

Schedule

CCIC Singapore Pte Ltd
Blk 192, #04-22
Pandan Loop,
Pantech Business Hub
Singapore 128381

Certificate No. : LA-2007-0402-A
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Date : 19 December 2014
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FIELD OF TESTING : Chemical and Biological Testing

MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES / EQUIPMENT
A. Naphtha	1. Distillation on Petroleum Products	ASTM D86-12
	2. Density, Specific Gravity or API Gravity	ASTM D1298-12b
	3. Density	ASTM D4052-11
	4. Sulphur	ASTM D4294-10
	5. Vapor Pressure (Mini Method)	ASTM D5191-13
	6. Paraffin, Naphthene and Aromatic by Gas Chromatography	ASTM D5443-04 (2009) ^{e1}
	7. Research Octane Number	ASTM D2699-13b, IP 237/06, ISO 5164 : 2005
	8. Mercury in Liquid Hydrocarbons	UOP 938-10
	9. Low Content of Light Petroleum Distillates by Dithizone Extraction and Colorimetric Determination	IP 224/02 (2014)
	10. Determination of Total Sulfur in Light Hydrocarbons, Spark Ignition Engine Fuel, Diesel Engine Fuel, Engine Oil by Ultraviolet Fluorescence	ASTM D5453-12
B. Mogas	1. Distillation on Petroleum Products	ASTM D86-12
	2. Density, Specific Gravity or API Gravity	ASTM D1298-12b
	3. Density	ASTM D4052-11

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MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES / EQUIPMENT
	4. Vapor Pressure of Petroleum Products (Mini Method)	ASTM D 5191-13
	5. Oxygenates, Paraffin, Olefin, Naphthene, Aromatic (O-PONA) by Gas Chromatography	ASTM D6293-98 (2003) ^{e1}
	6. Hydrocarbon Types, Oxygenated Compounds and Benzene (O-PONA) by Gas Chromatography	ASTM D6839-13
	7. Existent Gum	ASTM D381-12, IP 131/99, ISO 6246 : 1995
	8. Sulphur	ASTM D4294-10
	9. MTBE and other oxygenates	ASTM D4815-13
	10. Benzene and other aromatics	ASTM D5580-13
	11. Copper Corrosion (No. 1 to No. 4)	ASTM D130-12, IP 154/2000 (2013), ISO2160:1998
	12. Aromatics (5-99% Vol %))
	13. Olefins (0.3-55% Vol %)) ASTM D1319-13
	14. Saturates (1-95% Vol %))
	15. Research Octane Number	ASTM D2699-13b, IP 237/06, ISO 5164 : 2005
	16. Doctor Test	ASTM D4952-12, IP 30/07
	17. Mercaptan Sulfur	ASTM D3227-04a (Reapproved 2010), IP 342/2000 (2014), ISO 3012 : 1999
	18. Oxidation Stability/ Induction Period	ASTM D525-12a
	19. Lead Content by AAS (0.0025-0.025 g/l)	ASTM D3237-12
	20. Manganese in Gasoline by AAS	ASTM D3831-01 (2006)

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C. Crude	21. Determination of Total Sulfur in Light Hydrocarbons, Spark Ignition Engine Fuel, Diesel Engine Fuel, Engine Oil by Ultraviolet Fluorescence	ASTM D5453-12
	1. Sediment by Extraction	ASTM D473-07 (2012)
	2. Density, Specific Gravity or API Gravity	ASTM D1298-12b
	3. Sulphur	ASTM D4294-10
	4. Density	ASTM D5002-13
D. Kerosene / Jet A-1	5. Mercury in Liquid Hydrocarbons	UOP 938-10
	1. Distillation on Petroleum Products	ASTM D86-12
	2. Color Saybolt	ASTM D156-12
	3. Density, Specific Gravity or API Gravity	ASTM D1298-12b
	4. Freezing Point	ASTM D2386-06 (2012)
	5. Mercaptan Sulfur (0.0003-0.01% wt)	ASTM D3227-04 (Reapproved 2010)
	6. Density	ASTM D4052-11
	7. Sulphur	ASTM D4294-10
	8. Appearance	CCICSOP0001
	9. Flash Point - Abel	IP170/2014
	10. Copper Corrosion (No. 1 to No. 4)	ASTM D130-12, IP 154/2000 ISO 2160: 1998
	11. Existent Gum	ASTM D381-12, IP 131/99, ISO 6246 : 1995
	12. Total Acidity	ASTM D3242-11a, IP 354/09
	13. Aromatics (5-99 % Vol %))
	14. Olefins (0.3 – 55% Vol %)) ASTM D1319-13
15. Saturates (1– 95 % Vol %))	

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E. Diesel / Gas Oil	16. Determination of Total Sulfur in Light Hydrocarbons, Spark Ignition Engine Fuel, Diesel Engine Fuel, Engine Oil by Ultraviolet Fluorescence	ASTM D5453-12
	17. Estimation of net heat of combustion	ASTM D3338-09
	18. Smoke Point	ASTM D1322-12 ^{e2} , IP 57/95 (2013), ISO 3014 : 1993
	19. Naphthalene	ASTM D1840-07
	20. Thermal oxidation stability	ASTM D3241-14 ^{e1} , IP 323/14
	21. Water separation characteristics	ASTM D3948-13
	22. Doctor Test	ASTM D4952-12, IP 30/07
	23. Fuel System Icing Inhibitors (Esther Type) in Aviation Fuels	ASTM D5006-11
	24. Electrical Conductivity of Aviation and Distillation Fuels	ASTM D2624-09
	25. Kinematic Viscosity	ASTM D445-14 ^{e1} , ISO 3104-94
	26. Determination of the level of cleanliness of aviation turbine fuel – laboratory automatic particle counter method	IP 564/13
	1. Appearance	CCICSOP0001
	2. Distillation on Petroleum Products	ASTM D86-12
	3. Flash Point	ASTM D93-13, ISO 2719-02
	4. Water by Distillation	ASTM D95-05 (2010) ISO 3733-99
	5. Pour Point	ASTM D97-11, ISO 3016-94
	6. Copper Corrosion	ASTM D130-12
	7. Heat of Combustion	ASTM D240-09
	8. Kinematic Viscosity	ASTM D445-14 ^{e1} , ISO 3104-94

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	9. Sediment by Extraction	ASTM D473-07 (2012) ISO 3735-99
	10. Ash Content	ASTM D482-07, ISO 6245-01
	11. Density, Specific Gravity or API Gravity	ASTM D1298-12b, ISO 3675-98
	12. Cloud Point	ASTM D2500-11, ISO 3015-92
	13. Density, Specific Gravity or API Gravity	ASTM D4052-11, ISO 12185-96
	14. Sulphur	ASTM D4294-10, ISO 8754-03
	15. Micro Carbon Residue	ASTM D4530-11, ISO 10370-93
	16. Calculated Cetane Index	ASTM D4737-10, ISO 4264-95
	17. Oxidation Stability	ASTM D2274-10 ISO 12205: 1995
	18. Lubricity at 60°C	ASTM 6079-11 ISO 12156-1:2006, IP 450/2000
	19. ASTM Colour Scale	ASTM D1500-07
	20. Asphaltenes (Heptanes Insolubles) in Crude Petroleum and Petroleum Products	ASTM D6560-12, IP 143/04
	21. Electrical conductivity of Aviation and Distillation Fuels	ASTM D2624-09
	22. Determination of Total Sulfur in Light Hydrocarbons, Spark Ignition Engine Fuel, Diesel Engine Fuel, Engine Oil by Ultraviolet Fluorescence	ASTM D5453-12
	23. Determination of aromatic hydrocarbon types in middle distillate – HPLC	IP 391/07, EN 12916-06
	24. Determination of filter blocking tendency	IP 387/14
	25. Hydrogen Sulfide	IP 570/13
	26. Total contamination	IP 440/ EN12662

The SAC Programme is managed by SPRING Singapore

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F. Fuel Oil	27. Total Acid Number	ASTM D 664-11a
	1. Flash Point	ASTM D93-13, ISO 2719-02
	2. Water by Distillation	ASTM D95-05 (2010) ISO 3733-99
	3. Pour Point	ASTM D97-11, ISO 3016-94
	4. Copper Corrosion	ASTM D130-12
	5. Heat of Combustion	ASTM D240-09
	6. Kinematic Viscosity	ASTM D445-14 ^{e1} , ISO 3104-94
	7. Sediment by Extraction	ASTM D473-07 (2012) ISO 3735-99
	8. Ash Content	ASTM D482-07, ISO 6245-01
	9. Total Acid Number	ASTM D664-11a
	10. Density	ASTM D4052-11, ISO 12185-96
	11. Density, Specific Gravity or API Gravity	ASTM D1298-12b, ISO 3675-98
	12. Sulphur	ASTM D4294-10, ISO 8754-03
	13. Micro Carbon Residue	ASTM D4530-11, ISO 10307-93
	14. Total Sediment	ASTM D4870-09, ISO 10307-93
	15. Total Sediment	IP 375/99, ISO 10307/1-93
	16. Total Sediment (Accelerated/Potential)	IP 390/94, ISO 10307/2-93
	17. Metals (Al, Si)	IP 377/95 (2014), ISO 10478-94
	18. Metals (Na, V, Al, Fe, Si, Ca, Zn, Ni, P)	IP 501/05
	19. Compatibility spot test	ASTM D 4740-04 (2014)
	20. Net calorific value	ISO 8217-12
21. Mercury in Liquid Hydrocarbons	UOP 938-10	

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G. Condensate H. Biodiesel	22. CCAI (Calculated Carbon Aromaticity Index)	ISO 8217-12
	23. Asphaltenes (Heptanes Insolubles) in Crude Petroleum and Petroleum Products	ASTM D6560-12, IP 143/04
	24. Hydrogen Sulfide	IP 570/13
	25. Distillation of Petroleum Products at Reduced Pressure	ASTM D1160-06
	1. Mercury in Liquid Hydrocarbons	UOP 938-10
	1. Ester content, Linolenic acid methyl ester content	BS EN 14103:2011
	2. Polyunsaturated (≥ 4 Double bonds)	EN 15779:2009
	3. Density @ 15°C	EN ISO 12185:1996
	4. Kinematic Viscosity @ 40°C	EN ISO 3104:1994
	5. Copper Strip Corrosion (3Hrs @ 50°C)	EN ISO 2160:1998

Approved Signatory

1. Mr Freddy Oh)
2. Mr Daniel Guan) All Accredited Tests
3. Ms Madeleine Wang)
4. Ms Susan Toh Sok Tin)
5. Mr Tham Jiin Ming)

Note:

This laboratory is accredited in accordance with the recognised International Standard ISO/IEC 17025:2005. A laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 means the laboratory meets both the technical competence requirements and **management system requirements** that are necessary for it to consistently deliver technically valid test results. The **management system requirements** in ISO/IEC 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 **Quality Management Systems — Requirements** and are aligned with its pertinent requirements

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