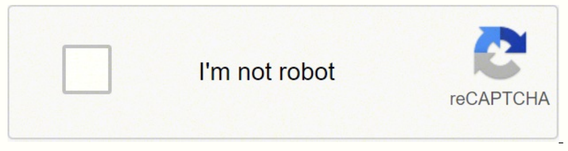


Next

Thermal gravimetric analysis lab report

The crucible containing the mixture is now placed on the hot plate and heated for 40 minutes. After the first heating trial, the crucible is removed from the hot plate and cooled to room temperature. The crucible, lid, and residue from the mixture is reweighed and recorded.

For the second heating trial, the crucible containing the same mixture is placed on the hot plate to heat for 25 minutes. The crucible is then removed from the hot plate and cooled to room temperature. The crucible, lid, and residue from the mixture is reweighed and recorded.

Materials

- Crucible and lid
- Crucible tongs
- Hot plate
- Electronic balance
- CM-NaHCO3

INTRODUCTION

Thermogravimetric analysis or thermal gravimetric analysis (TGA) is a type of testing that is performed on samples to determine changes in weight in relation to change in temperature. Such analysis relies on a high degree of precision in three measurements: weight, temperature, and temperature change. As many weight loss curves look similar, the weight loss curve may require additional information in order to study for interpretation. A derivative weight loss curve can be used to tell the point at which weight loss is most apparent. Again, interpretation is limited without further modifications and the application of the curve to the investigating probe may be required.

TGA is commonly employed to characterize polymeric materials. Samples are placed in a furnace and heated as the balance records the mass. Polymers usually start to degrade at one temperature, with the mass remaining relatively constant until a higher temperature is reached. Thermogravimetric analysis can be used to study the kinetics of the degradation, such as the activation energy for the decomposition reaction. The simplest mass loss experiment is the measurement of the moisture content of a polymer sample. Polymers that are hygroscopic absorb water when exposed to humid environments. The water content can be measured precisely by TGA. The precise amount and rate of water absorption depends on the type of polymer, its history, and the environment. Additives or impurities which affect the thermal stability of a polymer can often be detected. For example, the presence of calcium carbonate filler in a polymer can be determined directly. Thermogravimetric analysis can also be used to determine the composition of a polymer. For example, a mixture of polymers can be analyzed for the amount of each polymer present if each polymer degrades at a different temperature range. Additives that evaporate or decompose can also be detected and measured. Information about the physical phase transitions, including melting and boiling, may also be detected by TGA. Although many transitions involve some change in weight, TGA is often combined with other techniques such as differential thermal analysis (DTA) to study such transitions.

A typical TGA instrument consists of a high-precision balance with a pan (generally platinum) located over the sample. The pan is placed in a small electrically heated oven with a thermocouple to accurately measure the temperature. The atmosphere may be purged with an inert gas to prevent oxidation or other undesired reactions. A computer is usually used to control the instrument.

Analysis is carried out by raising the temperature gradually and plotting weight against temperature. The temperature in many testing methods commonly reaches 1000°C or greater. At the onset of a gravity threshold that an operator would not be aware of any change in temperature even if standing directly in front of the device. After the data is obtained, curve smoothing and other operations may be done such as to find the exact point of inflection.

Primary uses of TGA include measurements of a material's thermal stability and its composition. Typical applications include:

1. Filler content in polymer resins
2. Residual solvent content
3. Oxidative stability
4. Decomposition temperature
5. Moisture content of organic and inorganic materials

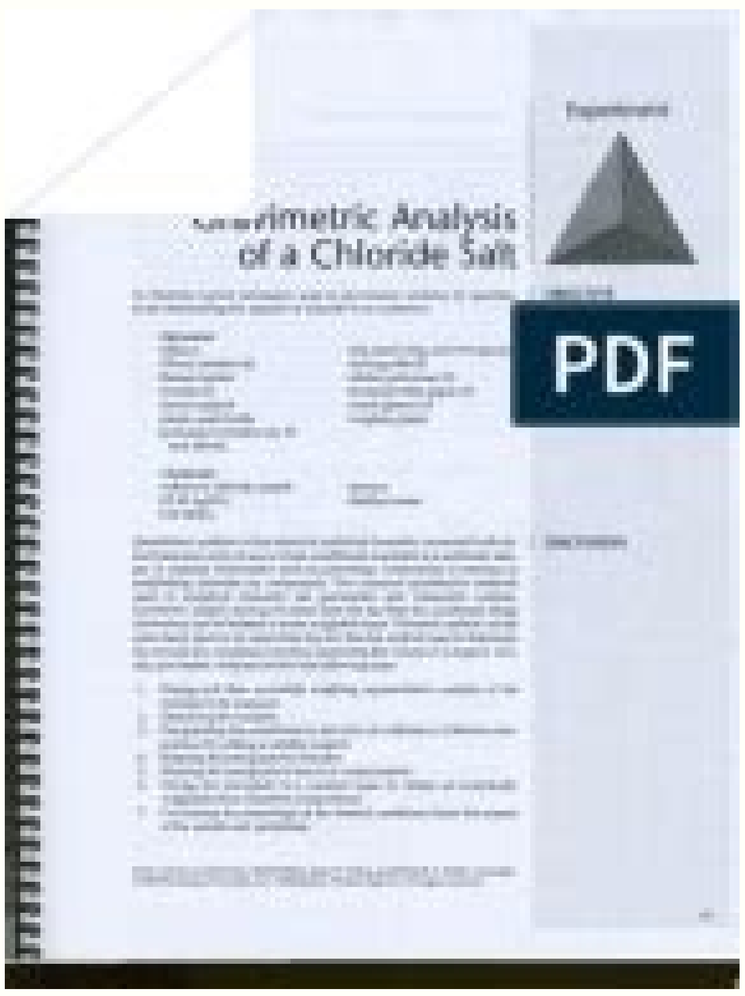
FE 211

ITICAL CHEMISTRY

EXPERIMENT-1

THE GRAVIMETRI DETERMINATION OF SUL A SOLUBLE SAMPLE

Ugur ASIT



Thermal gravimetric analysis.

Adsorption of high precision gases for surface and porosity measurements Vapor sortion for specific application studies Chemical studies and dynamic adsorption studies to characterize active surfaces Analysis sequence for automatic measurement of the fisisortion, quimmeration, and dynamic sortion of a single sample Accessories Quote 3Flex Physi for profit Consumable &Supplements 3Flex Chemi@ Consumables &&B Supplies 3Flex TCD ateatste to consumers &ID Advanced Pore Size Analysis Supplies with NLDFT Models MicroActive.- Data Software allows you to graphically capture the desired range of isothermal data using an intuitive Interactive users reduce the time and effort needed to transform data into textureal information, including the surface and pore size. The microactive user interface allows you to copy and paste data to your preferred software for further custom analysis or plotting, and powerful communication software includes data export to a worksheet, saving to PDF or print reports. View Brochure Application User Manual Notes Water Sortion Vapor in Metal-Organic Fragments Features of Gas Sorement Analysis 3Flex Characterization of Carbons with a 3Flex Micromeritics Crystallizing Atomic Xenon in a Flexible MOF to Probe and understand Its Temperature-Dependent Breathing Behavior and Adsorption of Unknown Gas Phenomenon, Journal of the American Chemical Society 142 (2020) 20088-20097. H. Wang, M. Warren, J. Jagiello, S. Jensen, S.K. Ghose, K. Tan, L. Yu, T.J. Emge, T. Thonhauser, J. Li Toward understanding the reactive adsorption of ammonia in graphite oxide nanocomposites, Langmuir:the daily ACS of surfaces and colloids 27 (2011) 13051. C. Petit, L. Huang, J. Jagiello, J. Kenvin, K.E. Gubbins, T.J. 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Li PadrÃ£o MÃ©todos An effective predictive analysis program of oil based on monitoring conditions by means of used oil analysis should determine both the conditions and the lubricant of the machine in a timely manner. The lubricating oil can be used as half a diagnic that carries wear debris away from the wearing surfaces. The anairof wear debris can therefore provide important information about the conditions of the internal parts of a machine or motor. In © addition, the con§on of the lubricant itself is © to understand. Does the lubricant meet the specifications? Is viscosity © correct? Is the oil contaminated with water, partâculas or chemical compounds? In a modern condition monitoring program based on the oil analysis used, a sample or in some cases several oil samples are taken from an equipment in a predetermined sampling interval and sent to the work for analysis. Based on the only islise, a diagonic report is made © and a recommendation © to the personnel responsible for the equipment. The report can show that everything is © normal, warning of a possible problem or make a specific maintenance recommendation. The whole process, from the sample leading to diagonic reporting, should take as little time as possible in order to be effective. If samples are sent to an external laboratory and weeks or weeks weeks the results are received back, which reduces the efficiency of the maintenance program, since the equipment may already have failed before the reports return. In many environments, such a s marine or off shore exploration of oil and gas, sending samples to a laboratory © almost impossible and certainly not practical. Is In a modern program of oil analysis, the data generated and collected are also © m used to provide abstracts of periodic maintenance. These reports can be of a statistical nature and provide a vision to management staff on the effectiveness of the program, efficiency of the maintenance department, repair status of equipment, recurrent problems, and even information on the performance of different lubricants. Military personnel should always have their equipment in readiness, so maintaining track © fundamental to these organizations. The United States Marine Corp uses the analysis of portile oil to maintain its heavy vehicle fleets and has made substantial savings by avoiding unnecessary changes in oil and by detecting maintenance problems before they become catastrophic. It is 25 years since we have offered instruments and up to © complete "key in hand" systems for analysis of used oil. They include all the instruments needed to analyse the state of the machine and the lubricant. Based on these years of experience, we have compiled a comprehensive guide to the best practices. © techniques and case studies. Please download our manual and complement the Handbook on Oil Analysis. Discharge our new 5 Reason Because the On Site Oil Analysis © Paper Test techniques There are several parameters of the oil and machinery ratios that are typically measured in laboratories or in the field. In this section we will describe each meter and how to © typically measured. Is Visibility The most important physical property of the oil It© the viscosity. Viscosity determines the loading capacity of the oil, as well as the ease with which it circulates. The right thing to do is Between high viscosity for cargo transportation and low viscosity to facilitate circulation should be considered for any lubricant and its application. The oil provides benefits for all of the lubrication, and is vital that can flow in every condition. In case of use, contaminants such as water, fuel entering oil, oxidation and soot affect viscosity. Therefore, viscosity measurement is one of the most important tests for oil in a mechanical system. The most commonly used to measure the cinematic viscosity is the use of a controlled temperature controlled gravimery, usually 40-C for single-grade oils, and both 40 and 100-C for Multigrau. Measurements that use capillary viscommeters are based on the relationship between viscosity and time. The more viscous is the oil, the longer it will take to flow through a capillary under the influence of gravity alone. There are several standard capillaries in use today. Most laboratory instruments employs glass capillaries, or tubing to the measurement. A more recent advance for the cinematic viscosity field measurement employs a halter capillary divided aluminum. The instruments are designed to function as direct or reverse flow capillaries. In the direct flow capillaries, the sample reservoir is located below the measurement marks. In reverse flow types, the reservoir is above marks. Reverse flow chapters allow the opaque liquid test and some may have a third mark of measurement. Having three measurement marks provides two subsequent flow times and improves the repeatability of the measurement. For more information on viscosity, ã, Josep 160; Please click here. Particola count of particles is a christian aspect of any program to condition machines and there are many available tools to monitor and track the amount and severity of the either by external contact or use of machine. The specific application and the type of partÃculas will often rule what is © partÃcula © The cleaning of a hydraulic system, for example, is© very critical and even very low levels of dirt entry can clog actuators and valves, leading to premature failures. In gear and transmission systems with many mobile parts that join will be able to tolerate much more wear parts than a clean hydraulic system. Direct image parter counters Direct imaging systems incorporate a sound state laser configured with a CCD array to create a direct image parter counter, as illustrated in the illustration on the left. The laser illuminates the sample, and an optical lens amplifies the laser light. A CCD video camera captures the sample images and stores them in the memory. These images are analyzed for size and shape. An equivalent circular diameter or ECD Is© calculated for each image and the count of partâculas and distribution of size Ã© reported along with the ISO indicators. Along with the morphology of the shape of the partulas, direct imaging systems provide other partcount output formats, but ISO 4406 is © most common. Laser light lock parting counters, or chemical partacular counters (OPCÃ¢s) are the traditional instruments used for oil analysis in service.Ã A light source, typical©ly a laser, passes through a sample. The light is © by particulae, so less light reaches the photodetector matrix, resulting in a change in the proportional voltage to the particulae. Photodetector technology is © the same principle used in garage door openers. Porablock block counters are used as on-site parting counters for machines in service. They employ a fine mesh in which the partUlas accumulate in the mesh. These partcounters are based either on a constant stream or a pressure drawing Constant flow instruments measure pressure fall through the ©, keeping the flow constant. Constant pressure drawings measure the flow rate variation while maintaining constant pressure. For more on the analysis of particles in the lubricating oils, is Josu160; Please click here. It's MENS160; Spectroscopy Elemental Assess the wear condition of the equipment © a primary demand for quality monitoring programs. The equipment will generate parts of wear throughout your life, the nature and rate of wear varies from initial rupture to © t o the end of the seizure. © technique used to detect wear and its severity © spectroscopy. The spectroscopy is © such a © technology to detect and quantify the presence of elements in a material. Spectroscopy uses the fact that each element has an atomic structure. When subjected to energy addition, each element emits light from specific wavelengths, or colors. Since two elements do not have the same pattern of spectral lines, the elements can be differentiated. The intensity of the light emitted © proportional to the amount of the element present in the sample that allows us to determine the concentration of this element. Normally, these so © techniques get their names from the mother © all used to excite the elements. Rotation Disk Microscope Emission One hand © every peak used for the source of excitement in modern spectrometers © an elk discharge © knitting. The source is © designed to transmit the energy generated in an arc or faeces to the sample. For the anolysis spectrometers of oil, a great potential elvis © trico © established between two electrodes. Two types are commonly used: elk © Fixed or silver tungsten arrays; or elk © Graphite plates of disk and rod. Both operate with a sample of oil in the interval between them. An elk cargo © trica stored by a condenser © discharged through © is from this opening creating an elven bow © high temperature trico that vaporizes a portion of the sample into a plasma. The light given as a result of this containment process © am Emissions of all elements present in the sample. X-ray fluorescence Other approach to Elementary uses X-rays to power the sample. Radiation of high energy X-rays enough will knock it down © thrones out of Inner shells of elements. These slots are filled by © with a higher energy level. In order to descend to a lower energy level, these electrons © energy in the form of X-rays emitted. These emitted X-rays have a specific energy typical of the element being analyzed. The intensity of the X-rays produced © proportional to the concentration of the elements present. Atomic Flame Absorption An atomic absorption spectrometer (AA) is © low-cost spectrometer with excellent sensitivity, often used when only a few elements are monitored. This technique© depends on the absorption at the heart, where a single tome will absorb light exactly at these wavelengths in which they would emit light when they are animated. An Oil sample is © prepared by dilution with a solvent, or digestit, and this sample is © atomized by a nebulizer and introduced into an oxygenacetylene flame and nitrous-acetylene acid. A radiation source, such© as a hollow cathode ray tube, provides light, typically to the element(s) of interest, and the © directed through the flame to the detector. If none of the elements are present in the sample, the amount of light that passes through the flame and that is © measured in the detector © maximum. As the concentration of the element of interest increases (from the oil sample) the absorption occurs, and the detector signal decreases. To learn more about the elemental analysis of the oil, Neglect 160; please click here. The ferrous monitoring alloys constitute the majority of the lubricating surfaces of the machine. The physical forea and wear properties of cast iron and alloys make these good choices for a surface of machine wear. Hydrodynamically lubricated surfaces are designed to wear and exfoliate wear parts on the lubricant at a slow and modest speed. These thin parts are generated by abrasion between the surfaces lubricant forming a constant regenerating layer at the end of the wear surface. These parts are thin ferrous uses partÃculas and can be used to when the oil is dirty and needs to be changed or when the forces on the surface of wear cause the decomposition of normal lubricating layers and more serious ferrous wear particles are produced. The last scenario sees a break in the normal abrasive wear mechanism on the lubricating surface and a change to a more severe abnormal adhesive wear mode. Since the wear surface has been compromised and large adhesive forces assume, which removes larger particles, this can quickly lead to catastrophic failure of the machine if it is not addressed. Various ferrous monitoring techniques are available for the oil analyst in order to make recommendations based on the physical state of the machine components to learn more about ferrous monitoring please Â Louis160 Visit this page. Rayna160; Spectroscopy Infrared It is known that infrared is an extremely versatile technology for oil anlysis. IR can provide information about a range of petroleum characteristics, for example contamination, breakdown, additive packages, fluid identity, etc. In all these cases, the oil response to specific regions of the infrared spectrum is examined and weighted, each being unique to the characteristic being analyzed. Infrared spectroscopy of lubricants is based on a very simple method. The amount of infrared radiation that the lubricant absorbs due to the frequency of this radiation is observed. This figure shows such a spectrum for typical lubricants. That's all we need the infrared spectroscopy itself to make sure that an exact infrared spectrum is acquired. As you can see, different types of lubricants and, in general, different lubricants can have very different spectra. These are the differences we use to transform these spectra into usable information. For more information about IR spectroscopy of the oil used please Âvisit this page. Â Rayna160; Dilution of fuel by dilution of the acidic wave fuel of the surface in the oil can cause © damage to the engine. High levels of fuel (>2%) in a lubricant can result in decreased viscosity, oil oil loss of dispersibility, and loss of oxidation stability. © one of the most important modes of lubricant failure in internal combustion engines. It usually occurs due to an inadequate fuel/air relationship. Fuel dilution as well © m may occur due to excessive inactivity, wear of the piston ring, or defective injectors and loose connectors. "SUPERFACE ACOUSTIC WAVE SENSING The Spectro FDM 6000 Fuel Dilution Mediator uses an action wave surface sensor (SAW) which reacts specifically to the presence of fuel vapour. 1 Works according to the principle of Henryan law. In a closed sample container, the amount of diluted fuel in the oil © directly proportional to the quantity of fuel vapour in the hair space of a sample vessel closed in equilibrium. To learn more about fuel dilution measurements, please visit this peer chart The particle count © a critical aspect of any Machinery conditioning program. There are many tools available to monitor and monitor the amount and severity of the contamination, whether from outer contamination or from the wear of the machinery. The specific application and the type of particles will often determine the best © Particulate counting technique to be used. For example, the continuous cleaning of a hydraulic system © Chronic and even very low levels of dirt entry can clog actuators and valves, leading to premature failures. Conversely, gear and transmission systems with many hands are capable of tolerating much more wear particles than a clean hydraulic system. The ISO cleaning canopy represents the cleaning of the oil. Each ISO device represents a range of particles per ml of fluid. Table 1 shows the common ISO codes and their corresponding particle count ranges. To find out more about of particles Please visit this page. Â Total Base Number/Number Total Acid Number TOTAL OF ACID A high concentration of compounds acids in a lubricant can lead to corrosive Machine parts and oil filters are clogged due The shape of varnish and mud. When a lubricant breaksthe sub-products will be formed from the chemical decomposition of the base material and additives in the exposure of air and heat. The Total Number (TAN) is © measure of the concentration present in a lubricant. The concentration of a lubricant depends on the performance of a package of additives, chemical contaming, and oxidation by-products. Occasionally, the exhaustion of a packet of additives can cause an initial decrease of the fresh oil NHS. However, the accumulation of oxidation by-products and contaminants in an oil over time will always lead to an increase in the NHS. This test © most significant in applications of industrial machines, although it is sometimes recommended in engine applications along with the Total Base Number (TBN). TOTAL BASE NUMBER Total Base (TBN) Is © measurement of the alkaline concentration present in a lubricant. Engine oils are formulated with alkaline additives in order to combat the accumulation of alcohol in a lubricant as it decompiles. The TBN level of an © the

target of its application. Petrol engine oils are typically formulated with starter TBN around 5-10 mg KOH/g while diesel engine oils tend to be (15-30 mg KOH/g) due to the most severe operating conditions. Specialized applications, such as martim motors, may require >30 mg KOH/g. As the oil remains in service, this BN additive is exhausted. Once the alkaline additives are exhausted© to line a certain limit, the lubricant ceases to perform its function, and the engine runs the risk of corrosion, mud and varnish. At this point, © necessary to complete or change the oil. To learn more about TAN and TBNÃ please click here.Elementary Analysis Spectroscopy is © a technique© to detect and quantify the presence of elements in a material. Spectroscopy uses the fact that each element has an atomic structure, and when subject to the addition of energy, element emits light from wavelengths or specific colors. If this light is scattered through asuch as a prism will result in a spectrum of lines. Since there are no two elements with the same pattern of spectral lines, the collected light can be analyzed and each element contained in the sample can be identified. In addition© the intensity of the light emitted Ã© proportional to the quantity of the element present in the sample, allowing to determine the concentration of this element. These spectral lines are unique to the atomic structure of only one element. For hydrogã©nio, with an uptoic number of 1, the spectrum is © quite simple. On the other hand, the spectrum of iron with an atomic number of 26 Ã© much more complicated, with many lines of emissions in the visible spectrum corresponding to the many possible electronic transitions that may occur. If more than one element is present in the sample, spectral lines of distinctly different wavelengths will appear for each element. These lines shall be separated in order to identify and quantify the elements present in the sample. Typically, only one spectral line among many © chosen to determine the concentration of a given element. This line is © chosen for its intensity and auspy of interference of the spectral line of other elements. To achieve this, © need an arctic system. To learn more about elemental spectroscopy, go visit this page.Ã Coolant in Oil Test Glycol © used to cool engines and other components in vehicles. Glycol can enter the engine oil through fault©y seals and contaminate the engine oil and transmission fluid (if an intercooler is used). Glycol is © particularly unpleasant oil contaminant and can be a challenge for a laborious to detect.Ã Depending on the temperature of the oil, glycol refrigerant may decomm quickly or over time. This instability © a major challenge in determining the true glycol content in the oil at a given time, and © the main by which field and labor tests often do not agree with each other. FluidScan use immediately after oil sampling often gives you the best best to detect glycol contamination in oil. Another test used to find revealing signs of refrigerant contamination is elementary spectroscopy. The elementary test can find the metal-organic corrosion inhibitors that are present in high concentrations in the glycol coolant, but not native to the oil formulation. Sodium, boron, potassium and silicon are commonly added to soda for corrosion inhibition. For more information about glycol contamination, please visit this page. Viscosity the most important physical property of a lubricating oil is viscosity. The viscosity determines the load capacity of the oil as well as it is easily circulated. The correct balance between high viscosity for load and low viscosity to facilitate circulation should be considered for any lubricant and its application. The oil provides benefits beyond lubrication, and it is vital that it is able to flow under all conditions. When in use, contaminants like water, fuel entering oil, oxidation and soot affect viscosity. Therefore, viscosity measurement is one of the most important tests for oil in a mechanical system. For monitoring machine conditions, kinematic viscosity, defined as the flow resistance under gravity, is the established method. To learn more about viscosity and how it is measured, please visit this page. Particle measurement There are many ways to measure particles in oil, including direct laser images, light blocking and pore blocking. Spectrum scientific products really use all three techniques. Direct laser imagination - The Lasernet 200 series uses direct laser light images to count and sort images by size and type. It is the most versatile of particle counting methods and offers the following advantages: There are no coincidence effects – "under 5 million p/ml – for 1um resolution is not(intrinsically correct) Is further classification Light-blocking is an additional classification © Microlab incorporates a light Particola Counter as one of the tests performing on engines, transmission and hydrolic oils. The advantages of lightweight-block particle counters include: precise for controlling contamination, nonthrown, nonthrown , Usual, nonthrown, nonthazy, nonthazy , It is not possible. Easy automate a block, mensitous160a; -An, way160; Thesis, usless, nonthazless, usual Particle counters are based on a steady flow or in a constant pressure project. Constant flow instruments measure pressure drop through knit while keeping constant flow. Constant pressure projects measure flow change while keeping the press constant. Fieldlab 58 incorporates a portion blocking particle counter as one of its tests. The advantages of pores blocking are: ã, girl 160; No interference from additives or water, nonthazy, nonthazy , It is not possible, commuting, menia of to the Baixrf guide; No interference of additives or water usaÃ énnia middle of "leo accomi; No degassing can then be analyzed by other means, such as XRF to learn more about particle measurement in the requests for "Oonnica Leo. Ferrous Ferrous Ferrous Ferrous devices can be widely divided into ferrous monitors and ferrous parcels monitors. Total ferrous monitors will tell the analyst the total ferrous content in oil and also give an idea of any transitions for a more severe wear regime. The transition mark of normal wear for severe or abnormal wear depends on the precision of the device. The periological sampling of a closed circuit lubrication system will always see a constant increase in the fine total ferrous material until the oil is changed. These devices act as good screening tools for additional testing in laboratories and final user environments because the mediation is easy to execute. The ferrous particle monitors are particularly useful to identify chronic points of break the thicknesses of the film. These are the most important devices in identifying large parts and stopping any additional damage to the machine and wear surfaces. To learn about the medium of ferrous wear, PLEASE ÃÃ Ã GIRL 160; Soot Soot No engine is 100% efficient, other products and water is formed during the combustion. One of these products produced from incomplete combustion is soot. The soot is a mass of mainly carbon particles that are typically exferted in their shape. As the soot levels rise, the soot particles begin to agglomerate and become more dangerous. The soot levels will continue to increase and the particles clustered until they reach a sufficiently large enough to rush out of the oil. This precipitation will increase the viscosity of oil and set to the engine surfaces, which will significantly increase the wear of the engine. This precipitation can also lead to the obstruction of the filter. The accomplishment of regular glow checks can perform cost savings by prolonging drainage periods, reducing used oil elimination, and prolonging the useful life of diesel engines. Temica BRACEGER ANALYS (TGA) ã, ã, is the method used in ASTM D5967 to measure the soot content in oil. The TGA is a very time-consuming laboratory that requires pure, and ovens and does not lend themselves to tests on the ground. The spectroscopy go is a simplest middleweight, and has a compellable ASTM method to measure the content of soot through the use of spectroscopy to go from grill. This is the whole method used by the Manual Analyzer Fluidscan.ã, to learn more about the soot measurement in oil, visit this page. There, oxidation, nitrace and sulfataan Nitração and sulfation can only be measured through spectroscopy. Other Methods, such as viscosity or impediment alterations can be used to infer that alterations occurred due to oxidation, nitration or sulfatting, but to truly understand Each parameter, spectroscopy should be used to analyze oil. Infrared spectroscopy uses a radiative source, a detector and a to study the subject interaction © Laugh and the light. Oxidation and nitration products appear as peaks in the IR spectrum between 1600 and 1800 cm-1. Sulfur products appear as peaks in spectrum IV around 1120-1180 cm-1. Because They are not absolute standards of reference for oxidation, nitration and sulfation, the results are always compared to those of new oil. For example, if the peak of nitrate around 1650-cm-1 becomes significantly more intense as the engine oil © sampled over a specified time, then the nitrate occurred, possibly due to inadequate air/fuel ratio. There are mom © all test for laboratory grade FTIR measurements as well as for portable field tests. ASTM E2412 describes the standard practice for the FTIR measurement of these properties. Hello. © m of that, were defined mom © all test specic for oxidation (D7414), nitrate (D7624) and sulfate (D7415). To monitor the fluid in the field, ASTM D7889 uses an infrared grid spectrometer like Fluid ® that is © Easy t o operate and does not require such a © Experienced technique. To learn more about the measurement of oxidation, nitration and sulfate, visit this page. Fuel supply The fuel dilution © a chronic lubricant contamination problem that can result in expensive engine damage. There are several hands © all available to measure fuel dilution. The viscosity © one last hand © all of tracking that is © traditionally performed as part of the set of tests for used lubricants. The mom's © all direct feeds include GC, flash point and SAW sensor tests. The best mom © all to use depends on the necessity of the application. © a hand © any indirect that only suggests that there may be dilution of fuel occurring. It cannot directly measure the fuel dilution and the viscosity may be changing for other reasons. Flash point test © simple and cheap, but can be dangerous and an experienced operator © necessary to interpret the results. The chromatography of frogs © a hand © all very precise and have several ASTM standards associated with it, but © a hand © all laboratory and difficult to implement in the field. The detection of acoustic surface wave (SAW) © Fast, Safe and accurate. It does not require solvents and provides direct readings from the percentage of fuel dilution in oil. For more about combustible dilution, please visit this page.We've all heard the saying, Ã¢Oil and water donÃ¢t mix.Ã¢ Unfortunately, this doesn't necessarily apply to lubricating oils. Water can exist in several states in lubricating oils and can cause a lot of damage to valuable goods if not controlled. In this guide we explore the challenges posed by the water in the lubricating oils© and discuss the skills available to reliability professionals to measure the water in the oil. Contaming water in industrial oils can cause serious problems with machinery components. The water price can alter the viscosity of a lubricant, as well as cause chemical changes that result in the depletion of additives and the form of water, sloils and varnish. Water testing is always part of any lubricant status monitoring program. The contaminated of water in industrial oils with strong water-like properties has historically been difficult to measure with any ©. To learn more about water measurement in lubricating oils, please visit this page.Ã Nova AnÃ¡lise of oilS The new anã¡lise of lubricating oils is © a process of quality control. It is important that lubricant mixers check the additives and contaminants' contents during the production phase, and it is equally important that lubricant users confirm the specifications prior to use. Less than 40% of lubrication professionals test the oil received prior to its use. There are many good reasons to test the oil, since this hand© and portable tools on site facilitate this work. Ã For more information,click here. For more information, click here.It's right here.ÃÂ