time Charter**, The **charterer** has the use of the **vessel** for a specified period. The **shipowner** supplies the crew and provisions

**Timken OK Load**, Measure of the **EP Properties** of a **lubricant**. Lubricated by the product under investigation, a standard steel roller rotates against a block. Timken OK load is the heaviest load that can be carried without scoring.

**Ton**, A long ton weighs 2240 pounds; a short or net ton weighs 2,000 pounds; a metric tonne equals 1000 kilograms or 2200 pounds

**Top Dead Centre**, In a reciprocating engine, the position at the top of a piston stroke, where the connecting-rod and the crank are in line and the cylinder volume is least.

**Total Sediment Accelerated**, **TSA** - This procedure involves the sample being mixed with 10% Cetane and then heated for one hour at 100 Deg C before filtration

**Total Sediment Existent**, **TSE** - This test needs no specific sample preparation, the sediment results show the dirt in the sample
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Total Sediment Potential. *TSP* - this requires the sample being heated for 24 hours at 100 Deg C to simulate the thermal ageing of the fuel, before filtration.

Trader. A trader is seen as an ‘intermediary’ in a deal who does take title and risk for the product, even if only for a very short time. Technically of course a Trader is not an intermediary, as they are legally principals in two deals as they buy the oil from the *suppliers* and then sell to the end user or another *trader*, which legally is a separate deal. The trader takes the credit and quality risks for their own account, unlike a *broker* who takes no risk.

Transhipment. Transfer of cargo from one vessel to another

Tribology. Science of the interactions between surfaces moving relative to each other, including the study of lubrication, friction and wear.

Trunk piston diesel Engine. *Medium-speed, or high-speed, diesel engine* generally using the same oil for both cylinder and crankcase lubrication, and utilising connecting rods to transmit piston power directly to the crankshaft rather that through a *crosshead*.

TSA. Total Sediment Accelerated

TSE. Total Sediment Existent

TSP. Total Sediment Potential

Turbine. An engine in which a shaft is steadily rotated by the impact of a flow of steam, gas, air, water or other fluid directed from jets or nozzles upon blades of a wheel or series of wheels.

Turbocharger. Compressor driven by exhaust gas driven *turbine* supplying pressurised air to the engine to increase power.
ULCC, Ultra Large Crude Carrier - above 250,000MT DWT, typical size about 310,000 maximum largest ULCC was built 1979 at 564,763MT DWT

Ullage, The distance from the surface of the liquid to the reference point on the vessel - usually the top of the sounding pipe.

UN, United Nations (website http://www.un.org)

Unfair Contract Terms Act 1977, Under English Law all contract terms must be ‘Fair’ this law states what would be construed as fair and unfair.

Upstream, The area of the oil industry covering the refinery to the end user of the product
Vacuum Distillation, The process in which distillation is carried out in a vacuum or much reduced pressure and reduced temperature, to ensure the product is not thermally cracked.

Valve lifter, Sometimes called a "cam follower", a component in engine design that uses a linkage system between a cam and the valve it operates. The lifter typically translates the rotational motion of the cam to a reciprocating linear motion in the linkage system.

Vanadium, Vanadium is a chemical element that has the symbol V and atomic number 23. A rare, soft and ductile element, vanadium naturally occurs in certain minerals and is used mainly to produce certain alloys. It is one of the 26 elements found in most living organisms.

Vapour, Gaseous form of a material, normally liquid or solid.

Vapour Pressure, see “Reid Vapour pressure”


VCF, Volume Correction Factor

Vessel, Any ship or barge involved in waterborne trade.

Vessel's Officer, The officer of the vessel, or his representative, who is responsible for receiving bunkers and documentation.

Visbreaking, See Thermal Cracking

Viscosity, A measure of a fluid's resistance to flow.

Viscosity - Repeatability, (Test Method ISO 3104:1976 or equivalent) Duplicate results by the same operator should be considered suspect if they differ by more than 0.35% of their mean

Viscosity - Reproducibility, (Test Method ISO 3104:1976 or equivalent) Results submitted by each of two laboratories should be considered suspect if they differ by more than 0.7% of their mean

Viscosity index (VI), An arbitrary scale used to measure a fluid's change of viscosity with temperature.

Viscosity Index Improver (VII), An additive employed to raise the Viscosity Index of a mineral oil and other products.

Viscosity Modifier, Lubricant additive, usually a high molecular weight polymer, that reduces the tendency of an oil's viscosity to change with temperature.

 VLCC, A supertanker with a deadweight capacity of up to 250,000 MT

VLOO, Very Large Oil/Ore Carrier usually of over 200,000MT DWT, these vessels will either carry Oil or Dry Cargo, not a mixture of both at the same time.

Volume Correction Factor, Factor for converting volumes observed at temperatures other than 60 Deg F to volumes at 60 Deg F

Voyage Charter, The shipowner hires their vessel, subject to various conditions, for the carriage of cargo for a single voyage
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**W**

**Water**, The common name applied to the liquid state of the Hydrogen-Oxygen compound H2O. Under standard Atmospheric pressure (760mm of mercury); the freezing point of water is 0 Degrees C and its boiling point is 100 Degrees C. Water attains its maximum density at a temperature of 4 Degrees C.

**Water - Repeatability**, (Test Method ISO 3733:1976 or equivalent) Duplicate results by the same operator should be considered suspect if they differ by more than 0.1 or 2% whichever is the greater.

**Water - Reproducibility**, (Test Method ISO 3733:1976 or equivalent) Results submitted by each of two laboratories should be considered suspect if they differ by more than 0.2 or 10% mean which ever is the greater.

**Water finding paste**, A paste which is applied to the **sounding rod or tape**. If water is present in its liquid form it will change the colour of the paste, usually from Green to Red.

**WCF**, Weight Correction Factor applied to turn weight in Vacuo to weight in air.

**Weight Correction Factor**, A correction factor to be applied to the **Weight in Vacuo** figure to give the weight in air. (to take into account the buoyancy of the air)

**Weight in Vacuo**, General, This is the calculation of **Volume x Density** at the same temperature.

**White Oil**, Highly refined lubricant stock used for speciality applications such as cosmetics and medicines.

**WP, Maritime Context**: Weather Permitting

**Legal Context**: Without Prejudice - discussions or correspondence between parties to a dispute for the purpose of settling the dispute and not to be referred to by either party in court or arbitration proceedings.
Y

**Yield.** In petroleum *refining* the percentage obtained of the amount of crude charged to the *refining* operation.

**Yokohama Fenders.** Large cylindrical fenders used to keep vessels apart during bunkering - can be up to 6-10 feet in diameter.
Z

**Zinc (ZDP)**, Commonly used name for Zinc dithophosphate, an anti-wear/oxidation inhibitor chemical.

**Zinc dithophosphate (ZDP)**, An anti-wear/oxidation inhibitor chemical.