

 <p>PNAC Pakistan National Accreditation Council</p>	ACCREDITATION DOCUMENT	F-06/02 Issue Date: 25/05/08 Rev. No: 05 LAB 011
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Testing Laboratory

Accreditation Scope of Metallurgical Lab., POF, Wah Cantt., Pakistan

Permanent laboratory premises

Materials/ Products tested	Types of test/ Properties measured	Range of measurement	Minimum detection limit	Uncertainty of Measurement (where applicable) MU (±)	Standard specification/ Techniques/ equipment used
Plain Carbon Steel	Carbon	0.03 % - 1.5 %	0.01 %	0.010 %	Combustion method using Strohlein apparatus.
	Manganese	0.05 % - 1.5 %	0.03%	0.0119%	By per sulphate method (V.A) based on ASTM-E30-56
	Silicon	0.05 % - 1.0 %	0.03 %	0.010 %	By Hydrochloric acid method (G.A) based on G.E.F LUNDELL, Ph.D.
	Sulphur	0.005% - 0.3 %	0.005%	0.0020 %	By evaluation method (V.A) based on ASTM-E30-56
	Phosphorus	0.005 % - 0.1 %	0.003%	0.0036 %	By Alkalimetric method (V.A) based on ASTM-E30-56
Low Alloy Steel	Nickel	0.1 % - 3.5 %	0.05 %	0.024 %	By Dimethyle glyoxime method (G.A) based ASTM – E30-56
	Chromium	0.1% - 3.0 %	0.03%	0.0195 %	By Per managanate method (V.A) based on G.E.F LUNDELL, Ph.D
Fuel oils, Lube oils, Suspensions of solids, liquids that tend to form a surface film under test conditions, drying oils and solvent types waxes	Flash point test (closed cup)	Room Temp. to 400 °C	0.1 °C (For thermo sensor) 01 °C(For Thermometer)	0.38 °C	ASTM – D93-80
Any petroleum Oil	Pour point of petroleum oils	38 °C – 57 °C	03 °C	1°C	ASTM – D97-66
Motor gasoline	Distillation range	30 °C - 360 °C	1.0 °C	i. For initial boiling point = 0.84 °C ii. For 10% Volume recovery = 0.84°C	ASTM – D86-82

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Materials/ Products tested	Types of test/ Properties measured	Range of measurement	Minimum detection limit	Uncertainty of Measurement (where applicable) MU (±)	Standard specification/ Techniques/ equipment used
				iii. For 50 % Volume recovery = 0.84 °C iv. For 90% Volume recovery = 0.84 °C v. For final boiling point = 0.85 °C	
Leaded Brass	Simultaneous analysis for Cu & Pb content.	Cu 50 % – 95 % Pb 0.01 % – 4.0 %	0.05 % 0.01 %	0.14 % 0.14 %	By Electrolytic method (G.A) based on ASTM E36-45
	Analysis for Pb. Content	Pb 0.01 % – 4.0 %	0.01 %	0.14 %	By Electrolytic method (G.A) based on ASTM E36-45
Metallic Materials	Tensile test	0.002 ton – 100 ton	100 M ton(least count-10kg) 20M ton (least count-10kg) 50ton(least count-0.002 ton)	0.29 kg/mm ²	ASTM Pt- 10 (A370)
	Hardness	4.65 VPN – 569 VPN	Ocular reading: 0.001 mm	1.17 VPN	ASTM Pt. 10 E92-72
Plastics	Vicat softening Temperature	Room tem - 250 °C	01 °C	0.576 °C	ASTM – D1525
Rubber	IRHD	30 IRHD – 100 IRHD	01 IRHD	0.38 IRHD	ASTM- D1415
Cartridge (70/30) Brass	Elemental analysis for following elements using optical emission (OBLF) spectrometer Cu. Pb. Fe. Sn. Ni. Sb. Bi. As. P. Zn.	55.0 % – 95.0 % 0.001 %– 4.0 % 0.001 %– 4.80 % 0.001 %– 2.50 % 0.001% – 2.50 % 0.001 % – 0.20 % 0.001 % – 0.10 % 0.001 % – 0.15 % 0.001 % – 0.20 % 5.00 % – 45.00 %	0.01 % 0.001 % 0.001 % 0.001 % 0.001 % 0.001 % 0.001 % 0.001 % 0.001 % 0.01 %	0.57 % 0.0008 % 0.0008 % 0.0007 % 0.0009 % 0.0007 % 0.0008 % 0.0007 % 0.0006 % 0.57 %	W.I # : POF/QSD/ML- 11/WI-11 based on Equipment operation manual supplied by the manufacturer

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