

 <p>PNAC Pakistan National Accreditation Council</p>	ACCREDITATION DOCUMENT	F-06/02 Issue Date: 25/05/08 Rev. No: 05 LAB 009
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Testing Laboratory

Accreditation Scope of Explosive 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
Propellants (NC-1055, NC-1111, NC-30MM, NC-37MM, P-2&P-3)	Preparation of Standard Solutions a)TiCl ₃ b)NH ₄ Fe(SO ₄) ₂ .12H ₂ O C)FeCl ₂ d)KBr/KBrO ₃ e)Na ₂ S ₂ O ₃ f)Starch g)KI h)NH ₄ SCN i)K ₂ Cr ₂ O ₇	a) 0.3 N – 0.7 N b) 3.0 % - 20 %	0.1 N 0.1 %	0.02 N 0.16 %	MIL-Std-286 (VOGEL'S) Text Book of Quantitative Chemical Analysis Latest Edition <u>Available</u>
Propellant NC-1055	Length Dia	0.85 mm - 1.35mm 0.60 mm - 0.90mm	0.01 mm 0.01 mm	0.15 mm 0.02 mm	Analytical Methods for Powders & Explosives Bofors, Mil-Std- 286C, Electronic Micro Scope SG-T34
	Di- phenyl Amine Nitro Glycerin Dinitrotoluene/Trinitrotolu ene Diamyl Phthalate	0.60 % - 1.00 % 3.00 % - 5.00 % 2.00 % - 4.00 % 2.00 % - 3.00 %	0.4 % 2.0 % 1.0 % 1.0 %	0.1 % 0.2 % 0.3 % -	Analytical Methods for Powders & Explosives Bofors, Mil-Std-286C. Volumetric /gravimetric Analysis/ liquid Chromatographic Analysis by HPLC Schimadzu LC-6A (optional)
	Nitrocellulose Graphite Volatile Specific Gravity Mosisture Ash Dutch Stability test	84.00 % - 92.00 % 0.10 % – 0.30 % 0.10 % - 2.0 % 1.0 % – 1.55 % 0.70 % - 1.10 % 0.01 % - 0.5 % 0.5 % - 1.50 %	80 % 0.1 % 0.1 % 1.0 % 0.50 % 0.1 % 0.10 %	0.10 % 0.30 % 0.1 % 0.1% 0.02 % 0.04 % 0.3 %	Analytical Methods For Powders & Explosives Bofors, Mil-Std-286C. Gravimetric analysis
Propellant NC-1055	Calorimetric Value	10.0 Cal/g - 950 Cal / g	1.0 Cal/g	5.0 Cal/g	Analytical Methods For Powders & Explosives Bofors, Mil-Std-286C. Ministry Standerd W J-54-67 W

Date

Director

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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
Propellant NC-1055	Methyl Violet Test 120 C (Stability Test)	20 min – 65 min	5 min	2.50 min	Analytical Methods For Powders & Explosives Bofors, Mil-Std-286C. Methyl Violet Test Bath
	Potassium Bitartrate	1.00 % - 2.00 %	0.50 %	0.04 %	Analytical Methods For Powders, & Explosives bofors, Mil-Std-286C. Flame Analyzer / Atomic Absorption Spectrophotometer AAS-Vario-6 (Optional)
Propellant NC-1111	Length Dia Thickness	1.45 mm - 1.75 mm 1.45 mm - 1.75 mm 0.19 mm - 0.23 mm	1.30 mm 1.30 mm 0.17 mm	0.04 mm 0.02 mm 0.008 mm	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Electronic Micro Scope-SG-T 34
	Diphenyl Amine Nitroglycerin Centralite -I	0.30 % - 0.70 % 4.00 % - 6.00 % 0.70 % - 1.10 %	0.1 % 3.0 % 0.5 %	0.02 % 0.02 % 0.02 %	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Volumetric/ Gravimetric Analysis/ Liquid Chromatographic analysis by HPLC Schimadzu LC-6A (optional)
	Nitro cellulose Residual solvent Volatile Matter Specific Gravity Moisture Ash Dutch Stability Test	91.50 % - 95.50 % 0.01 % - 1.00 % 0.10 % - 2.00 % 1.00 % - 1.20 % 0.10 % - 0.5 % 0.10 % - 0.5 % 0.10 % - 1.5 %	89.50 % 0.01 % 0.10 % 1.00 % 0.75 % 0.10 % 0.10 %	0.10 % 0.02 % 0.01 % 0.01 % 0.032 % 0.012 % 0.01 %	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Gravimetric Analysis
	Calorimetric Value	960 Cal/g - 1040 Cal/g	1.0 Cal/g	5.0 Cal/g	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Ministry Standard WJ-54-67W
	Methyl violet Test @ 120 °C (Stability Test)	20 min – 45 min	5.0 min	2.50 min	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Methyl Violet Test

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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
					Bath
	Potassium Nitrate	0.01 % - 0.20 %	0.01 %	0.01 %	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Flame Analyzer/ Atomic Absorption Spectrophotometer AAS-Vario-6 (optional)
Propellant P-2	Length Dia	0.75 mm - 1.25 mm 0.40 mm - 0.60 mm	0.50 mm 0.30 mm	0.08 mm 0.008 mm	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Electronic Micro Scope SG-T34
	Diphenyl Amine Nitro Glycerin Centralite -I	0.30 % - 0.70 % 3.50 % - 5.50 % 0.70 % - 1.10 %	0.10 % 2.50 % 0.50 %	0.10 % 0.14 % 0.10 %	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Volumetric/ Gravimetric Analysis/ Liquid Chromatographic analysis by HPLC Shimadzu LC-6A (optional)
	Nitrocellulose V.M D.S.T (?Loss In Weight) Moisture	92.00 % - 96.00 % 0.80 % - 1.20 % 0.10 % - 1.50 % 0.70 % - 1.10 %	90.00 % 0.60 % 0.10 % 0.50 %	0.10 % 0.01 % 0.01 % 0.05 %	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Gravimetric Analysis
	Calorimetric Value	1.00 Cal/g - 1020 Cal/g	1.0 Cal/g	5.0 Cal/g	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Ministry Standard WJ-54-67W
	Methyl violet Test @ 120 °C	20 min – 40 min	5.0 min	2.50 min	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Methyl Violet Test Bath
	Potassium Nitrate	0.01 % - 0.20 %	0.01 %	0.01 %	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Flame Analyzer

Date

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 <p>PNAC Pakistan National Accreditation Council</p>	ACCREDITATION DOCUMENT	F-06/02 Issue Date: 25/05/08 Rev. No: 05 LAB 009
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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
					Atomic Absorption Spectrophotometer AAS-Vario-6 (optional)
Propellant P-3	Length Dia	0.70 mm - 1.10 mm 0.50 mm - 0.60 mm	0.50 mm 0.30 mm	0.08 mm 0.008 mm	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Electronic Micro Scope SG-T34
	Diphenyl Amine Nitro Glycerin Centralite -I	0.40 % - 0.80 % 3.50 % - 5.50 % 0.70 % - 1.10 %	0.20 % 2.50 % 0.50 %	0.10 % 0.14 % 0.10 %	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Volumetric/ Gravimetric Analysis/ Liquid Chromatographic analysis by HPLC Shimadzu LC-6A (optional)
	Nitrocellulose V.M Residual Solvent Moisture Dutch Stability Test	92.00 % - 96.00 % 0.10 % - 2.00 % 0.10 % - 1.00 % 0.80 % - 1.20 % 0.10 % - 1.50 %	90 % 0.10 % 0.10 % 0.60 % 0.10 %	0.10 % 0.01 % 0.02 % 0.02 % 0.01 %	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Gravimetric Analysis
	Heat test @80 °C Methyl violet Test @ 120 °C	5.0 min – 10.0 min 20.0 min – 40.0 min	5.0 min 5.0 min	1.0 min 2.50 min	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Methyl Violet Test Bath an Heat test Bath
	Calorimetric Value	1.0 Cal/g – 1050 Cal/g	1.0 Cal/g	5.0 Cal/g	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Ministry Standard WJ-54-67W
	Potassium Nitrate	0.01 % - 0.20 %	0.01 %	0.01 %	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Flame Analyzer/ Atomic Absorption

Date

Director

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					Spectrophotometer AAS-Vario-6 (optional)
Propellant 30mm	Length Web Size Hole Size	3.90 mm - 4.30 mm 0.58 mm - 0.65 mm 0.15 mm - 0.25 mm	3.50 mm 0.51 mm 0.05 mm	0.15 0.015 0.015	Analytical Methods For Powders & Explosive Bofors, Mil-Std- 286C,Electronic Micro Scope SG- T34
	Diphenyl Amine	1.00 % - 2.00 %	0.50 %	0.10 %	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Volumetric/ Gravimetric Analysis/ Liquid Chromatographic analysis by HPLC Schimadzu LC-6A (optional)
	Nitrocellulose Graphite Total Volatile Matter Outer Volatile Matter Inner Volatile Matter	98.00 % - 0.50 % 0.15 % - 0.25 % 0.10 % - 3.50 % 1.20 % - 1.80 % 0.80 % - 1.70 %	97.5 % 0.10 % 0.10 % 0.90 % 0.80 %	0.10 % 0.45 % 0.45 % 0.45 % 0.45 %	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Gravimetric Analysis
Propellant 37mm	Length Web Size Hole Size	8.00 mm - 11.00 mm 0.70 mm - 0.85 mm 0.30 mm - 0.45 mm	5.0 mm 0.55 mm 0.15 mm	0.26 mm 0.02 mm 0.01 mm	Analytical Methods For Powders & Explosive Bofors, Mil-Std- 286C,Electronic Micro Scope SG- T34
	Diphenyl Amine	1.00 % - 2.00 %	0.510 %	0.015 %	Analytical Methods For Powders & Explosive Bofors, Mil-Std-286C, Volumetric/ Gravimetric Analysis/ Liquid Chromatographic analysis by HPLC Schimadzu LC-6A (optional)
	Nitrocellulose Graphite	98.00 % - 99.00 % 0.15 % - 0.25 %	97.50 % 0.10 %	0.10 % 0.002%	Analytical Methods For Powders &

Date

Director

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	Total Volatile Matter Outer Volatile Matter Inner Volatile Matter	0.1 % - 3.50 % 1.0 % - 1.60 % 0.10 % - 0.70 %	0.10 % 0.70 % 0.10 %	0.02 % 0.005 % 0.02 %	Explosive Bofors, Mil-Std-286C, Gravimetric Analysis

 Date

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