

Laboratory **Quality Control Laboratory, Ordnance Factory, Dehu Road, Pune, Maharashtra**

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

Certificate Number **TC-6592 (in lieu of T-0049)**

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Validity **11.09.2017 to 10.09.2019**

Last Amended on **29.11.2017**

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.	<b>Composition SR - 252</b>	Ferrosilicon	JSS:1365-21-2011 :Rev 2	40 (±) 2 %
		Potassium Nitrate		40 (±) 2 %
		SMP		20 (±) 1.5%
		Volatile Matter		Max. 0.5%
		Sieve test 150 µm		All to pass
2.	<b>Composition SR - 343</b>	Magnesium Powder	JSS:1365-01-2014 Rev-3	50 (±) 1%
		Paraffin Wax		5 (±) 0.5%
		Barium Nitrate		40 (±) 1%
		Calcium Oxalate Monohydrate		5 (±) 0.5%
		Volatile Matter		Max 0.1 %
3.	<b>Composition ME - 431</b>	Sieve Test 1204 µm (1.18mm)		All to pass
		Binder	ERDL/PYR0/PS/116/ 2001	1 (±) 0.5 %
		Red Lead		75 (±) 3 %
		Ferrosilicon		25 (±) 2 %
		Volatile Matter		Max 0.2 %
4.	<b>Composition ME - 423</b>	Sieve Test 600 µm 300 µm		All to pass Min. 95 % to retain
		TNO + NC	IND/ME/849/(a)(PROV)	38.1 to 43.1%
		Barium Nitrate	&P/QCLAB/Test Method No.14/2013	47.5 to 51.5 %
		Potassium Nitrate		7.9 to 10.9%
		Volatile Matter		Max 0.15%
		Sieve Test 600 µm 300 µm		All to pass All to retain

**Pankaj Johri**  
Convenor

**N. Venkateswaran**  
Program Director

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5.	<b>Composition ME - 448</b>	Hexachloroethane	IND/ME/947 (PROV)/2005	44 (±) 3%
		Zinc Oxide		33.5 (±) 2.5%
		Potassium Nitrate		2 (±) 0.5%
		Calcium Silicide Titanium Dioxide Aluminum Powder		20.5 (±) 2%
		Volatile Matter		Max 0.2 %
		Sieve Test 850 µm		All to pass
6.	<b>Composition SR - 264</b>	Hexachloroethane	JSS:1365-11-2014 Rev-3	41.5 to 47.5%
		Zinc Oxide		41.5 to 47.5%
		Potassium Nitrate		1.5 to 2.5%
		Calcium Silicide		7.0 to 11.0%
		Volatile Matter		Max 0.2 %
		Sieve Test 850 µm		All to pass
7.	<b>Composition SR - 269(m)</b>	Hexachloroethane	JSS:1365-11-2014 Rev-3	41 to 47%
		Zinc Oxide		37.5 to 43.5%
		Potassium Nitrate		1.5 to 2.5%
		Calcium Silicide		11 to 16%
		Volatile Matter		Max 0.2%
		Sieve Test 850 µm		All to pass
8.	<b>Composition SR-170(A)</b>	Magnesium Powder	JSS:1365-04-2014 Rev-3	46 to 50 %
		Potassium Perchlorate		36.5 to 39.5%
		Strontium Oxalate (Monohydrate)		9 to 11 %
		Boiled Linseed Oil		3.5 to 4.5%
		Volatile Matter		Max 0.1 %
		Sieve Test 600 µm		All to pass

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9.	<b>Composition S-3</b>	APC - 217	JSS:1365-37-2014 Rev-2	0.5 to 1.5%
		Barium Chromate		58.5 to 61.5%
		Potassium Perchlorate		10 to 11.5 %
		Antimony Sulphide		27 to 30.5 %
		Volatile Matter		Max 0.15 %
10.	<b>Composition SR-592</b>	Sieve Test 600 µm 300 µm		All to pass All to retain
		Magnesium Powder	JSS:1365-13-2014 Rev-2	43 to 45%
		Boiled Linseed Oil		3.5 to 4.5%
		Sodium Nitrate		46.5 to 49.5%
		Starch		3.5 to 4.5%
		Volatile Matter		Max 0.25%
		Sieve Test 1204 µm (1.18mm)		All to pass
11.	<b>Composition SR-585</b>	Magnesium powder	JSS:1365-18-2014 Rev-3	25 to 27 %
		Varnish		6.5 to 7.5%
		Lithographic/ BLO		
		Sodium Nitrate		38.5 to 41.5%
		Calcium Oxalate		15 to 17%
		Starch		10 to 12%
		Volatile Matter		Max 0.75 %
12.	<b>Composition SR-703</b>	Sieve Test 600 µm		All to pass
		Boiled Linseed	JSS:1365-44-2014 Rev-1	5.5 to 6.5%
		Chlorinated Rubber		11.5 to 12.5%
		Barium Nitrate		14 to 16 %
		Potassium Perchlorate		24 to 26 %
		Magnesium Powder		40.5 to 43.5
		Volatile Matter		Max 0.2%
Sieve Test 850 µm		All to pass		

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13.	<b>Composition SR-232</b>	Magnesium Powder	IND/ME/241(b)/2014	40 (±) 2.5%
		Boiled Linseed Oil		3 (±) 0.3%
		Potassium Perchlorate		29 (±) 2%
		Strontium Oxalate		12 (±) 1.5%
		Starch		16 (±) 1.5%
		Volatile Matter		Max 1.0%
		Sieve Test 850 µm		All to pass
14.	<b>Composition SR-406</b>	Magnesium Powder	JSS:1365-02-2016 Rev-2	41.5 to 44.5%
		Boiled Linseed Oil		3.5 to 4.5%
		Potassium Perchlorate		31 to 33%
		Strontium Oxalate		12 to 14%
		Starch		7.5 to 8.5%
		Volatile Matter		Max 1.0%
		Sieve Test 850 µm		All to pass
15.	<b>Composition SR-588</b>	Magnesium Powder	JSS:1365-14-2014 Rev-2	55 (±) 2%
		Varnish Lithographic		4 (±) 0.5%
		Sodium Nitrate		41 (±) 1.5%
		Volatile Matter		Max 0.25%
		Sieve Test 1204 µm (1.18mm)		All to pass
16.	<b>Composition SR-563</b>	Magnesium Powder	JSS:1365-05-2016 Rev-3	50 (±) 1.5%
		Varnish Lithographic		4.5 (±) 0.5%
		Sodium Nitrate		45.5 (±) 1.5%
		Volatile Matter		Max 0.2%
		Sieve Test 600 µm		All to pass
17.	<b>Composition SR-524</b>	Boiled Linseed Oil	IND/ME/946 (Prov)/2000	4 (±) 0.5%
		Sodium Nitrate		38 (±) 1.5%
		Magnesium Powder		58 (±) 1.5%
		Volatile Matter		Max 1.0%

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		Sieve Test 1204 $\mu\text{m}$ (1.18mm)		All to pass
18.	<b>Composition ME-442</b>	Binder	JSS:1365-38-2014 Rev-2	Min 1.0 Max 2.0
		Red Lead		75 ( $\pm$ ) 3%
		Ferrosilicon		25 ( $\pm$ ) 2%
		Volatile Matter		Max 0.2%
		Sieve Test 1204 $\mu\text{m}$		All to pass
19.	<b>Composition ME-433</b>	Binder	IND/ME/948(Prov)/2000	2 ( $\pm$ ) 1%
		Red Lead		75 ( $\pm$ ) 3%
		Zirconium		25 ( $\pm$ ) 3%
		Volatile Matter		Max 0.2%
		Sieve Test 600 $\mu\text{m}$ 300 $\mu\text{m}$		All to pass 95% to retain
20.	<b>Composition Z-106</b>	Bonosol	P/QCLAB/Test Method No.13/2008	0.3 to 0.7 %
		Barium Chromate		62.7 to 66.7 %
		Zirconium-Nickel Alloy		32.8 to 37.2 %
		Aerosil		1.8 to 2.2 %
21.	<b>Composition Z-47 B</b>	Boron	P/QCLAB/Test Method No.9/2008	19 to 23 %
		Potassium Nitrate		77 to 81 %
		Acrylic Plastic		4.5 to 5.3 %
22.	<b>Composition SR-700</b>	Magnesium Powder	JSS 1365-43-2014 Rev-1	40.5 to 43.5%
		Boiled Linseed Oil		5.5 to 6.5%
		Barium Nitrate		16 to 18%
		Potassium Perchlorate		26 to 28%
		Polyvinyl Chloride		7.5 to 8.5%
		Volatile Matter		0.2%
		Sieve Test 600 $\mu\text{m}$		All to pass

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23.	<b>Composition ME-412</b>	Binder	IND/ME/820(PROV)/2014	1.0%
		Barium Chromate		72 (±) 1.5%
		Potassium Perchlorate		8 (±) 0.5%
		Perchlorate		
		Antimony Sulphide		20 (±) 1%
		Volatile Matter		Max 0.15%
		Sieve Test 600 µm		All to pass
		300 µm		All to retain
24.	<b>Composition SR-91</b>	Boiled linseed oil + Chlorinated Rubber	P/QCLAB/Test Method No.11/2008	20.5 (±) 2.5%
		Strontium Oxalate		2 (±) 0.5%
		Strontium Nitrate		39.5 (±) 2.5%
		Magnesium		38 (±) 2.5 %
25.	<b>Composition SR-97</b>	Boiled Linseed Oil	P/QCLAB/Test method No.10/2008	7 to 9%
		Strontium Nitrate		65 to 71%
		Polyvinyl Chloride		18 to 22 %
		Magnesium Powder		3.5 to 5.0%
		Volatile Matter		Max 0.2%
26.	<b>Composition Port Fire Friction</b>	Potassium Nitrate	P/QCLAB/Test Method No.8/2008	75 (±) 3 %
		Sulphur		23 (±) 2%
		Charcoal		2 (±) 0.5%
		Volatile Matter		Max 0.3%
27.	<b>Composition R-636</b>	Lead dioxide	P/QCLAB/ Test Method No.12/ 2008 & IND/ME/1003 (Prov)	80 (±) 3%
		Aluminum-Magnesium alloy		20 (±) 1.5%
		Volatile Matter		Max 0.2%
		Sieve Test 150 µm		All To Pass
28.	<b>Composition AY</b>	TNT + Paraffin wax	P/QCLAB/ Test Method No.1/2008	15 (±) 3 %
		Barium Nitrate		40 (±) 2%
		Aluminum Powder		45 (±) 3.5 %

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29.	Composition 171-A	Lead thiocyanate	P/QCLAB/ Test Method No.3/2008	55 (±) 3 %
		Barium Nitrate		45 (±) 3 %
30.	Composition 162-G	Nitrocellulose + Calcium Resinate	P/QCLAB/ Test Method No.4/2008	7.0 (±) 2 %
		Lead Dioxide		62 (±) 3 %
		Magnesium		4 (±) 1 %
		Silicon fine		26.9 (±) 2 %
31.	SR-214	Potassium Nitrate	P/QCLAB/ Test method No.5/2008	60 (±) 2 %
		Lactose		40 (±) 2%
		Volatile Matter		0.2 % Max
32.	ME-424	Hylak resin	IND/ME/851 (Prov)/ 2002	9.5 to 12.5 %
		Potassium Nitrate		48 to 54 %
		Magnesium		35.5 to 40.5%
		Volatile Matter		0.5 % Max
33.	ME-447	Plasticized Ethyl Cellulose	HEMRL/TEG/PS/ 277 Rev-1/ 2007	8.0 (±) 2 %
		Potassium Nitrate		50 (±) 3 %
		Magnesium		42 (±) 3 %
		Volatile Matter		1.0 % Max
34.	ME-445	Boron	P/QCLAB/ Test Method No.2/2008 & ERDL/TEG/PS/175	27.5 (±) 3 %
		Potassium Nitrate		63.5 (±) 3.5 %
		Plasticized Ethyl Cellulose		9 (±) 2.5 %
		Volatile Matter		1.0 % Max
35.	PN-407	Dye + Magnesium Carbonate + Zinc Stearate	P/QCLAB/ Test Method No.7/2013 & IND/ME/399	59.5 to 65.5%
		Potassium Chlorate		18.5 to 21.5 %
		Lactose		16.5 to 19.5 %
		Volatile Matter		0.5 % Max

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36.	PN-61	Dye	P/QCLAB/ Test Method No.6/2008 & IND/ME/968 (PROV)	53 (±) 2.5 %
		Potassium Chlorate		23 (±) 2.5 %
		Lactose		22 (±) 2 %
		Magnesium Carbonate		2 (±) 0.5 %
37.	PN-443	Volatile Matter	P/QCLAB/ Test Method No.6 2008 & IND/ME/967 (PROV)	0.5 % Max
		Dye		59 (±) 2 %
		Potassium Chlorate		20 (±) 1%
		Lactose		19 (±) 1 %
		Magnesium Carbonate +Zinc Stearate		2 (±) 0.5 %
38.	Barium Nitrate Gr-I	Volatile Matter	JSS 6810-59-2016 Rev No.4	0.5 % Max
		Moisture at 105°C ± 2°C for 3hrs, %by mass		0.1 to 2 %
39.	Zinc Oxide	Barium Nitrate content, % by mass	JSS 6810-82:2011 Rev No. 2	1 to 99.8 %
		Volatile Matter, 2hrs at 105°C ± 2°C, % by mass		0.1 to 1.0 %
		Zinc Oxide content, % by mass		1 to 99.8
		Sieving –Retained on 63 µm IS sieve		Qualitative
40.	Dye Oil Orange	Carbonates calculated as Zinc Carbonate, % by mass	JSS 6820-02:2012 Rev No.2	0.2 to 1.0 %
		Volatile Matter at 90 95°C(1 Hr), % by mass		0.1 to 1.0 %
		Identification test		Qualitative
41.	Magnesium Carbonate Light Type I Grade-I	Free Moisture, % by mass	IS 1420-1989 Rev No. 2 RA 2010	0.5 to 2.0 %
		Loss on Ignition, % by mass		40 to 70 %