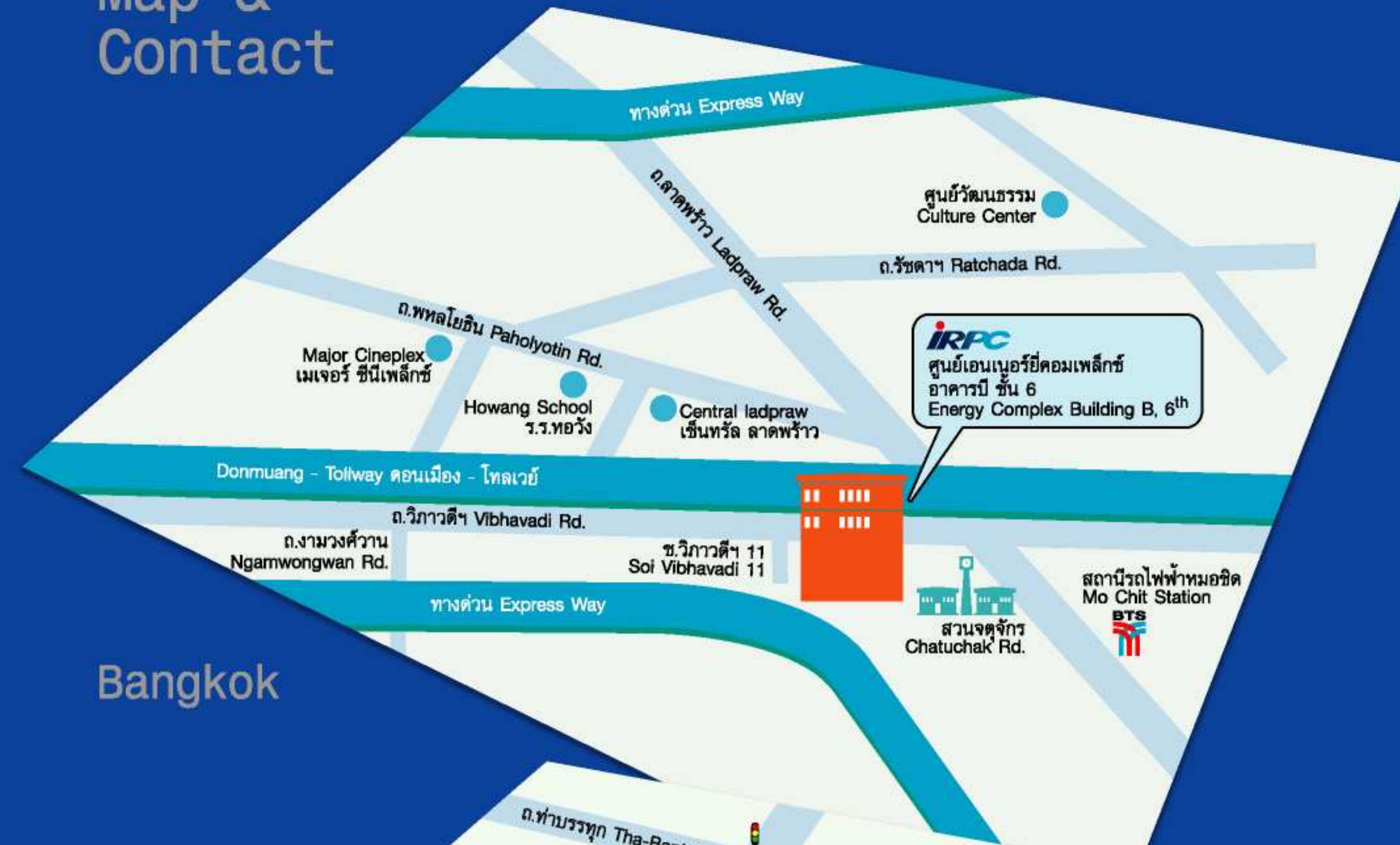


## Map & Contact

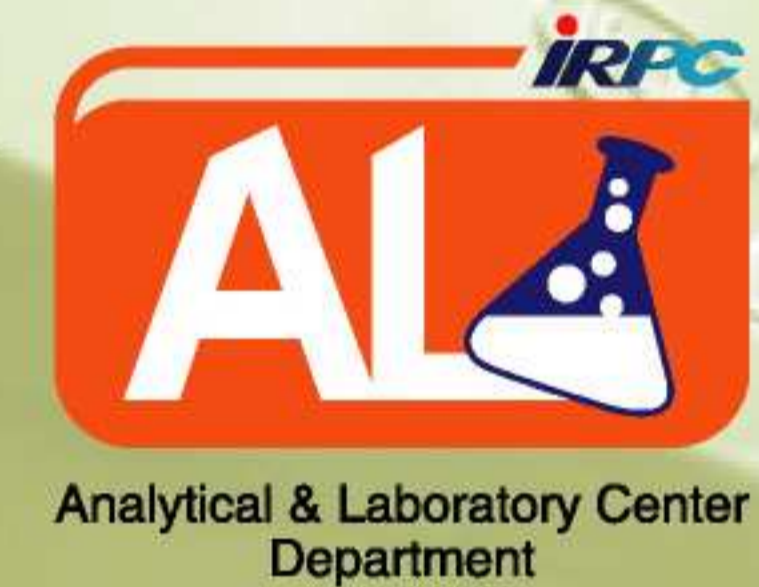


# Analytical & Laboratory Center

### Bangkok



### Rayong



## IRPC Public Company Limited.

555/2 Energy Complex Building B, 6th,  
Vibphavadi Rd., Chatuchak, Bangkok, 10900, Thailand

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# VISION

[ Petrochemical  
Laboratory  
Leader  
In Thailand ]

Target 2014

Analytical &  
Laboratory Center



# Introduction

IRPC Public Company Limited is the trailblazer in the integrated refining and petrochemical business in Southeast Asia. For 30 years ago, we have not only run this business since 1978, but also realized to environment care in production process. In addition, we have experienced staffs to provide services with high quality.



IRPC Analytical and Laboratory has strictly conducted in testing services, with international standard. The center obtained the license and accreditation ISO/IEC 17025, ISO 9001, ISO 14001 and OHSAS 18001 certification. Our commitment to quality standards and meet client needs by quickly and correctly.



# Testing Services

The center has strictly conducted its testing services in line with international standards, including ASTM, ISO, DIN, JIS, UOP and AWWA.

With the quality assurance systems and computer-aided programs in place, the tests here are very accurate and reliable. Indeed, the center obtained the license and accreditation ISO/IEC 17025, ISO 9001, ISO 14001 and OHSAS 18001 certifications.



Petroleum



Petrochemical and Polymer



Water, Environment & Coal



Olefins and Gas



Specialty

# Petroleum Services

IRPC Analytical and Laboratory testing support for petroleum and refinery industries. IRPC Analytical and Laboratory services are available on 24 Hrs x 7 Days.

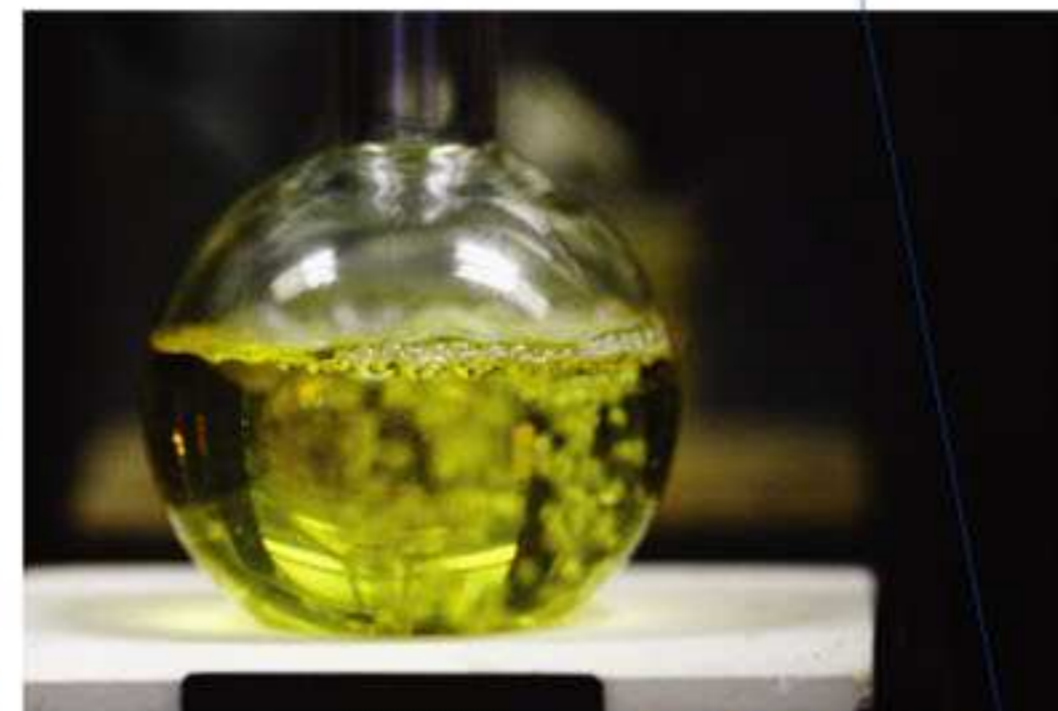
Petroleum and Refinery Laboratory testing services provide quality control, problem solving, and test follow the international standards, according to ASTM, IP and UOP standard methods.

## Scope of Services

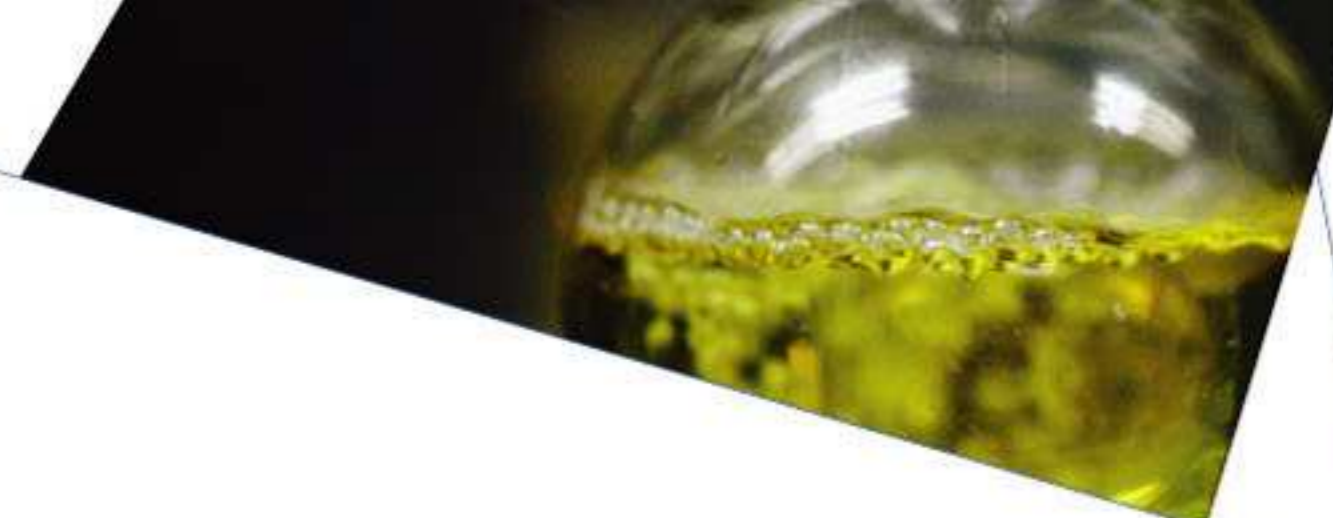
### Analytical and Laboratory Center

has tested petroleum and refinery product namely :

- Motor Fuel Product : Gasoline, Gasohol, Diesel, Bio-Diesel
- Lubricants and Paving Material Product : Lube base oil, Asphalt, Slack wax, Rubber process oil, TDAE
- Petroleum Distillate Product : Crude oil, Naphtha, Reformate, Kerosene, Fuel Oil
- Aromatics Product : Benzene, Toluene, Xylene



Test Parameter	Test Method	Deliverly	Sample Size	Test Parameter	Test Method	Deliverly	Sample Size
%DEA and mol H2S/mol DEA	UOP 827	3 days	100 mL	Distillation of Petroleum Products	ASTM D 1160	3 days	1000 mL
%DEA and mol H2S/mol DEA in Amine	UOP 824 / UOP 827	3 days	250 mL	Disulfide Oil in Merox Caustic	UOP 393	3 days	750 mL
Acid & Base Number by Color Indicator Titration	ASTM D 974	3 days	250 mL	Doctor Test	ASTM D 4952	3 days	500 mL
Acidity of Distillation Residue	ASTM D 1093	3 days	250 mL	Drop in Penetration After Heating	ASTM D 6 / D 5	3 days	1000 g
Acidity of Sulfur Product	A.M.10	3 days	50 g	Drop Melting Point	ASTM D 127	3 days	50 mL
Air Release @ 50 deg.C	ASTM D 3427	3 days	100 mL	Ductility @ 10 deg.C	ASTM D 113	3 days	1000 g
Air Release @ 75 deg.C	ASTM D 3427	3 days	100 mL	Ductility @ 10 deg.C After ASTM D 1754	ASTM D 1754 / D 113	3 days	1000 g
Air Release @ 50oC	IP 313	3 days	100 mL	Ductility @ 10 deg.C After ASTM D 6	ASTM D 6 / D 113	3 days	1000 g
Air Release @ 75oC	IP 313	3 days	100 mL	Ductility @ 15 deg.C	ASTM D 113	3 days	1000 g
Aniline Point	ASTM D 611	3 days	500 mL	Ductility @ 15 deg.C After ASTM D 1754	ASTM D 1754 / D 113	3 days	1000 g
Aromatics/Bezene in Gasoline	ASTM D 5580	3 days	100 mL	Ductility @ 15 deg.C After ASTM D 6	ASTM D 6 / D 113	3 days	1000 g
Arsenic by AAS	IFP 26874	3 days	250 mL	Ductility @ 25 deg.C	ASTM D 113	3 days	1000 g
Arsenic by AAS	IFP 9312	3 days	250 mL	Ductility @ 25 deg.C After ASTM D 1754	ASTM D 1754 / D 113	3 days	1000 g
Ash Content	ASTM D 482	3 days	500 mL	Ductility @ 25 deg.C After ASTM D 6	ASTM D 6 / D 113	3 days	1000 g
Ash Content of Sulfur Product	A.M.7	3 days	100 g	Dynamic Viscosity @ 135 deg.C	ASTM D 4402	3 days	50 mL
ASTM Color	ASTM D 1500	3 days	250 mL	Effects of Heat and Air	ASTM D 1754	3 days	1000 g
Basic Nitrogen	UOP 269	3 days	250 mL	Elemental Analysis by ICP-OES (Organic sample)	ICP-OES	3 days	250 mL
Boiling Range Distribution	ASTM D 2887	3 days	100 mL	Existent Gum	ASTM D 381	3 days	500 mL
Bromine Index	ASTM D 2710	3 days	250 mL	FAME in Biodiesel	EN 14078	3 days	250 mL
Bromine Number	ASTM D 1159	3 days	100 mL	Flash Point (COC)	ASTM D 92	3 days	250 mL
Calculated Cetane Index	ASTM D 976	3 days	500 mL	Flash Point (PMCC)	ASTM D 93	3 days	500 mL
Carbon Content by LECO	UOP 703	3 days	10 g	Flash Point (TCC)	ASTM D 56	3 days	500 mL
Carbon Type	ASTM D 3238	3 days	500 mL	Foaming Characteristic	ASTM D 892	3 days	500 mL
Carbon Type	ASTM D 2140	3 days	500 mL	Foaming Tendency	SMS 1327	3 days	500 mL
Carbon Type	EXXON	3 days	500 mL	Free Water and Particulate	ASTM D 4176	3 days	1500 mL
Cetane Number	ASTM D 613	3 days	2500 mL	Freezing Point	ASTM D 2386	3 days	500 mL
Chloride in Catalyst	IFP 28100	3 days	50 g	Gas Composition	UOP 539	3 days	500 mL
Cloud Point	ASTM D 5771	3 days	250 mL	Gas Composition - RGA	UOP 539	3 days	500 mL
Cold Filter Plugging Point	ASTM D 6371/ IP 309	3 days	250 mL	H2S, RSH and COS in Gasses	UOP 212	3 days	500 mL
Compatability and Cleanliness by Spot Test	ASTM D 4740	3 days	250 mL	H2S, RSH in Liq. Hydrocarbon	UOP 163	3 days	250 mL
Congeaing Point	ASTM D 938	3 days	50 mL	Heat of Combustion	ASTM D 4868	3 days	500 mL
Conradson Carbon residue	ASTM D 189	3 days	50 mL	Heat Stable Salt	TPA	3 days	250 mL
Copper Strip Corrosion	ASTM D 130	3 days	500 mL	Hydrocarbon Types by GC-Reformulyzer	ASTM D 6839	3 days	100 mL
Copper Strip Corrosion by LPG	ASTM D 1838	3 days	1000 mL	Interfacial Tension	ASTM D 971	3 days	500 mL
Demulsibility @ 54 deg.C	ASTM D 1401	3 days	100 mL	Interfacial Tension	ASTM D 923	3 days	500 mL
Demulsibility @ 82 deg.C	ASTM D 1401	3 days	100 mL	Iodine Number	ASTM D 460	3 days	50 mL
Demulsification Number	IP 19	3 days	200 mL	Iron in Water	AWWA, 3500-Fe.D	3 days	250 mL
Density, Specific Gravity by Hydrometer	ASTM D 1298	3 days	1000 mL	Kinematic Viscosity	ASTM D 445	3 days	500 mL
Density and Specific Gravity of Asphalt by Pycnometer	ASTM D 70	3 days	1000 g	Kinematic Viscosity @ 40, 50, 100 deg.C	ASTM D 445	3 days	50 mL
Density, Specific Gravity by Density Meter	ASTM D 4052	3 days	50 mL	Kinematic Viscosity @ 40, 50, 60, 90 deg.C by Conversion	ASTM D 341	3 days	50 mL
Detailed Hydrocarbon Analysis	ASTM D 5134	3 days	100 mL	Lead by AAS	UOP 952	3 days	100 mL
Dew Point	Shaw Dew Point Meter	3 days	1000 mL	Lead by EDXRF	IP 352	3 days	250 mL
DGA(Dissolved Gas Analysis)	ASTM D 3612 /IEC 60599	3 days	1000 mL	Loss of Ignition	UOP 275	3 days	50 g
DGA(Dissolved Gas Analysis)	ASTM D 877	3 days	1000 mL	Loss on Heating	ASTM D 6	3 days	1000 g
Diene Value by Maleic Anhydride	UOP 326	3 days	250 mL	Lubricity	ASTM D 6079, CEC F-06-A-96	3 days	100 mL
Distillation of Petroleum Products	ASTM D 86	3 days	500 mL	Mercury Content in Naphtha	UOP 938	3 days	250 mL



Test Parameter	Test Method	Deliverly	Sample Size	Test Parameter	Test Method	Deliverly	Sample Size
Microcarbon Residue	ASTM D 4530	3 days	500 mL	Sulfur Content	ASTM D 4294	3 days	250 mL
Moisture of Sulfur Product	S-8	3 days	50 g	Sulfur Content	ASTM D 2622	3 days	250 mL
Motor Octane Number	ASTM D 2700	3 days	1500 mL	Sulfur Content	ASTM D 4045	3 days	100 mL
Needle Penetration @ 25 deg.C	ASTM D 1321	3 days	100 g	Sulfur Content	ASTM D 4294	3 days	5 mL
Nickel by AAS	AAS	3 days	100 mL	Sulfur Content by LECO	UOP 864	3 days	10 g
NOACK	ASTM D 5800, CEL-L-40-T-87	3 days	250 mL	Sulfur Content in Gas	ASTM D 4084	3 days	250 mL
Normal Heptane Insoluble	EXXON	3 days	100 mL	Sulfur Content in Naphtha	ASTM D 4045	3 days	250 mL
Oil & Grease	US EPA Method 1664	3 days	250 mL	Sulfur in Gasoline, Kerosine, Aviation	ASTM D 3227	3 days	200 mL
Oil & Grease	NDIR	3 days	100 mL	Sulfur Species By FPD	GC	3 days	500 mL
Oil Content Of Petroleum Wax	ASTM D 721	3 days	50 mL	Thiosulfate in Caustic	UOP 423	3 days	100 mL
Orthophosphate in Water	AWWA 4500P.E	3 days	250 mL	Thiosulfate in Lean Amine	UOP 818	3 days	100 mL
Oxidation Stability	ASTM D 2274	3 days	1500 mL	Total Acid Numer	ASTM D 664	3 days	250 mL
Oxidation Stability of Gasoline	ASTM D 525	3 days	500 mL	Total Alkalinity, %Spent,Strong Base in caustic solution	UOP 209	3 days	100 mL
Oxygenate Compound	ASTM D 4815	3 days	100 mL	Total Aromatic by UV	SMS 2783	3 days	250 mL
Paraffin Wax Content	DIN 52015	3 days	1000 g	Total Nitrogen	ASTM D 4629	3 days	250 mL
PCA Content	IP 346	3 days	50 mL	Total Nitrogen	ASTM D 5762	3 days	50 mL
Penetration @ 25 deg.C	ASTM D 5	3 days	1000 g	Total Sediment by Hot Filtration	ASTM D 4870	3 days	250 mL
Penetration @ 25 deg.C After ASTM D 1754	ASTM D 1754 / D 5	3 days	1000 g	Total Sulfur	ASTM D 5453	3 days	100 mL
Penetration @ 25 deg.C After ASTM D 6	ASTM D 6 / D 5	3 days	1000 g	Total Sulfur	ASTM D 6667	3 days	500 mL
Penetration Index	Calculation	3 days	1000 g	Total Suspended Solid	AWWA 2540D	3 days	250 mL
Penetration Percentage of Original After ASTM D 1754	ASTM D 1754 / D 5	3 days	1000 g	Trace Acetylene	GC	3 days	500 mL
Penetration Percentage of Original After ASTM D 6	ASTM D 6 / D 5	3 days	1000 g	Trace CO, CO2	UOP 603	3 days	500 mL
Polycyclic Aromatics	IP 391	3 days	100 mL	Trace COS in Intermediate	GC	3 days	500 mL
Pour Point	ASTM D 97	3 days	250 mL	Trace Hydrocarbons in Propylene	ASTM D 2712	3 days	500 mL
Pour Point	ASTM D 5950	3 days	200 mL	Trace Methanol	ASTM D 4864	3 days	500 mL
Purity of Methanol	Density Meter	3 days	100 mL	Trace O2, N2	UOP 759	3 days	500 mL
Purity of Sulfur Product	S-4	3 days	50 g	Vanadium by AAS	AAS	3 days	100 mL
Refractive Index @ 20 deg.C	ASTM D 1218	3 days	50 mL	Vapor Pressure @ 37.8 deg.C	ASTM D 6378	3 days	250 mL
Refractive Index @ 67 deg.C	ASTM D 1747	3 days	50 mL	Viscosity @ 60 deg. C	ASTM D 2171	3 days	50 g
Refractive Index @ 75 deg.C	ASTM D 1747	3 days	50 mL	Viscosity @ 60 deg. C After ASTM D 6	ASTM D 6 / D 2171	3 days	500 g
Research Octane Number	ASTM D 2699	3 days	1500 mL	Viscosity @ 60 deg. C Original ASTM D 6	ASTM D 6 / D 2171	3 days	500 g
Residue on Evaporation	ASTM D 2158	3 days	1000 mL	Viscosity @ 60 deg. C After ASTM D 1754	ASTM D 1754 / D 2171	3 days	500 g
Salt in Crude Oil	NALCO	3 days	250 mL	Viscosity @ 60 deg. C Original ASTM D 1754	ASTM D 1754 / D 2171	3 days	500 g
Saybolt Color	ASTM D 156	3 days	750 mL	Viscosity Index	ASTM D 2270	3 days	50 mL
Sediment by Extraction	ASTM D 473	3 days	100 mL	Volatile Matter @ 163 deg.C, 3Hrs	BSTE C 1790-4	3 days	250 mL
Silica in Water	ASTM D 859	3 days	250 mL	Volatility of LPG	ASTM D 1837	3 days	1000 mL
Silver Strip Corrosion	ASTM D 4814 (ANNEX A)	3 days	500 mL	Water and Sediment	ASTM D 2709	3 days	750 mL
Smoke Point	ASTM D 1322	3 days	500 mL	Water and Sediment	ASTM D 4007	3 days	750 mL
Softening Point By Ring & Ball Method	ASTM D 36	3 days	1000 g	Water and Sediment	ASTM D 1796	3 days	500 mL
Solubility in Trichloroethylene	ASTM D 2042	3 days	1000 g	Water Content	ASTM E 203	3 days	100 mL
Solvent Extractable in Petroleum Wax	ASTM D 3235	3 days	50 mL	Water Content	ASTM E 1064	3 days	100 mL
Solvent Insoluble in Feedstock	CHEVRON	3 days	100 mL	Water Content	ASTM D 95	3 days	1000 mL
Solvent Insoluble in Feedstock	CHEVRON	3 days	100 mL	Water Content	ASTM D 6304	3 days	50 mL
Sulfide in Water	UOP 683	3 days	250 mL				
Sulfur Content	SMS 2236	3 days	100 mL				
Sulfur Content	SMS 0304	3 days	250 mL				



# Petrochemical and Polymer Services

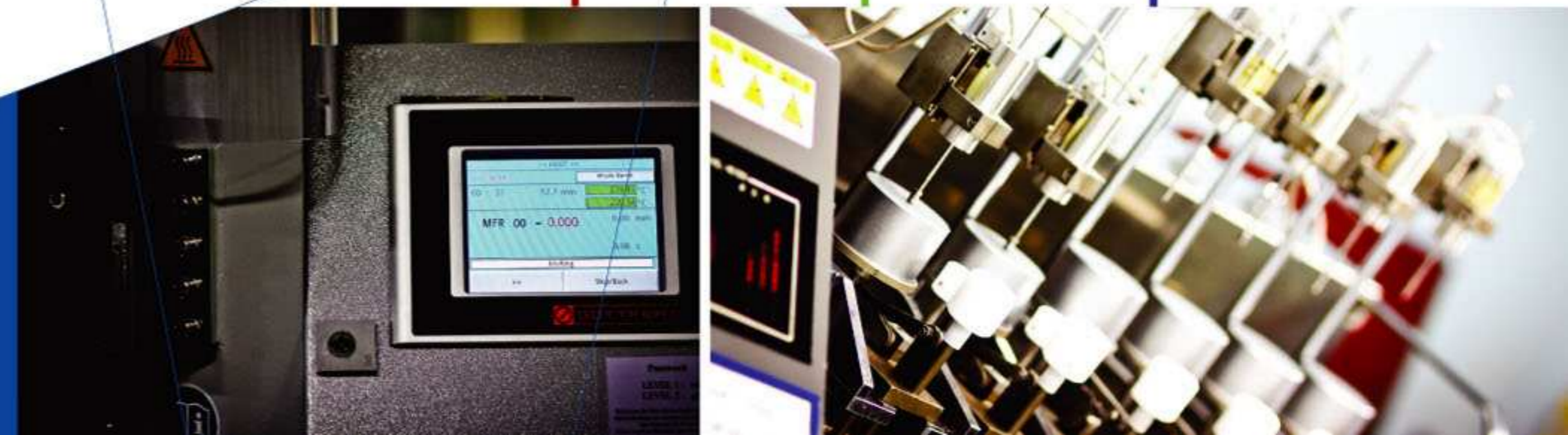
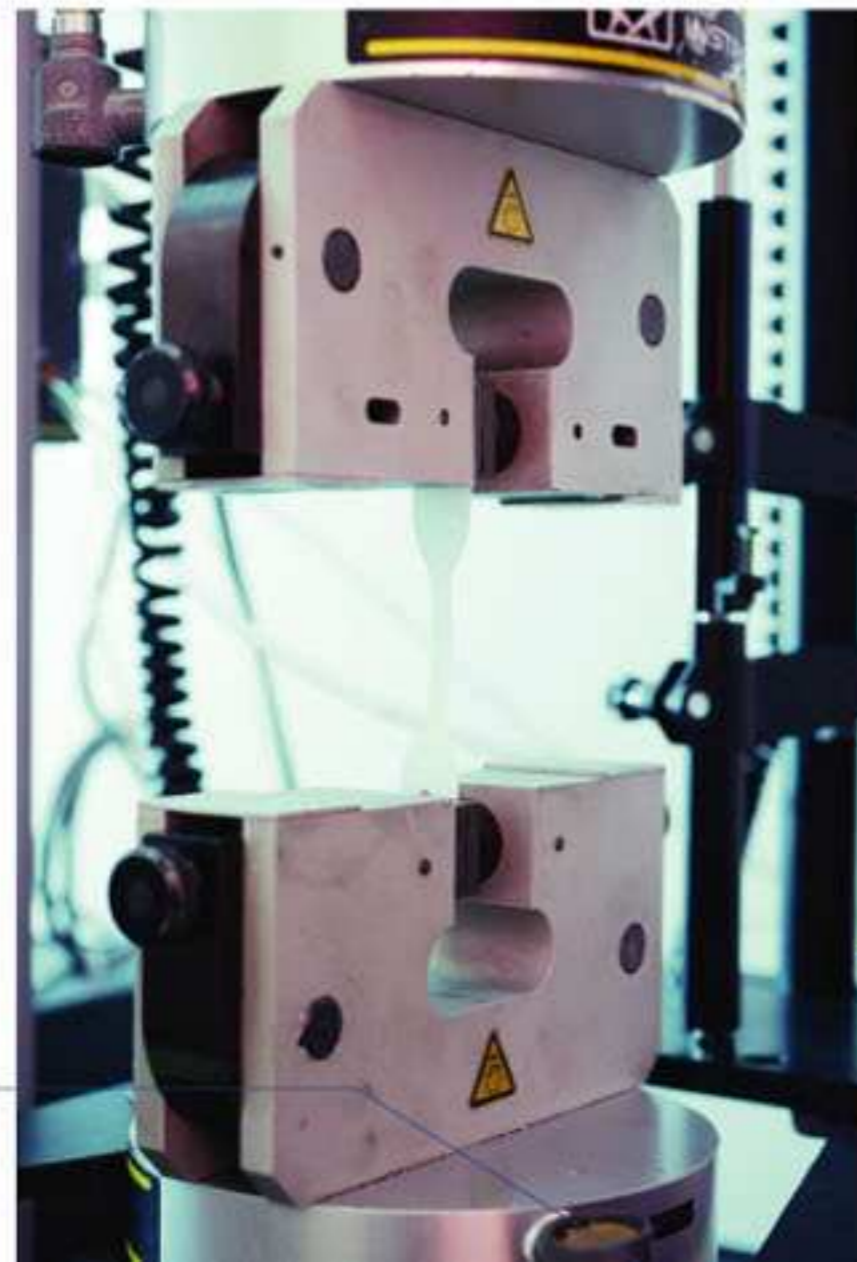
With more than 25 years experience for testing of Petrochemical Products, and over 100 test items according to international standards, according to ASTM, JIS, ISO standard methods and ISO/IEC 17025 accreditation.



## Scope of Services

Analytical and Laboratory Center has tested polymer product namely :

- Polyolefins Product : LDPE, HDPE, PP
- Styrenic Product : PS, AS, EPS, ABS, GPPS, HIPS
- Polyurethane and Polyol Product
- Compounding and Additive Product : Carbon Black, Catalyst



Test Parameter	Test Method	Deliverly	Sample Size	Test Parameter	Test Method	Deliverly	Sample Size
Aldehyde in Styrene Monomer	ASTM D 2119-09	3 days	100 mL	Vicat Softening Temperature (VST)	ASTM D 1525	5 days	Specimens 5 pieces
Ash Content	ASTM D 1951, D 482	3 days	50 g	Viscosity of Rubber (Mooney Viscosity)	ASTM D 1417, ASTM D 1646	3 days	100 g
Autogel Count for Cast Film	by Autogel	3 days	5 kg	Viscosity of Liquid Chemical @ 25 deg.C	ASTM D 2857	3 days	100 mL
Calcium	by ICP-OES	3 days	50 g	Viscosity of Wax @ 140 deg.C	ASTM D 3236	3 days	100 g
Carbon Black Content	ASTM D 1603, ISO 6964	3 days	50 g	Water Content in Volatile Solvent by Karl Fisher Titration	ISO 1364	3 days	100 mL
Carbon Black Content	ISO 18553	3 days	50 g	Water Content in Solvent by Karl Fisher Titration	ASTM D 1744	3 days	100 mL
Carbon Black Dispersion	ISO 18553	3 days	50 g	Water Content by Coulometry	ISO 15512	3 days	100 g
Charpy Notched Impact Strength	DIN 53453	5 days	Specimens 10 pieces	Xylene Soluble	-	5 days	10 g
Charpy Notched Impact Strength, Low Temperature	DIN 53453	5 days	Specimens 10 pieces	Yellowness Index	ASTM D 1925	3 days	100 g
Copper by AAS	by AAS	3 days	10 g				
Density by Buoyancy	ASTM D 792, ISO 1183	3 days	100 g				
Density by Displacement	ASTM D 792	3 days	100 g				
Density by Displacement	ISO 1183	3 days	100 g				
ESCR (Environmental Stress-Cracking Resistance)	ASTM D 1693	3 days	500 g				
Ethylene Content for PP	by FTIR	3 days	100 g				
Falling Dart Impact of PS/PP	ASTM D 3029	3 days	Specimens 40 pieces				
Fines & Dust Particles on Plastic Pellets by Wet Analysis	ASTM D 7486	3 days	100 g				
Flexural Strength and Flexural Modulus	ASTM D 790	5 days	Specimens 10 pieces				
FTIR Analysis	ASTM E 1252	3 days	100 g				
Gel Content in High Impact Polystyrene by Sheet Extruder	by Visual	3 days	500 g				
Gloss	ASTM D 523	3 days	Specimens 10 pieces				
Haze	ASTM D 1003	3 days	Specimens 10 pieces				
Heat Distortion Temperature (HDT)	ASTM D 648	5 days	Specimens 5 pieces				
Izod Notched Impact Strength	ASTM D 256	5 days	Specimens 10 pieces				
Izod Notched Impact Strength, Low Temperature	ASTM D 256	5 days	Specimens 10 pieces				
Izod Notched impact(NI)	ASTM D 256	5 days	Specimens 5 pieces				
Izod Pendulum Impact Resistance @ 23 deg.C	ASTM D 256	5 days	Specimens 10 pieces				
Melt Flow Index Method A	ASTM D 1238	3 days	100 g				
Melt Flow Index Method B	ASTM D 1238	3 days	50 g				
Moisture Content by Coulometry	ISO 15512	3 days	10 g				
Oxidation Induction Time	ASTM D 3895, ISO 11357	3 days	50 g				
Particle Size Distribution	by Particle Sizer	3 days	20 g				
Peroxide in Styrene Monomer	ASTM D 2340	3 days	100 mL				
Polymer in Styrene Monomer	ASTM D 2121	3 days	100 mL				
Purity and Impurity in Ethylbenzene	ASTM D 5060	3 days	50 mL				
Residual Volatiles in Polystyrene Pellet	Gas Chromatography	3 days	20 g				
Rockwell Hardness	ASTM D 785	3 days	100 g				
Rubber in High Impact Polystyrene	by Titration	3 days	100 g				
Specimens Preparation by Injection Moulding	Follow ASTM & ISO	3 days	3 kg				
Styrene by Capillary Gas Chromatography	ASTM D 5135	3 days	50 mL				
Inhibitor in Styrene Monomer	ASTM D 4590	3 days	50 mL				
Tensile Strength Properties of Plastics	ASTM D 638	5 days	Specimens 10 pieces				
Tg,Tm and Tc From DSC	ISO 11357	3 days	50 g				
Type of Polymer Identification by FTIR Analysis	ASTM E 1252	3 days	10 g				

## Polyol / Polyurethane

Test Parameter	Test Method	Deliverly	Sample Size
Acid Number	ASTM D 4662	3 days	100 g
Acid Number of Polyol	ASTM D 4662	3 days	200 mL
Active Oxygen	by Titration	3 days	500 mL
Alkalinity Content for Polyester Polyol	ASTM D 4662	3 days	100 g
Alkalinity in Low of Alkalinity Polyol	ASTM D 4662	3 days	200 mL
Amine Value	by Titration	3 days	100 g
Color	ASTM D 4890	3 days	100 g
Density	by Calibrated Cylinder	3 days	100 g
Drop Melting Point	ASTM D 127	3 days	100 g
Foam Test for Footwear System Product	ASTM D 7487	3 days	1000 mL
Hydroxyl Number	ASTM D 4274, ASTM D 6342	3 days	200 mL
NCO Content	ASTM D 5155	3 days	100 g
Needle Penetration @ 25 deg.C	ASTM D 1321	3 days	200 g
Total Solid Content	ASTM D 1259	3 days	100 g
Unsaturation	ASTM D 4671	3 days	200 mL
Viscosity by Brookfield Cone/ Plate Viscometer	ASTM D 4878	3 days	100 g
Volatile Matter	BS EN 12099	3 days	200 g
Water Content	ASTM D 4672	3 days	100 mL
Yellowness Index	ASTM D 1925	3 days	100 g



# Water, Environment & Coal Services

Water is essential for the process industry, including Cooling water, Boiler water, Stream water management and water treatment processes. Before returning to nature. Testing is required to ensure quality on according to ASTM, AWWA and US EPA.



## Scope of Services

### Analytical and Laboratory Center

has tested Water, Power plant and Environment samples namely :

- Water : Raw Water, Process Water, Cooling Water, Boiler Water, Stream Water
- Waste Water : Sludge, Sediment, Sea Water
- Coal and Tar





Test Parameter	Test Method	Deliverly	Sample Size
Total Suspended Solid (TSS) @ 103-105 deg.C	AWWA, 4500-Norg B	3 days	500 mL
Total Dissolved Solids (TDS) @ 103-105 deg.C	AWWA, 4500-Norg B	3 days	500 mL
Temperature	Based on AWWA, 2550 B	3 days	500 mL
Chloride	AWWA, 4500 B	3 days	300 mL
Chloride in Water	ASTM D 512	3 days	200 mL
Phosphate in Water	-	3 days	200 mL
Iron in Water	ASTM D 1068	3 days	200 mL
Silica in Water	ASTM D 859	3 days	50 mL
pH	1. Based on AWWA, 4500 - H+ pH Value 2. ASTM D 1293	3 days	300 mL
Electrical Conductivity and Resistivity of Water	ASTM D 1125	3 days	200 mL
Nitrogen (as Ammonia)	AWWA, 4500-NH3 B, C	3 days	500 mL
Nitrogen (Organic)	AWWA, 4500-Norg B.	3 days	500 mL
Oxygen (Dissolved Oxygen)	Instruction DO Meter : WTW	3 days	500 mL
Biochemical Oxygen Demand (BOD)	AWWA, 5210 B	6 days	1000 mL
Chemical Oxygen Demand (COD)	AWWA, 5220 B	3 days	1000 mL
Oil and Grease	AWWA, 5520 B	3 days	1000 mL
Phenols	AWWA, 5530 B, C, D	3 days	500 mL
INORGANIC ANION	ASTM D 4327	3 days	100 mL
1. Fluoride (F <sup>-</sup> )			
2. Chloride (Cl <sup>-</sup> )			
3. Nitrite (NO <sub>2</sub> <sup>-</sup> )			
4. Bromide (Br <sup>-</sup> )			
5. Nitrate (NO <sub>3</sub> <sup>-</sup> )			
6. Sulfate (SO <sub>4</sub> <sup>2-</sup> )			
7. Ortho Phosphate (PO <sub>4</sub> <sup>3-</sup> )			
INORGANIC CATION	ASTM D 19.05.03.23	3 days	100 mL
1. Lithium (Li <sup>+</sup> )			
2. Sodium (Na <sup>+</sup> )			
3. Ammonium (NH <sub>4</sub> <sup>+</sup> )			
4. Potassium (K <sup>+</sup> )			
5. Magnesium (Mg <sub>2</sub> <sup>+</sup> )			
6. Calcium (Ca <sub>2</sub> <sup>+</sup> )			

Test Parameter	Test Method	Deliverly	Sample Size
METAL/HEAVY METAL	ICP-OES	3 days	100 mL
1. Cadmium (Cd)	14. Iron (Fe)		
2. Mercury (Hg)	15. Magnesium (Mg)		
3. Lead (Pb)	16. Manganese (Mn)		
4. Chromium (Cr)	17. Molybdenum (Mo)		
5. Silver (Ag)	18. Nickel (Ni)		
6. Aluminium (Al)	19. Antimony (Sb)		
7. Arsenic (As)	20. Selenium (Se)		
8. Boron (B)	21. Silicon (Si)		
9. Barium (Ba)	22. Titanium (Ti)		
10. Beryllium (Be)	23. Thallium (Tl)		
11. Calcium (Ca)	24. Vanadium (V)		
12. Cobalt (Co)	25. Zinc (Zn)		
13. Copper (Cu)			

## Coal Analysis

Test Parameter	Test Method	Deliverly	Sample Size
Coal Preparing	ASTM D 2013	5 Days	2 kg
Free Moisture (FM) / Air Dry Loss (ADL)	ASTM D 2013	3 days	1.5 kg
Total Moisture( TM )	ASTM D 3302	3 days	0.5 kg
Inherent Moisture (IM)	ASTM D 3173	3 days	2 kg
Volatile matter (VM)	ASTM D 3175	3 days	1.5 kg
Ash Content	ASTM D 3174	3 days	1 kg
Fixed Carbon (FC)	ASTM D 3172	3 days	2 kg
Unburn Carbon	ASTM D 6316	3 days	100 g
Gross Calorific Value (GCV)	ASTM D 5865	3 days	100 g
Total Sulfur	ASTM D 3177	3 days	100 g
Total Sulfur	ASTM D 4239	3 days	100 g
Carbon (C), Hydrogen (H), Nitrogen (N)	ASTM D 5373	3 days	100 g



# Olefins and Gas Services

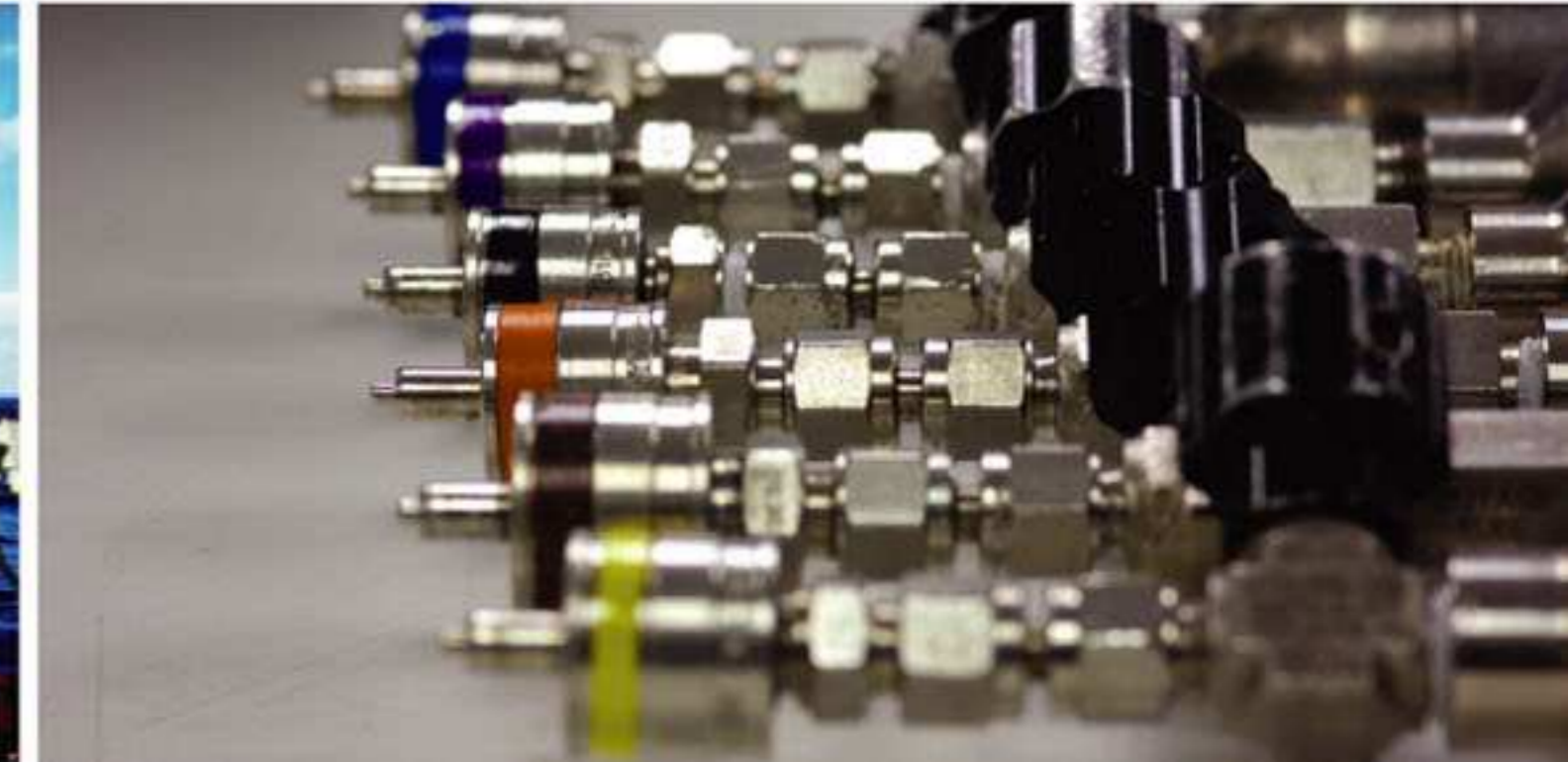
Olefins are usually use as a raw material to Produce the Petrochemical Product, such as plastics, solvents, and IRPC Analytical and Laboratory that has the expertise and experience in the analysis of the Olefins Product and In Process Gas analysis method according to ASTM, IP, UOP, JIS.



## Scope of Services

Analytical and Laboratory Center has tested Olefins and Gas product namely :

- Olefins Product :  
Ethylene, Propylene, Butadiene
- Gas Product :  
LPG, Butane, Propane, C4 Raffinate, Hydrogen



## Test Parameter

## Test Method

## Deliverly

## Sample Size

Test Parameter	Test Method	Deliverly	Sample Size
Acetylene in Ethylene and Propylene	ASTM D 2505	3 days	Bomb 300 cc
Ammonia in C2 Hydrocarbon Gases	Modify ASTM D 3590	3 days	Bomb 300 cc
Butadiene Dimer in BDE	ASTM D 2426	3 days	Bomb 300 cc
Carbonyl Compound	ASTM D 1089	3 days	Bomb 300 cc
Chloride in Liquid Hydrocarbons and Petroleum Gases	ASTM D 4929	3 days	100 mL
Chloride in Liquid Hydrocarbons and Petroleum Gases	ASTM D 5808	3 days	100 mL
Carbonyl Sulfide in Propylene	ASTM D 5303	3 days	Bomb 300 cc
Detailed Hydrocarbon Analysis	ASTM D 5134	5 days	2 mL
Moisture, Dew Point	Shaw Dew Point Meter	3 days	Bomb 300 cc
DMF in Acetylene and Butadiene	Bulletin 816	3 days	Bomb 300 cc
Furfural in DMF	AN-JA-No.03	3 days	50 mL
Purity of DMF	AN-JA-No.03	3 days	50 mL
Trace and % Oxygen, Nitrogen	ASTM D 2504	3 days	Bomb 300 cc
Trace and % Hydrogen	ASTM D 2504	3 days	Bomb 300 cc
Trace and % CO, CO2	ASTM D 2504, D 2505	3 days	Bomb 300 cc
Impurity in Gas by Detector Tube	Detector Tube	5 days	On site
H2S in Hydrocarbon Gases	ASTM D 5303	3 days	Bomb 300 cc
Hydrocarbons in Acetylene Product	ASTM D 2505	3 days	Bomb 300 cc
Hydrocarbons in Butadiene	ASTM D 2593	3 days	Bomb 300 cc
Hydrocarbons in C4 Raffinate, C4 Mixed	ASTM D 2593	3 days	Bomb 300 cc
Hydrocarbons in Ethylene Product	ASTM D 2505	3 days	Bomb 300 cc
Hydrocarbons in Fuel and Off Gas	Modified ASTM D 2505	3 days	Bomb 300 cc
Hydrocarbons in Hydrogen Product	ASTM D 2505	3 days	Bomb 300 cc
Methanol in C3 Hydrocarbons	ISO 8174	3 days	Bomb 300 cc
N-Methylpyrrolidone (NMP) in Butadiene	ISO 8174	3 days	Bomb 300 cc
Non Volatile Matter in C4 Hydrocarbon	ASTM D 1025	3 days	Bomb 300 cc
Oxygen Content in Gas	Oxygen Analyzer	3 days	Bomb 300 cc
Oxygenate Compound	ASTM D 4815	3 days	Bomb 300 cc
Low Oxygenate Compounds	UOP 960	3 days	Bomb 300 cc
Oxygenated Compounds	ISO 8174	3 days	Bomb 300 cc
Peroxide of Light Hydrocarbons	ASTM D 1022	3 days	Bomb 300 cc
pH in Acetylene Black	ASTM D 1512	3 days	100 g
Pour Density	JIS K1469	3 days	1000 g
Purity of Furfural	Modify ISO 8174	3 days	50 mL
p-tert-Butylcatechol(TBC) Inhibitor in C4 Hydrocarbon	ASTM D 1157	3 days	Bomb 300 cc
Trace Hydrocarbons in Propylene	ASTM D 2712	3 days	Bomb 300 cc
Determination of Propane, Propylene, C3-C6 HCs	ASTM D 5134	3 days	2 mL
Determination of Propane, Aromatic, C4-C7 HCs	ASTM D 5134	3 days	2 mL

# Acetylene Carbon Black

## Test Parameter

## Test Method

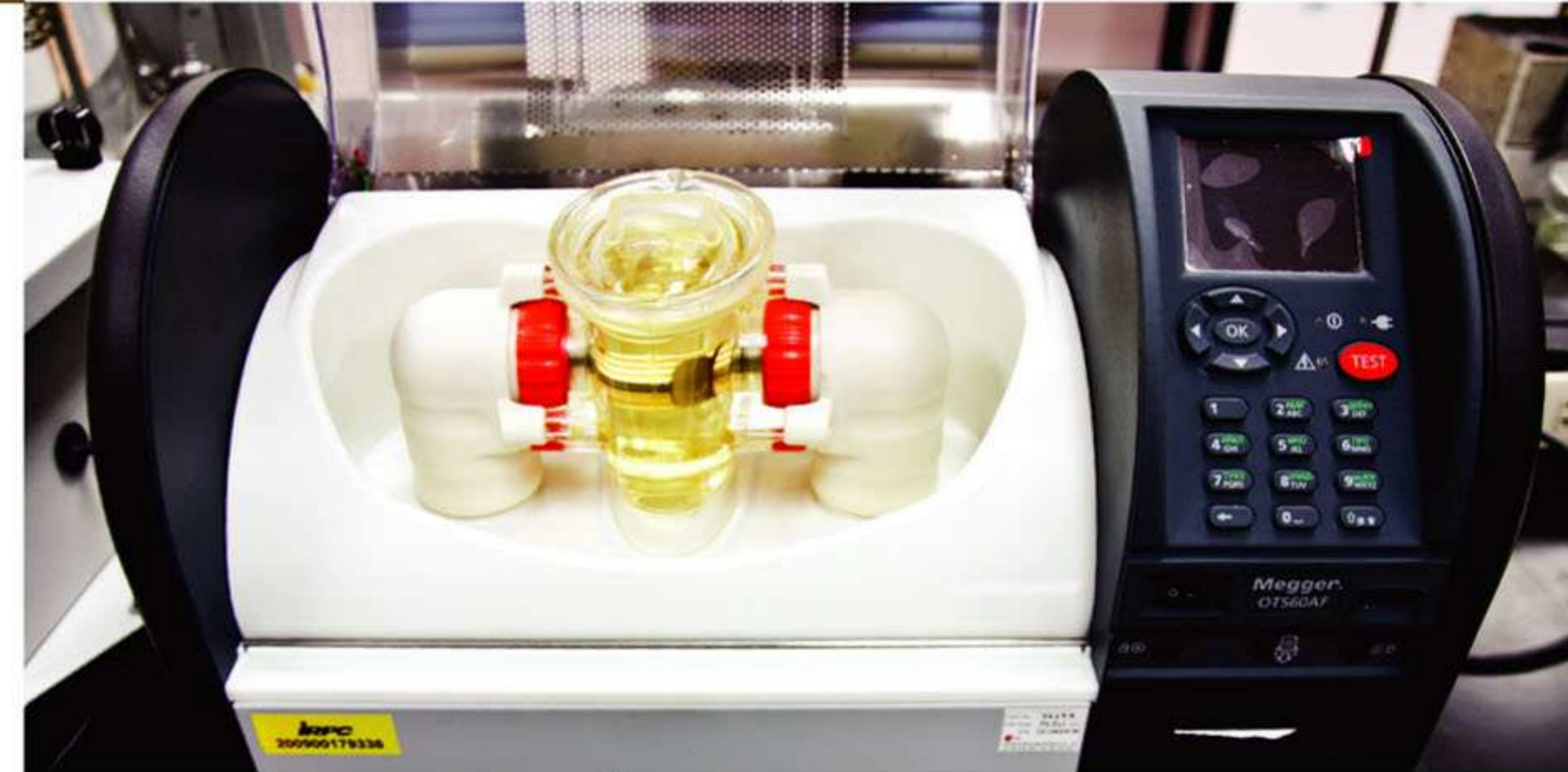
## Deliverly

## Sample Size

Test Parameter	Test Method	Deliverly	Sample Size
Ash in Acetylene Black	JIS K1469	3 days	100 g
Coarse Particle	JIS K1469	3 days	100 g
Electrical Resistivity	JIS K1469	3 days	100 g
Gas Generation	Panasonic	5 days	100 g
Hydrochloric Acid Absorption	JIS K1469	3 days	100 g
Iodine Adsorption Number	JIS K1469	3 days	100 g
Moisture Content	JIS K1469	3 days	100 g
Specific Surface Area (BET)	ASTM D 6556	5 days	100 g
Specific Surface Area (BET)	ASTM D 3663	5 days	100 g

## Special Analysis Group Services

With long experience and wide variety of lab instrument. We can provide testing and consulting solutions for analysis. With modern analytical techniques, such as the determination of the elements in nanogram by Total Reflection X-Ray Fluorescence (TXRF), Reflection analyze flow behavior by Rheology, analyze structure and component by DGA Coupling FTIR.



### Scope of Services

Analytical and Laboratory Center has Special test namely :

- Metal / Heavy Metal Analysis : EDXRF, WDXRF, TXRF, ICP-OES, AAS
- Thermal Analysis : DSC, TGA
- Structure and Functional Group Analysis : FTIR, N-FTIR, NMR
- Transformer Oil Sample : DGA, DBV, IFT
- RoHS, ELV, Halogen Free
- VOCs



Test Parameter

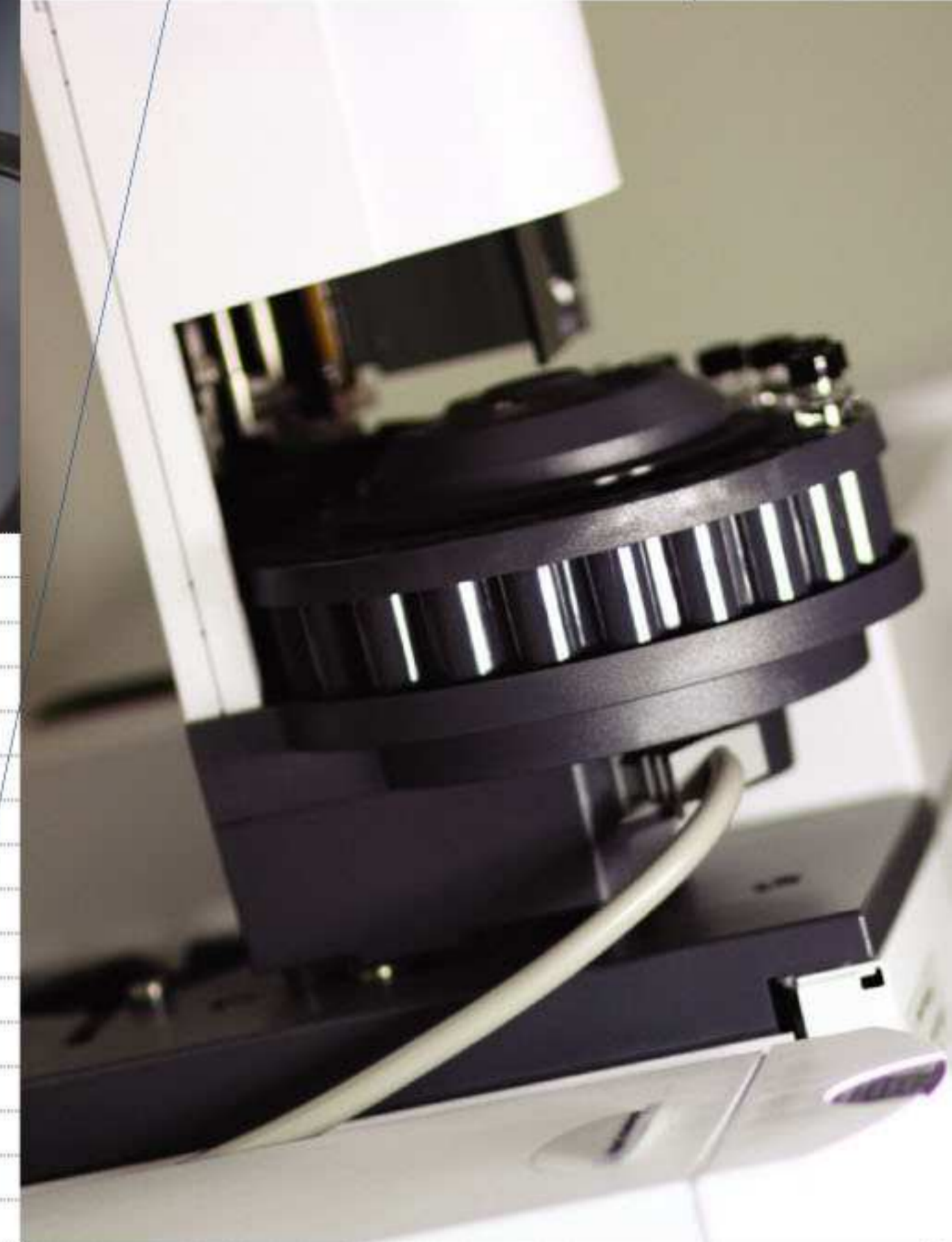
Test Method

Delivery

Sample Size

**METAL/HEAVY METAL/ELEMENT ANALYSIS GROUP**

1. Cadmium (Cd)	14. Iron (Fe)	ICP/AAS/XRF	5 days	10g /100 mL
2. Mercury (Hg)	15. Magnesium (Mg)			
3. Lead (Pb)	16. Manganese (Mn)			
4. Chromium (Cr)	17. Molybdenum (Mo)			
5. Silver (Ag)	18. Nickel (Ni)			
6. Aluminium (Al)	19. Antimony (Sb)			
7. Arsenic (As)	20. Selenium (Se)			
8. Boron (B)	21. Silicon (Si)			
9. Barium (Ba)	22. Titanium (Ti)			
10. Beryllium (Be)	23. Thallium (Tl)			
11. Calcium (Ca)	24. Vanadium (V)			
12. Cobalt (Co)	25. Zinc (Zn)			
13. Copper (Cu)				



CHNS Analyzer

CHNS Analyzer

3 days

5 g

**THERMAL ANALYSIS**

Differential Scanning Calorimetry

DSC

3 days

10 g

Thermogravimetric Analysis

TGA

3 days

10 g

**STRUCTURE & FUNCTIONAL GROUP ANALYSIS**

FTIR

FTIR

3 days

10 g

**CATALYST TEST**

Surface Area of Catalyst (BET)

ASTM D 3663

5 days

10 g

**TRANSFORMER OIL**

Color Number

ASTM D 1500

3 days

250 mL

Corrosive Sulphur

ASTM D 1275

3 days

1000 mL

Density, Specific Gravity by Hydrometer

ASTM D 1298

3 days

1000 mL

Dielectric Breakdown Voltage (DBV)

ASTM D 877, D 1816

3 days

1000 mL

Dissolved Gas Analysis (DGA)

ASTM D 3612

3 days

1000 mL

Flash Point (COC)

ASTM D 92

3 days

250 mL

Inhibitor Content

ASTM D 2668

3 days

500 mL

Interfacial Tension (IFT)

ASTM D 971

3 days

500 mL

Kinematic Viscosity

ASTM D 445

3 days

500 mL

Moisture Content

ASTM D 1533

3 days

100 mL

Power Factor at 50Hz @100 deg. C

ASTM D 924

3 days

500 mL

Power Factor at 50Hz @25 deg. C

ASTM D 924

3 days

500 mL

Total Acid Number (TAN)

ASTM D 664

3 days

100 mL

Total Acid Number (TAN)

ASTM D 974

3 days

250 mL

**VOLATILE ORGANIC COMPOUNDS (VOCs) TESTING**

VOCs Analyzer

TO - 15

5 days

- Content of Volatile Organic Compounds (VOCs)
- Identification of VOCs
  - Ambient
  - Workplace
  - Automotive



Always in your mind

## Contact



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