

Laboratory **SGS India Pvt. Ltd., Plot No. 156-157, GIDC, Oslo Main Road, Gandhidham, Kutch, Gujarat**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-7691 (in lieu of T-0376)**

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
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CHEMICAL TESTING

I.	FOOD & AGRICULTURAL PRODUCTS			
1.	Feeding Stuffs G N De Cake, G N Extraction, G.N.DOC, G.N. Oil Cake, Ground Nut Cake, Groundnut Meal Extraction, De-Oiled Groundnut Cake, Indian Soyabean Meal, Soya Decake, YSBM, SBM, Soya Doc, Soya Meal, Soyabean Decake, Soyabean Meal Extraction, Rapeseed Cake, Rapeseed Doc, Rapeseed Extraction, Rapeseed Meal Extraction, RSM, Rice Bran, Rice DDGS, DDGS, Rice Polish, Cotton Seed Meal, Cotton Seed Cake, Clean Guar Meal	Moisture	GAFTA-130:2.1-2018 GAFTA-130:2.2-2018 ISO 6496:1999	2 % to 20%
		Crude Protein/Nitrogen Content	GAFTA-130:4.1-2018 ISO 5983:1:2005 ISO 5983:2:2009	1 % to 60%
		Crude Fat/Oil/Crude Oil	GAFTA-130:3.0-2018 ISO 6492:1999 IS 7874(Part 1):1975	0.1 % to 40%
		Crude Ash	GAFTA-130:11.1-2018 ISO 5984:2002	1 % to 10 %
		Ash Insoluble in Hydrochloric Acid (Sand and/or Silica)	GAFTA-130:12.0-2018 ISO 5985:2002	0.1% to 10%
		Crude Fibre	GAFTA-130:9.0-2018 ISO 6865:2000 IS 10226 (Part 1):1982 ISO 5498-1981	1 % to 25 %
		Urease Activity	GAFTA-130:21.0-2018/ EEC Method 71/250:1971 ISO 5506:1998	0.05 Mg to 1.0 Mg N/g/Minute at 30°C
		Phosphorus	GAFTA-130:8.0-2018 ISO 6491:1998	0.1 to 5%
	Urea	GAFTA-130:6.0-2018 ISO 6654:1991	0.05% to 2%	

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3.	Cereals, pulses, and by-products Rice, Basmati Rice (Indian Long Grain Sella Basmati Rice, Indian Pusa Basmati Rice, Basmati Sella Rice Indian Pusa Basmati Sella Rice, Pusa Sella White Basmati Rice) Non Basmati Rice Par Boiled Rice, Raw Rice, White Rice, 5 % Broken Rice 100 % Broken Rice 15 % Broken Rice 25 % Broken Rice Boiled Rice, Sella Rice, Sella Rice 1121	Moisture	IS 4333 (Part 2):2002 ISO 712:2009 GAFTA:130:2.3:2018	2 % to 20%
		Crude Protein	ISO 20483-2013, GAFTA-130:4.2-2018	5 % to 20 %
		Average length in mm	ISO 7301:2011	4 mm to 9.50 mm
		Broken	CODEX STAN 198-1995,	
		Dehusked grains	IS 2813-199	
		Waxy rice	IS 4333(Part-1)-1996	
		Glutinous Rice	ISO 7301:2011	
		Undermilled rice		
		Discoloured		
		Insect Damaged		
		Kernels with husk		
		Other food grains		
		Slightly damaged or touched		
		Varietal admixture		0.01 % to 25%
		Weeviled Damaged		
		Fragments		
		Heat-damaged (yellow/orange/black)		
		Peck		
		Red-streaked kernel		
		Large/Big Broken		
		Medium Broken		
		Small Broken		
		Chalky Kernel		
Damaged Kernel				
Immature/ malformed Kernel				
Red Kernel				
Head rice	ISO 7301:2011	0.01 % to 99.99%		

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		Immature Grains	ISO 7970:2011 IS 2813-1995/ IS 4333(Part 1)-1996	
		Shriveled, Shrunken Grains	ISO 7970:2011 CODEX STAN 199:1995	
		Insect Damaged	IS 2813-1995	0.01 % to 25 %
		Other food grains	IS 4333(Part 1)-1996	
		Weeviled Grains		
		Discolored		
		Insect bored	CODEX STAN 199:1995	
		Heat Damaged	ISO 7970:2011	
		Unsound Grains		
		Mouldy Grains		
		Grains attacked by pests		
		Sprouted grains		
		Ergot		
		Other cereals		
5.	Wheat Flour	Moisture	GAFTA-130:2.3-2018 ISO 712:2009	2 % to 20 %
		Crude Protein	ISO 1871:2009 GAFTA-130:4.2-2018 ISO 20483:2013	5 % to 20 %
		Total ash	ISO 2171:2007 GAFTA-130:11.2-2018	0.1 % to 10 %
		Acid Insoluble Ash	GAFTA-130:12.0-2018 ISO 5985:2002	0.05 % to 2 %
		Crude Fibre	IS 10226 (Part 1):1982 ISO 5498-1981 GAFTA-130:9.0-2018 ISO 6865:2000	0.1 % to 2 %
		Gluten (Wet)	GAFTA-130:25.1-2018 ISO 21415-1:2006	2 % to 40 %
		Gluten (Dry)	IS 1010 1968, ISO 21415-3:2006	2 % to 15 %

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6.	Cereals, pulses, and by-products Sorghum Maize Millet (Bajra), Barley Red Split Lentils Un-milled rye Rolled Oats Rolled Rye	Moisture	IS 4333 (Part 2):2002, ISO 6540:1980, ISO 712:2009, ISO 24557:2009, GAFTA130:2.3:2018, GAFTA 130:2.4:2018, GAFTA:130:2.5:2018	2 % to 20 %
		Crude Protein	ISO 1871:2009 GAFTA-130:4.2-2018 ISO 20483:2013	5 % to 20 %
		Total Ash	GAFTA-130:11.2-2018, IS 1009-1979 ISO 2171:2007	0.1 % to 10 %
		Broken	ISO 5527:2015	
		Damaged	IS 2813-1995/ IS 4333(Part 1)-1996	
		Discolored	CODEX STAN 172-1989	
		Extraneous/ Foreign Matter/Impurities	ISO 605:1991, CODEX STAN 153:1985, CODEX STAN 171:1989	0.01 % to 25 %
		Immature		
		Other food grains		
		Insect Damaged		
		Weeviled Grains		
Sprouted Grains				
		Bulk Density, Hectoliter Weight	ISO 7971-3:2009 IS 2813-1995	40 kg/Hl to 90 kg/Hl
7.	Cereals, pulses, and by-products	Moisture	ISO 24557:2009 GAFTA:130:2.5:2018	2 % to 20 %
		Broken	ISO 605:1991	
8.	Chick Peas	Damaged		
		Discoloured	CODEX STAN 171-1989 ISO 5527:2015	
		Extraneous/Foreign Matter	ISO 605:1991	0.01 % to 25 %
		Weeviled		

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		Insect Damaged	IS 2813-1995/IS 4333 (Part 1)-1996	
		Shriveled or Immature	ISO 5527:2015	
		Worm eaten	ISO 605:1991	
		Green/Brown grains	CODEX STAN 171-1989	
		Aborted (immature)		
		Stained		
		Smooth	USDA/FGIS Pea/Lentil handbook:Chapter-3:2014	
9.	Oil Seeds Sesame seeds (Natural Sesame Seeds, Hulled Sesame Seeds, Light Brown Sesame Seeds, Mixed Sesame Seed, Sesame Seeds, Roasted Sesame Seeds, Toasted Sesame Seed, Golden	Moisture	ISO 665-2002, IS 3579-1966, ISO 712:2009	2 % to 20 %
		Impurities	IS 3579-1966, ISO 658:2002	0.01 % to 20 %
		Dark color seeds, Rain damaged seeds, Black seeds, Other color seeds, Damaged Seed, Discolor seed	SO-IN-AFL-LAB-OT-004 IS 3579:1966	0.01 % to 20 %
		Whitish seeds, Purity (100-Impurities)		80 % to 99.99 %
	Yellow Sesame Seeds, Golden Sesame Seed, Crushing Sesame Seeds, Brown Sesame Seeds, Black Sesame Seed, Black Brown Sesame Seeds)	Oil	IS 3579:1966, ISO 659:2009	10 % to 65 %
	Soyabean Seeds, Groundnut,	FFA (of Cold Extracted Oil)	AOCS Ab 5-49:(17), ISO 660:2009 ISO 729:1988(E)	0.1 % to 10 %
		Acid Value (of Extracted Oil)	AOCS Cd 3d-63(17), ISO 660:2009 ISO 729:1988(E)	0.5 Mg KOH/gm to 10 Mg KOH/gm
		Peroxide Value (of Extracted Oil)	AOCS Cd 8b-90 (17), ISO 3960-2007	0.2 to 10.0 mill equivalent P/kg

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	peanuts Sunflower Seeds, Mustard Seeds			
10.	Oils & Fats 12 Hydroxy Stearic Acid HCO, Castor Oil, Pressed, Castor Oil FSG, Castor Oil PPG, Castor Oil Refined, Cotton Seed Oil, Cotton Washed Oil, Crude Degummed Rapeseed Oil, Crude Degummed Soyabean Oil, Crude Palm Oil, Crude Sunflower Oil, Fatty Acid, Fatty Acid Oil, Groundnut Oil, Groundnut Solvent Oil, Mustard Oil, Palm Acid Oil, Palm Olein, RBD Palm Oil, RBD Stearin, Refined Cotton Seed Oil, Refined Groundnut Oil, Sesame Oil, Solvent Ground	Colour by Lovibond Tintometer Moisture & Volatile Matter Insoluble Impurities FFA Acid Value Unsaponifiable Matter Saponification Value	ISO 15305:1998 (E), AOCS Cc 13e-92 (17) IS 548 (Part 1):1964 (RA 2015) ISO 662:2016 AOCS Ca 2c-25 (17) IS 548 (Part 1):1964 (RA 2015) ISO 663:2007, AOCS Ca 3a-46 (17) IS 548 (Part 1):1964 (RA 2015) ISO 660:2009, ISO 729:1988(E) AOCS Ca 5a-40 (17) IS 548 (PART 1):1964 (RA 2015) ISO 660-2009, ISO 729:1988(E) AOCS Cd 3d-63 (17) IS 548 (Part 1):1964 (RA 2015) AOCS Ca 6a-40(17) IS 548 (Part 1):1964 (RA 2015) ISO 3596:2000 ISO 18609:2000 AOCS Cd 3-25 (17) ISO 3657:2013 IS 548 (Part 1):1964 (RA 2015)	Yellow:5.0 to 60.0 (N Value), Red:0.1 to 5.0 (N Value) 0.05 % to 2 % 0.005 % to 0.5 % 0.1 % to 20 % 0.2 to 190 Mg KOH/gm 0.2 % to 1 % 100 to 200 Mg KOH/gm

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		Oxidizable impurities	IS 695-1986 (2002) (A-11)	Qualitative
		Purity of Acetic acid	IS 695-1986 (2002) (A-2) ASTM E301-94 (2001)	98 % to 100 % by mass
		Purity by Freezing point,	ASTM E302-95 (2001)	98.63 to 100 % by mass
		Relative Density (Specific Gravity)	ASTM D4052-16	0.6 to 1.11
		Residue on Evaporation	IS 695-1986 (2002) (A-4)	0.001 % to 0.02 % (w/w)
		Sulphate	IS 695-1986 (2002) (A-7)	1 mg/kg to 35 mg/kg
		Water Using Volumetric Karl Fischer titration	ASTM E203-16	25 to 100% (w/w)
		Water in Volatile Solvents (Volumetric KF Titration)	ASTM D1364-12	0.01 to 10 % (w/w)
14.	Organic Chemicals	Appearance	ASTM E2680-16	Clear free from suspended matter
	“Alcohols and Ketones” Ethanol/ Methanol/ N-Propanol/ Iso-Propyl Alcohol/ 2-Ethyl Hexanol/ N-Butanol/ Acetone/ Methyl Ethyl Ketones/ Methyl Iso-Butyl Ketone	API Gravity	ASTM D4052-16	20 to 70
		Acidity as Acetic Acid	ASTM D1613-17	0.001 to 0.05 % (w/w)
		Acidity as Formic Acid	ASTM D1613-17	0.001 to 0.05 % (w/w)
		Alkalinity	ASTM D1614-17	Upto 0.002 % (w/w)
		Carbonizable Substance Units	ASTM E346-08	Upto 70 Pt/Co
		Color by Spectrocolorimeter	ASTM D5386-16	1 Pt/Co to 100 Pt/Co
		Density by U-Tube Oscillation	ASTM D4052-16/ISO 12185-1996	0.6 to 1.11 g/mL or kg/L
		Distillation range of Volatile Organic Liquids	ASTM D1078-11	30 °C to 350 °C
		Distillation range of Petroleum Products and Liquid Fuels	ASTM D86-17	Upto 400 °C
		Non-Volatile matter	ASTM D1353-13	0.001 to 20 mg/100mL
		Odour	ASTM D1296-01 (2012)	Characteristic and Residual Odor
		Permanganate Time	ASTM D1363-06 (2011)	5.0 to 60 minutes
		Saybolt Color	ASTM D156-15	-16 to +30

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		Specific Gravity (Relative Density)	ASTM D4052-16	0.6 to 1.11
		Sulphur Content	ASTM D5453-16	1.0 to 8,000 mg/kg
		Total Iron	ASTM E394-15	1 to 100 µg
		Water miscibility	ASTM D1722-09(2017)	Pass/Fail
		Water Using Volumetric Karl Fischer titration	ASTM E203-16	25 to 100 % (w/w)
		Water in Volatile Solvents (Volumetric KF Titration)	ASTM D1364-12	0.01 to 5 % (w/w)
		Water in Organic Liquid (Coulometric KF Titration)	ASTM E1064-16	0 to 2.0 % mass
15.	Organic Chemicals C) "Glycols and Ethers" Propylene Glycol, Mono ethylene glycol, Diethylene glycol, Triethylene glycol, Diethylene glycol-monoethyl Ether, Diethylene Glycol-monobutyl ether (Butyldiglycol) Butyl Cellosolve (Butyl Glycol)	Appearance	ASTM E2680-16	Clear free from suspended matter
		Acidity as Acetic Acid	ASTM D1613-17	0.001 to 0.05 % (w/w)
		Aldehyde Content	ASTM E2313-15	0.5 to 50 mg/kg
		Ash	ASTM D482-16, IS 1448 (Part 4):2002, ISO 6245:2001	0.001 to 0.18 % (w/w)
		Color by Spectrocolorimeter	ASTM D5386-16	1 to 100 Pt/Co
		Density by U-Tube Oscillation	ASTM D4052-16/ ISO 12185-1996	0.6 to 1.11 g/mL or kg/L
		Distillation range of Volatile Organic Liquids	ASTM D1078-11	30 to 350 °C
		Specific Gravity	ASTM D4052-16	0.6 to 1.11
		Total Iron,	ASTM E394-15	1 to 100 µg/g
		UV Transmittance 220 nm	ASTM E2193-16	1 to 100 %
		UV Transmittance 250 nm		1 to 100 %
		UV Transmittance 275 nm		1 to 100 %
		UV Transmittance 350 nm		1 to 100 %
		Water Content	ASTM E203-16	25 to 100% (w/w)
		Water Content	ASTM D1364-02 (2012)	0.01 to 05 % (w/w)
		Water Content	ASTM E1064-16	0 to 2.0 % mass

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16.	Organic Chemicals D)“Acetate, Acrylate and Esters” Butyl Acrylate Monomer Meta methyl Acrylate Butyl Acetate Vinyl Acetate Monomer Ethyl Acetate	Appearance	ASTM E2680-16	Clear free from suspended matter
		Acidity as acetic acid	ASTM D1613-17	0.001 to 0.05 % (w/w)
		Acidity as Acetic Acid	ASTM D2086-08(2012)/ IS 12345 (2001)	0.001 to 0.05 % (w/w)
		Acidity as Acrylic Acid or Methyl Acrylic	ASTM D1613-17	0.001 to 0.05 % (w/w)
		Acetaldehyde	ASTM D2191-06(2012)	0 to 0.05 % (w/w)
		Color by Spectrocolorimeter	ASTM D5386-16	1 to 100 Pt/Co
		Density by U-tube Oscillation method	ASTM D4052-16/ ISO 12185-1996	0.6 to 1.11 g/mL or kg/L
		HQ Content	ASTM D2193-06(2012)	1 to 20 mg/kg
		MEHQ Content	ASTM D3125-06(2012)	0 to 1200 mg/kg
		Nonvolatile matter	ASTM D1353-13	0.5 to 20 mg/100 mL
		Odour	ASTM D1296-01(2012)	Characteristic and Residual odour
		Polymer Content	IS 12345-1988 (2001)	Pass/Fail
		Specific Gravity	ASTM D4052-16	0.6 to 1.11
		Water Using Volumetric Karl Fischer titration	ASTM E203-16	25 to 100% (w/w)
Water in Volatile Solvents (Volumetric KF Titration)	ASTM D1364-12	0 to 10 % mass		
Water in Organic Liquid (Coulometric KF Titration)	ASTM E1064-16	0.0 to 2 % mass		
II.	PETROLEUM AND PRODUCTS			
1.	Petrochemicals Solvents “Aromatic Hydrocarbons”	Appearance	ASTM E2680-16	Clear Free From Suspended Matter
		Acid Wash color	ASTM D848-14	1 to 14 Number
		Acidity as mg NaOH per 100mL	ASTM D847-15	(No free acid) to ≥0.4 mg NaOH/100mL

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	Benzene, Toluene, Mix Xylene, P-Xylene, M-Xylene, O-Xylene	API Gravity	ASTM D4052-16	20 to 70
		Bromine Index	ASTM D5776-14	≤ 35 mg/100g
		Pt/Co Color by Spectrocolorimeter	ASTM D5386-16	1 to 100 Pt/Co
		Copper Corrosion	ASTM D849-15	1a to 4c
		Copper Corrosion	ASTM D130-12/ ISO 2160:1998/ IS 1448 (Part 15):2004	1a to 4c
		Density by U-tube Oscillation method	ASTM D4052-16/ ISO 12185-1996	0.6 to 1.11 g/mL or kg/L
		Distillation range of Industrial Aromatic Hydrocarbons	ASTM D850-16	30 to 250°C
		Hydrogen Sulfide and Sulfur Dioxide Content (Qualitative)	ASTM D853-04	Negative/Positive
		Saybolt Color	ASTM D156-15	-16 to +30
		Specific Gravity	ASTM D4052-16	0.6 to 1.11
		Sulphur Content	ASTM D5453-16	1.0 to 8000 mg/kg
		Sulphur Content	ASTM D7183-17	0.5 to 10 mg/kg
		Solidification Point	ASTM D852-16	4.0 to 6.0 °C
		Water Using Volumetric Karl Fischer titration	ASTM E203-16	25 to 100% (w/w)
		Water in Volatile Solvents (Volumetric KF Titration)	ASTM D1364-12	0.01 to 10 % (w/w)
		Water in Organic Liquid (Coulometric KF Titration)	ASTM E1064-16	Upto 2.0 % mass
2.	Petrochemical Solvents "Volatile Solvents" Hexane, N-Hexane, Cyclohexane,	Appearance	ASTM E2680-16	Clear free from suspended matter
		Pt/Co Color by Spectrocolorimeter	ASTM D5386-16	1 to 100 Pt/Co
		Density by U-Tube Oscillation	ASTM D4052-16/ ISO 12185-1996	0.65 to 0.95 g/mL or kg/L

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		Specific Gravity	ASTM D4052-16/ ISO 12185-1996	0.6 to 1.1
		Distillation Range	ASTM D86-17	0 to 400 °C
		Flash Point by PMCC	ASTM D93-16	40 to 360 °C
		Kinematic Viscosity at 40°C	ASTM D445-17	0.2 to 10 cSt
		Sulphur Content	ASTM D5453-16	1.0 to 8000 mg/kg
		Water in Volatile Solvents (Volumetric KF Titration)	ASTM D1364-12	0.01 to 10 % (w/w)
		Water by Coulometric Karl Fischer Titration	ASTM D6304-16	10 to 25000 mg/kg
3.	“Polymer Compounds”	Appearance	ASTM E2680-16	Clear free from suspended matter
	Styrene Monomer	Aldehyde as Benzaldehyde	ASTM D2119-09	0.001 to 0.03 % (w/w)
		Color by Spectrocolorimeter, Pt/Co	ASTM D5386-16	1 to 200
		Density by U-Tube Oscillation	ASTM D4052-16/ ISO 12185-1996	0.85 to 0.95 g/mL or kg/L
		Inhibitor Content (Part TBC)	ASTM D4590-13	1 to 100 mg/kg
		Peroxide Value	ASTM D2340-18	1 to 60 mg/kg
		Polymer Content	ASTM D2121-16 (Method A)	1.0 to 15 mg/kg
		Polymer Content	ASTM D2121-16 (Method B)	0.001 to 1 % wt
		Water Using Volumetric Karl Fischer titration	ASTM E203-16	25 to 100%
		Water in Volatile Solvents (Volumetric KF Titration)	ASTM D1364-12	0.01 to 0.5 % wt
4.	Petrochemicals “Aromatic Organic Compounds”	Appearance	ASTM E2680-16	Clear free from suspended matter
	Phenol	Pt/Co Color by Spectrocolorimeter	ASTM D5386-16	1 to 100 Pt/Co

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		Color of Solid Aromatic Hydrocarbons	ASTM D1686-10	Upto 100 Pt/Co
		Total Iron	ASTM E394-15	1 to 100 µg/g
		Water Using Volumetric Karl Fischer titration	ASTM E203-16	25 to 100% (w/w)
		Water in Phenol	ASTM D1631-10	0.01 to 20 % (w/w)
5.	Petrochemicals	Ash Content	ASTM D482-16, IS 1448 (Part 4):2002/ ISO 6245:2001	0.001 to 0.18 %
	A "Fuels and Distillates"	Asphaltenes (Heptane Insolubles)	ASTM D3279-12/ IP 143/04	0.05 to 30 % m/m
	Fuel oil, Marine Fuel oil	Conradson Carbon Residue	ASTM D189-06(2014)/ IS 1448 (Part 122)-2013/ ISO 661:1993	0.01 to 30% (m/m)
		Density by Hydrometer	ASTM D1298-12(2017)/ IS 1448 (Part 16):2002/ ISO 3675:1998	0.6 to 1 g/cm ³ or g/mL
		Flash Point by Closed Cup	ASTM D93-16, IS 1448-P:21-2012/ ISO-2719 (2002)	40 to 360°C
		Gross Calorific Value	IS 1448 (Part 7)-2004/ASTM D4868-17	9800 to 11850 kcal/kg
		Kinematic Viscosity at 50°C	ASTM D445-17/ IS 1448-(Part 25) 2002 ISO 3104 1994	0.2 to 400 cSt.
		Carbon Residue (Micro Method)	ASTM D4530-15/ ISO 10370:2014(E)	0.01 to 20 % mass
		Pour Point	ASTM D97-16/ IS 1448 (Part 10)-2012/ ISO 3016:1994	60 to -24 °C
		Sediment by Extraction	ASTM D473-07 (2017)/IS 1448 (Part 30)-2003/ ISO 3735 (1999)	0.01 to 0.4 %

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Flash Point	ASTM D93-16/ IS 1448 (Part 21):2012/ ISO 2719:2016	40 to 360 °C
		Gross Calorific Value,	IS 1448 (Part 7)- 2004/ASTM D4868-17	9800 to 11850 MJ/kg
		Kinematic Viscosity at 40°C	ASTM D445-17, IS 1448:(Part 25)-2002	0.2 to 10 cSt.
		Net Calorific Value	ASTM D4868-17	30 to 55 MJ/Kg
		Pour Point	ASTM D97-16/ IS 1448 (Part 10)-2012/ ISO 3016:1994	20 to-24 °C
		Sulphur Content	ASTM D 5453-2016	0.1 to 1000 mg/kg
		Water by Coulometric Karl Fischer Titration	ASTM D6304-16	10 to 25000 mg/kg
		Water in Organic Liquid (Coulometric KF Titration)	ASTM E1064-16	0 to 2.0 % mass
		Water by Distillation	ASTM D95-13/ IS 1448 (Part 40):2006/ ISO 3733:1999	0.05 to 25 % mass
7.	Petrochemicals “Fuels and Distillates” Motor Gasoline	Colour ASTM	ASTM D1500-12(2017)	0.5 to 8
		Copper Corrosion	ASTM D130-12	1a to 4c
		Density	ASTM D1298-12(2017)/ IS 1448 (Part 16):2002/ ISO 3675:1998	0.7 to 0.9 g/mL
		Density	ASTM D4052-16/ ISO 12185-1996	0.68 to 0.97 g/mL
		Distillation Range Temp Volume	ASTM D86-17/IS 1448 (Part 18)-2006	30 to 400 °C 1 to 100 %
		Sulphur Content	ASTM D 5453-2016	0.1 to 1000 mg/kg

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Density by U-Tube Oscillation method	ASTM D4052-16/ ISO 12185-1996	0.6 to 1.1 g/mL
		Flash Point by COC	ASTM D92-12/ IS 1448 (Part 21) (2012)/ ISO 2719:2002	40 to 360 °C
		Kinematic Viscosity at 100°C	ASTM D445-17/IS 1448 (Part 25):2002/ ISO 3104:1994	0.2 to 500 cSt.
		Viscosity Index by Calculation	ASTM D2270-10/ IS 1448 (Part 56):2000/ ISO 2160:1998(E)	50 to 200
		Pour Point	ASTM D97-16/IS 1448 (Part 10)-2012/ ISO 3016:1994	60 to -21 °C
		Insoluble in used Lubricants	ASTM D893-14	0.01 to 10 % by mass
		Particle Count and Size Distribution-To be removed from Scope	ISO 4406:2017/ASTM D7647-10	4 to 200 µm
		Specific Gravity	ASTM D1298-12(2017)/ IS 1448 (Part 16):2002/ ISO 3675:1998	0.6 to 1.1
		Sulphur Content	ASTM D 4294-2016/ ISO-14596 (2007)	0.0017 to 2.0 wt %
		Neutralization Number by Color Indicator Titration	ASTM D974-14/ ISO 6618:1997/	0.02 to 250 mg KOH/g
		Neutralization Value by Potentiometric Titration	IS 1448 (Part 2)/ ISO 6619:1988	0.05 to 250 mg KOH/g
		Total Acid Number	ASTM D664-17/ IS 1448 (Part 1/IS-1)	0.05-250 mg KOH/g
		Total Base Number with Perchloric acid	ASTM D:2896 ISO 3771:2011	0.5 to 400 mg KOH/g
		Water Content	ASTM D95-13/IS 1448 (Part 40):2006/	0.05 to 25 %V/m

Sandeep Singh Tomar
Convenor

Pankaj Johri
Program Manager

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			ISO 3733:1999	
		Water Content	ASTM D6304-16	10 to 25000 mg/kg
		Additive Elements, Wear Metals, and Contaminant metals	ASTM D5185 (2013)	Al 6 to 40 mg/kg Ba-0.5 to 4 mg/kg B-4 to 30 mg/kg Ca-40 to 9000 mg/kg Cr-1 to 40 mg/kg Fe-2 to 140 mg/kg Pb-10 to 160 mg/kg Mg-5 to 700 mg/kg Mb-5 to 200 mg/kg Ni-5 to 40 mg/kg PART 10-1000 mg/kg K-40 to 1200 mg/kg Si-8 to 50 mg/kg Ag-0.5 to 50 mg/kg Na-7 to 70 mg/kg Tin-10 to 40 mg/kg Ti-1 to 50 mg/kg Zn-60 to 1600 mg/kg

Sandeep Singh Tomar
Convenor

Pankaj Johri
Program Manager