

“SALES PROMOTION NOTE FOR ASPHALTENE ANALYZER”

(A) Where Heavy Crude Oils are produced:

The world's tendency in oil production is that production of “Heavy Crude Oils” (API 22 or less) is increasing. Production of Medium to Light Crude Oils is becoming less year by year at many oil fields, and production of Heavy Crude Oils is instead increasing. Our new **Asphaltene Analyzer, APD-600A**, is in fact needed at petroleum refineries and oil research laboratories handling such Heavy Crude Oils.



1. The well-known big oil fields of Medium to Light Crude Oils at Ghawar in Saudi Arabia, Ahwaz in Iran and Burgan in Kuwait, etc. are now entering into the natural fall-off time, and no petroleum resources to substitute such big oil fields of Medium to Light Crude Oils have been yet found.
2. According to the US Geological Survey Fact Report (Aug. 2003), the world's confirmed minable crude oils amount to about 2 trillion barrels, in which conventional petroleum resources (API 22 or more) occupy 46.7%, Heavy Crude Oils (API 22 or less) and Super Heavy Crude Oils (API 10 or less) occupy 21.3%, and the rest of oil sand and asphalt occupies 32.0%.
3. It is said that there will be around 1 trillion barrels of API 10 to 22 petroleum resources, and it is becoming important now for both of OPEC and Non-OPEC oil-producing countries to set about development projects of such Heavy and Super Heavy petroleum resources.
4. To reform petroleum from Heavy Crude oils, it is very important to remove asphaltene contents as well as heavy metals and sulfur, etc., and for its control, our Asphaltene Analyzer will be needed.
5. Current Heavy Crude Oil reserves are estimated to be around 0.7 trillion barrels in the world, and its major locations are Venezuela (50%), Mexico (2%), Canada (1%), USA (1%), Russia (17%), Kuwait (10%), Iraq (5%), Saudi Arabia (1%), Iran (1%), Nigeria (1%), China (2%), Indonesia (1%), UK (2%), Italia (2%), etc.
6. Heavy oils are now mainly exported from such countries as Saudi Arabia (17.4%), Russia (12.3%), Norway (6.3%), Iran (5.8%), Nigeria (5.6%), UAE (5.2%), Mexico (5.0%), Venezuela (4.5%), Iraq (3.%) and Kuwait (3.5%), etc..
7. Heavy oils are now mainly imported by such countries as USA (25.1%), Japan (9.3%), China (5.7%), Korea (5.2%), Germany (5.1%), India (4.4%), Italy (4.0%), France (3.9%), Spain (2.7%) and UK (2.6%), etc.
8. As a result, there will be not a few demands for our APD-600A Asphaltene Analyzers in the countries mentioned in the items 5, 6 and 7 above.



APD-600A Asphaltene Analyzer



Petroleum refinery

There is no similar and competitive model by other manufacturers in the market.

* For the details of APD-600A, please visit <http://www.xebex.jp/Prod/cn7/apd-600a.html>.

(B) Where Heavy Oils are used:

Our new Asphaltene Analyzer, APD-600A, will be also needed by such users of heavy oils like Thermal power plants, Boiler users, Ship building companies, Shipping line companies, Large harbor authorities, Marine surveyors, etc.



Thermal power plant



Boiler



Ship building



Ocean vessel

1. When burning heavy oils, cooms are generated depending on the amount of included asphaltene content, which may cause clogging of oil ejecting nozzles of boilers and deteriorate combustion efficiency. So, our APD-500A will be used for the purpose of such analysis.
2. At Thermal power plants and Boiler users, large amounts of heavy oils are regularly consumed, so it is very important for them to know the quality of heavy oils to be supplied and consumed. Constant using cheap and insufficient quality heavy oils may shorten the life of their facilities of boilers, etc. and require frequent repairs and maintenance. As for Ship building companies and Shipping line companies, they are concerned with the ship's turbines and boilers for which heavy oils are burnt. For Large harbor authorities and Marine surveyors, it will be useful to have our Asphaltene Analyzer to check the quality of heavy oils used for ocean vessels to know if smokes coming out of funnels are under the allowable levels in the port or not.
3. For all such analyses of heavy oils burnt for turbines and boilers used at Thermal power plants and Ships, etc., it is important that sample heavy oils to be measured should be dissolved into Toluene, otherwise, say, if such heavy oils to be measured contain a lot of many kinds of insoluble additives, etc., you will not be able to have stable results of measurements.

(C) Asphaltene Analysis by ASTM manual method and by APD-600A

There is very good correlation in the measured results by ASTM method and by our APD-600A. In the ASTM manual method, however, it takes a long time for its measurement and the allowed repeatability is $\pm 10\%$ or more, while the measuring time by APD-600A is just about 60 seconds per sample (except pre-treatment) and its repeatability is just around $\pm 2-3\%$. It is better to think about an introduction of this APD-600A if there are users who are always applying the ASTM manual method for asphaltene analysis, and do not know yet our Automatic Asphaltene Analyzer.

(D) APD-200A and APD-500A

The old model of Asphaltene Analyzer, APD-200A, was discontinued in 1996, and the APD-500A in 2011. The manufacturer has no more spare parts for the APD-200A, and its repair is no more possible at this stage. For the users of the APD-500A, we can of course still supply the spare parts at this stage.

The APD-600A new model has the following improvements compared with the functions of the old APD-500A model.

- 1) LED lamps are used as a light source for long and stable measurements.
- 2) New type of sample changer unit has been adopted.
- 3) Software to transfer the measurement data to PC is available in option.