

Laboratory **SQAE (ME) Testing Laboratory, Itarsi, Dist- Hoshangabad, Madhya Pradesh**

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

Certificate Number **TC-6736**

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Validity **12.01.2018 to 11.01.2020**

Last Amended on --

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.	EXPLOSIVES & PYROTECHNICS			
1.	Nitroguanidine	Acidity As H ₂ SO ₄	JSS 1376-03: 2016 Appendix 'B' (Rev 3) DC No 6067-ME date 08-06-2017	0.01 % to 5 %
		pH Of Water Extract	JSS 1376-03: 2016 Appendix 'C' (Rev 3) DC No 6067- ME date 08-06-2017	1 to 14
		Water Soluble Impurities	JSS 1376-03: 2016 Appendix 'D'(Rev 3) DC No 6067- ME date 08-06-2017	1 % to 10 %
		Water Insoluble Impurities	JSS 1376-03: 2016 Appendix 'E'(Rev 3) DC No 6067-ME date 08-06-2017	0.05 % to 10 %
2.	N-Type of Propellant	Volatile Matter	104 of JSG 0116: 1996	0.05 % to 5%
		Heat Test	501 of JSG 0116: 1996	1 min to 30 min
		% Chemical Composition		
		Nitrocellulose	219 of JSG 0116: 1996	15.0 % to 25.0 %
		Nitroglycerine	202 of JSG 0116: 1996	15.0 % to 25.0 %

Pankaj Johri
Convenor

N. Venkateswaran
Program Director

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		Picrite	218 of JSG 0116: 1996	40 % to 60 %
		Carbamite	209 & 210 of JSG 0116: 1996	6 % to 8 %
		Pot. Sulphate	305 of JSG 0116: 1996	0.05 % to 3 %
		Calorimetric Value	401 of JSG 0116: 1996	100 cal /g to 1200 cal /g
3.	NQ Type of Propellant	Volatile Matter	104 of JSG 0116: 1996	0.05 % to 5 %
		Heat Test	501 of JSG 0116: 1996	1 min to 30 min
		% Chemical Composition		
		Nitrocellulose	219 JSG 0116: 1996	10 % to 30 %
		Nitroglycerine	202 of JSG 0116: 1996	10 % to 30 %
		Picrite	218 of JSG 0116: 1996	40 % to 60 %
		Carbamite	209 & 210 of JSG 0116: 1996	1 % to 10 %
		Pot. Sulphate	305 of JSG 0116: 1996	0.05 % to 3 %
		Calorimetric Value	401 of JSG 0116: 1996	100 cal/g to 1200 cal/g
4.	AP/APS Type Propellant	Volatile Matter	104 of JSG 0116: 1996	0.05 % to 5 %
		Heat Test	501 of JSG 0116: 1996	1 min to 30 min
		% Chemical Composition		
		Nitrocellulose	219 of JSG 0116: 1996	40 % to 60 %

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		Nitroglycerine	202 of JSG 0116: 1996	10 % to 30 %
		DNT	204 of JSG 0116: 1996	5 % to 10 %
		Carbamite	209 of JSG 0116: 1996	2 % to 6 %
		Mineral Jelly	216 JSG 0116: 1996	1.0 % to 6.0 %
		K ₂ SO ₄	305 of JSG 0116: 1996	0.1 % to 2%
		C ₂ CO ₃	304 of JSG 0116: 1996	0.01 % to 1%
		Calorimetric Value	401 of JSG 0116 :1996	100 cal/g to 1200 cal/g
5.	Propellant DB/T155 & DB/M202	Moisture Content (For DB/T 155mm)	103 of JSG 0116: 1996	0.05 to 5 %
		Volatile Matter (For DB/M 202)	104 of JSG 0116: 1996	0.05 to 5%
		Stability Test		
		Heat Test at 150° C	501 of JSG 0116: 1996	1 to 30 Minutes
		% Chemical Composition		
		Nitrocellulose	219 JSG 0116: 1996	40 % to 60%
		Nitroglycerine	202 of JSG 0116: 1996	5 to 30%
		Dibutyl Phthalate	213 of JSG 0116: 1996	5 % to 15%
		Carbamite	209 & 210 of JSG 0116: 1996	0.1 % to 3 %
		Aluminum Stearate	316 of JSG 0116: 1996	0.01 % to 2%
		Carbon Black	321 JSG 0116: 1996	0.1 % to 1.0%
		Calorimetric Value	401 JSG 0116: 1996	100 cal/g to 1200 cal/g

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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
6.	Propellant Ball Powder SAA	Moisture Content	101 of JSG 0116: 1996	0.05 % to 5%
		Total Volatile Matter	102 of JSG 0116: 1996	0.05 % to 5%
		Hygroscopicity	405 of JSG 0116: 1996	0.05 % to 5%
		Stability Test Heat Test At 71.1 °C	501 of JSG 0116: 1996	1 min to 30 min
		% Chemical Composition		
		Nitrocellulose	219 of JSG 0116: 1996	40 % to 95 %
		Nitroglycerine	202 of JSG 0116: 1996	8.0 % to 11.0 %
		Diphenyl Amine	208 of JSG 0116: 1996	0.1 % to 5 %
		Calcium Carbonate	304 of JSG 0116: 1996	0.1 % to 2 %
		Dibutyl Phthalate	213 of JSG 0116: 1996	1 % to 10 %
		Graphite	318 or 319 of JSG 0116: 1996	0.1 % to 1.0 %
		Moisture Content	101 of JSG 0116: 1996x	0.05 % to 5 %
		Calorimetric Value	401 of JSG 0116: 1996	100 cal/g to 1200 cal/g

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<u>MECHANICAL TESTING</u>				
I.	EXPLOSIVES & PYROTECHNICS			
1.	Nitroguanidine	Specific Surface	Appendix 'L' of JSS 1376-03-2016(Rev 3) DC No 6067-ME dt 08/06/2017	10000 cm ² /cm ³ to 25000 cm ² /cm ³
2.	N-Type of Propellant	External diameter	607 of JSG 0116:1996	0.1 to 10 mm
		Internal diameter	610 of JSG 0116:1996	0.05 mm to 5 mm
		Annulus/ Web	610 of JSG 0116:1996	0.1 mm to 5 mm
		Mass per 2540 mm	615 of JSG 0116 : 1996	0.2 g to 200 g
3.	NQ Type of Propellant	External Diameter	607 of JSG 0116:1996	1 mm to 20 mm
		Length	606 of JSG 0116:1996	1 mm to 300 mm
		Internal Diameter/ Hole Dia	610 of JSG 0116:1996	0.1 mm to 5 mm
		Mass /2540mm	615 of JSG 0116:1996	0.1 g to 200 g
4.	AP/APS Type Propellant	External Diameter	607 of JSG 0116:1996	1 mm to 20 mm
		Annulus	610 of JSG 0116:1996	0.1 mm to 5 mm
		Mass per 2540 mm	615 of JSG 0116:1996	0.1 g to 200 g
		Internal Dia	611 of JSG 0116:1996	0.1 mm to 5 mm

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5.	Propellant DB/T155 & DB/M202	Length	606 of JSG 0116:1996	600 mm to 800 mm
		Web	610 of JSG 0116:1996	0.5 mm to 5 mm
		External Diameter	607 of JSG 0116:1996	1 mm to 20 mm
		Hole Dia	610 of JSG 0116:1996	0.1 mm to 5 mm
6.	Propellant Ball Powder SAA	Loose Bulk Density	404 of JSG 0116 : 1996	945 kg/m ³ to 1025 kg/m ³
		Dust & Foreign Matter	CQA(A)/3609	0 to 100 %
		Sieve Test		
		a) Retention on 850 micron	605 of JSG 0116:1996	0 to 05%
		b) Retention on 700, 600, 500 & 425 micron	605 of JSG 0116:1996	0 to 100%
		c) Passing Through 425 & Retn on 355 micron	605 of JSG 0116:1996	0 to 100%
d) Passing through 355 micron	605 of JSG 0116:1996	0 to 5%		