



A Better Class of Oil

## INDUSTRY TERMS

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| <b>ACEA</b>  | Association des Constructeurs Europeens de l'Automobile.   |
| <b>ACID NUMBER</b>                                       | (see NEUT NUMBER)  |
| <b>AGM</b>   | American Gear Manufacturers Association, one of whose activities is the establishment and promotion of standards for gear lubricants.  |
| <b>ANTI-FOAM AGENT</b>                                   | (see FOAM INHIBITOR)   |
| <b>ANTI-WEAR AGENT</b>                                   | An additive that minimises wear caused by metal-to metal contact during conditions of mild boundary lubrication (e.g. stops and starts, oscillating motion). The additive reacts chemically with, and forms a film on, metal surfaces under normal operating conditions. |
| <b>ANTI-OXIDANT</b>                                      | (see OXIDATION INHIBITOR)  |
| <b>API</b> (American Petroleum Institute)                | society organised to further the interests of the petroleum industry.  |
| <b>ASH CONTENT</b>                                       | Non-combustible residue of a lubricating oil (also fuels) determined in accordance with ASTM D582 - also D874 (sulphated ash).   |
| <b>ASTM</b> (American Society for Testing and Materials) | organisation devoted to "the promotion of knowledge of the materials of engineering, and the standardisation of specifications and methods of testing  |
| <b>AUTO IGNITION TEMPERATURE</b>                         | See description under FLASH POINT.   |
| <b>BASE NUMBER</b>                                       | (see NEUT NUMBER)  |
| <b>BOUNDARY LUBRICATION</b>                              | A state of lubrication characterised by partial contact between two metal surfaces, and partial separation of the surfaces by a fluid film of lubricant. Due to metal-metal contact, severe wear can take place during boundary lubrication.                             |
| <b>BROOKFIELD VISCOSITY</b>                              | viscosity, in centipoises, as determined on the Brookfield viscometer (ASTM D2983). The operating principle for the Brookfield viscometer is the torque resistance on a spindle rotating in the fluid being tested.  |
| <b>CARBON RESIDUE</b>                                    | Percent of coked material remaining after a sample of lubricating oil has been exposed to high temperatures under ASTM Method D189 (Conradson) or D524 (Ramsbottom).   |
| <b>CENTISTOKE</b> (cSt)                                  | (see VISCOSITY)  |
| <b>CENIPOISE</b> (cP)                                    | (see VISCOSITY)  |
| <b>CHANNELLING</b>                                       | Formation of a 'groove' in grease (or in oil too viscous to flow readily under existing conditions).   |
| <b>COMPOUNDED OIL</b>                                    | A blend of petroleum oil with small amounts of fatty or synthetic fatty oils   |
| <b>COPPER STRIP</b>                                      |  |
| <b>CORROSION</b>   | evaluation of a product's tendency to corrode copper or copper alloys, ASTM D130.  |
| <b>CORROSION INHIBITOR</b>                               | A lubricant additive for protecting surfaces against chemical attack from contaminants in the lubricant.   |
| <b>DEMULSIBILITY</b>                                     | Test time required for a specified oil-water emulsion to break, using ASTM D1401 test method.  |
| <b>DETERGENT</b>   | An additive in crankcase oils generally combined with dispersant additives.  |



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| <b>DISPERSANTS</b>              | A detergent chemically neutralises acidic contaminants in the oil before they become insoluble and fall out of the oil, forming sludge. Operate to break up insoluble contaminant particles already formed. Particles are kept finely divided so that they can remain 'dispersed' or colloidally suspended in the oil.   |
| <b>DROPPING POINT</b>           | The temperature at which a grease changes from semisolid to a liquid state under test conditions.  |
| <b>EMULSION</b>                 | A mechanical mixture of two mutually insoluble liquids (such as oil and water).  |
| <b>EP AGENT</b>                 | An additive to improve the extreme pressure properties of a lubricant.   |
| <b>FIRE POINT</b>               | The minimum sample temperature at which vapor is produced at a sufficient rate to sustain combustion.  |
| <b>FLASH POINT</b>              | Minimum temperature of a petroleum product or other combustible fluid at which vapor is produced at a rate sufficient to yield a combustible mixture.  |
| <b>FOAM INHIBITOR</b>           | An additive which causes foam to dissipate more rapidly. It promotes the combination of small bubbles into large bubbles which burst more easily.  |
| <b>FOUR BALL TESTS</b>          | Two test procedures based on the same principle - the Four-Ball EP Test (ASTM D2596) and Four-Ball Wear Test (ASTM D2266). The three lower balls are clamped together to form a cradle upon which the fourth ball rotates in a vertical axis. The balls are immersed in the lubricant under investigation. The FOUR BALL WEAR TEST is used to determine the relative wear-preventing properties of lubricants operating under boundary lubrication conditions. The FOUR-BALL EP TEST is designed to evaluate performance under much higher unit loads. Two values are generally reported - LOAD WEAR INDEX (formerly mean Hertz load) and WELD POINT.  |
| <b>HYDROCRACKING</b>            | Is a process which is used by a few manufacturers of superior quality lubricant basestock. In the process, a petroleum feedstock is reacted with hydrogen, in the presence of a catalyst, at very high temperatures (400-425°C) and pressures (3000 plus psi). Under these severe conditions, virtually all the aromatic hydrocarbons present are isomerised and saturated to yield a basestock containing 96% to 99.5+% saturated hydrocarbons. The process also virtually eliminates all traces of sulphur, nitrogen and oxygen-containing impurities. Hydrocracking produces very high quality, synthetic-like basestocks, which when blended with carefully selected additives, give extremely stable lubricants of a synthetic level performance. |
| <b>HYDROFINISHING</b>           | (see HYDROTREATING)  |
| <b>HYDROTREATING</b>            | A generic name for a refinery process for treating fuels and lubricant feedstocks, at elevated temperatures, in the presence of pressurised hydrogen and a catalyst. This relatively mild process is sometimes called 'Hydrofinishing' and is used to improve the colour and odour of fuels and lubricant basestocks.  |
| <b>HYDRODYNAMIC LUBRICATION</b> | A lubrication regime characterised by a full fluid film between two moving surfaces.   |
| <b>INHIBITOR</b>                | Additive for the control of an undesirable phenomenon in grease, oils, or fuels, etc., for example: oxidation inhibitors, rust inhibitors, foam inhibitors, etc.   |
| <b>ISO</b>                      | (International Organization for Standardisation) - an organisation which   |



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| <b>NEUT NUMBER</b>            | establishes internationally recognised standards for products and test methods. Or NEUTRALIZATION NUMBER: the specific quantity of reagent required to 'neutralise' the acidity or alkalinity of a lube oil sample   |
| <b>OXIDATION</b>              | A form of chemical deterioration to which petroleum products like most other organic materials are subject.  |
| <b>OXIDATION INHIBITOR</b>    | Chemical added in small quantities to a petroleum product to increase its oxidation resistance and hence to lengthen its service or storage life.  |
| <b>POISE</b>                  | CGS unit of absolute viscosity: shear stress (in dynes per square centimetre) required to move one layer of fluid along another, over a total layer thickness of one centimetre at a shear rate of one centimetre per second. The CENTIPOISE (cP) is 1/100 of a poise and is the unit of absolute viscosity most commonly used.  |
| <b>POUR POINT</b>             | Is a widely used low-temperature flow indicator and is 3°C above the temperature to which a normally liquid petroleum product maintains fluidity.  |
| <b>RUST INHIBITORS</b>        | A lubricant additive for protecting ferrous (iron and steel) components from rusting caused by water contamination or other harmful materials from oil degradation.  |
| <b>SAPS</b>                   | Sulphated Ash, Phosphorus and Sulphur. Basic chemical specifications in engine oils that are being further limited as emissions requirements tighten.  |
| <b>SCR</b>                    | Selective Catalytic Reduction. Exhaust emissions treatment system used mainly on heavy duty trucks   |
| <b>SCUFFING</b>               | Engine wear resulting from the localised welding and fracture of rubbing surfaces.   |
| <b>SOLVENT EXTRACTION</b>     | A traditional refinery process that is used to upgrade chemical and physical properties in the manufacture of lube oil basestocks.   |
| <b>STLE</b>                   | Society of Tribologists and Lubrication Engineer.  |
| <b>SULPHATED ASH</b>          | (see ASH)  |
| <b>SYNTHETIC LUBRICANTS</b>   | Lubricants manufactured by a process where a chemical conversion or transformation of one complex mixture of molecules into another complex mixture takes place. Common types of synthetic base oil include: <ul style="list-style-type: none"><li>• Polyalpha olefins</li><li>• Hydrocracked/Hydrosomerised Unconventional Base Oils (UCBOs)</li><li>• Organic esters</li><li>• Polyglycols</li></ul> |
| <b>TIMKEN OK LOAD</b>         | Measure of the extreme pressure properties of a lubricant.   |
| <b>TOTAL BASE NUMBER</b>      | (see NEUT NUMBER)  |
| <b>VISCOSITY</b>              | Measure of a fluid's resistance to flow. It is ordinarily expressed in terms of the time required for a standard quantity of the fluid at a certain temperature to flow through a standard orifice.  |
| <b>VISCOSITY INDEX (V.I.)</b> | An indicator of the rate of change of viscosity with temperature.  |
| <b>VOLATILITY</b>             | That property of a liquid that defines its evaporation characteristics.  |

