



रक्षा मंत्रालय
MINISTRY OF DEFENCE

संयुक्त सेवा विनिर्देश
JOINT SERVICES SPECIFICATION

ON

AMMUNITION PROTECTIVE COMPOSITION NO. 215

(VARNISH OIL BITUMEN RD 1219)

(DS Cat. No. 8010 - 000 311)

AND

AMMUNITION PROTECTIVE COMPOSITION NO. 216

(COMPOSITION SEALING RD 1229)

(DS Cat. No. 8010 - 000 312)

मानकीकरण निदेशालय
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RECORD OF AMENDMENTS

Amendment		Amendment pertains to : Sl. No. / Para No. / Column No.	Authority	Amended by	Signature & Date
No.	Date			Name & Appointment (IN BLOCK LETTERS)	

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0. FOREWORD

0.1 This Joint Services specification has been prepared by Armament Standardisation Sub Committee on the authority of the Standardisation Committee, Ministry of Defence.

0.2 This specification has been approved by the Ministry of Defence and is mandatory for use by the Defence Services.

0.3 (a) Second revision was done in the year 1999.

(b) This specification is a revision of JSS 8010 - 51 : 2009, (Revision No. 3) and supersedes the same.

0.4 This specification would be used for Manufacture, Supply and Quality Assurance of Ammunition Protective Composition No. 215 (Varnish Oil Bitumen RD 1219) and Ammunition Protective Composition No. 216 (Composition Sealing RD 1229).

0.5 Quality Assurance Authority for the item covered by this specification is The Controller, Controllerate of Quality Assurance (Military Explosives), Aundh Road, Pune - 411 020. Enquiries regarding technical parameters shall be addressed to the Quality Assurance Authority, while other enquiries shall be referred to :

The Director,
Directorate of Standardisation,
Ministry of Defence,
'H' - Block, Nirman Bhawan PO,
New Delhi - 110 011.

0.6 Non registered users can obtain the following on payment :

(a) Copies of IS from :

Bureau of Indian standards,
Manak Bhawan,
9, Bahadur Shah Zafar Marg,
New Delhi - 110 002.

or

Their regional / Branch offices.

(b) Copies of JSSs / JSGs from :

The Director,
Directorate of Standardisation
Standardisation Documents Centre,
Ministry of Defence
Room No. 05, 'J' - Block,
Nirman Bhawan PO,
New Delhi - 110 011.

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0.7 Indian Standard (IS) specifications are available free of cost for registered users on :

Directorate of Standardisation Website

www.ddpdos.gov.in

For registration visit our website.

0.8 This specification holds good only for the supply order for which it is issued.

0.9 DIRECTORATE OF STANDARDISATION WEBSITE : All the approved JSSs / JSGs are available on the Directorate of Standardisation Website **www.ddpdos.gov.in**. Defence Organisations desirous of accessing a copy of this document are requested to approach the Directorate of Standardisation for obtaining user id / password to access the website.

1. **SCOPE** : This specification is meant to govern Manufacture, Supply and Quality Assurance of Ammunition Protective Composition No. 215 (Varnish Oil Bitumen RD 1219) and Ammunition Protective Composition No. 216 (composition Sealing RD 1229) suitable for sealing cap chambers for Grenades and Neck varnishing of SA Cartridges.

2. **RELATED SPECIFICATIONS / DOCUMENTS**

2.1 Reference is made in this specification to :

Sl. No.	Specification No. & Year	Nomenclature
(a)	IS 81 : 1989 (Second Revision) Reaffirmed 2009	Dehydrated Castor Oil for Paints - Specification.
(b)	IS 101 Part 1 : Sec 5 : 1989 (Third Revision) Reaffirmed 2009 AMD 2	Methods of Sampling and Test for Paints, Varnishes and Related Products - Part 1 : Tests on Liquid Paints (General and Physical) - Section 5 : Consistency.
(c)	IS 101 Part 3 : Sec 1 : 1986 (Third Revision) Reaffirmed 2012 AMD 1	Methods of Sampling and Test for Paints, Varnishes and Related Products - Part 3 : Tests on Paint film Formation - Section 1 : Drying Time.
(d)	IS 101 Part 5 : Sec 1 : 1988 (Third Revision) Reaffirmed 2009	Methods of Sampling and Test for Paints, Varnishes and Related Products - Part 5 : Mechanical Test on Paint Films - Section 1 : Hardness Tests.
(e)	IS 101 Part 5 : Sec 2 : 1988 (Third Revision) Reaffirmed 2009 AMD 2	Methods of Sampling and Test for Paints, Varnishes and Related Products - Part 5 : Mechanical Test on Paint Film - Section 2 : Flexibility and Adhesion.
(f)	IS 101 Part 6 : Sec 2 : 1989 (Third Revision) Reaffirmed 2009	Methods of Sampling and Test for Paints, Varnishes and Related Products - Part 6 : Durability Test on Paint Films - Section 2 : Keeping Properties.
(g)	IS 101 Part 7 : Sec 1 : 1989 (Third Revision) Reaffirmed 2009	Methods of Sampling and Test for Paints, Varnishes and Related Products - Part 7 : Environmental Tests on Paint Films - Section 1 : Resistance to water.

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Sl. No.	Specification No. & Year	Nomenclature
(h)	IS 138 : 1992 (Third Revision) Reaffirmed 2009 AMD 1	Ready Mixed Paint, Marking, for Packages and Petrol Containers - Specification.
(j)	IS 702 : 1988 (Second Revision) Reaffirmed 2009 AMD 1	Specification for Industrial Bitumen.
(k)	IS 2552 : 1989 (Third Revision) Reaffirmed 2011 AMD 1	Steel Drums (Galvanized and Ungalvanized).
(l)	IS 5661 : 1970 Reaffirmed 2012	Code of Practice for Packing and Marking of Packages of Paints, Enamels, Varnishes and Allied Products.
(m)	JSS 6810 - 11 4 : 2008 (Revision No. 1)	Coalbased Naphtha.
(n)	JSS 6810 - 138 : 2010 (Revision No. 1)	Cyclohexanone.
(o)	JSS 8010 - 73 : 2011 (Revision No. 1)	Vegetable Black Dry.

3. MATERIAL / FINISH

3.1 These compositions shall be quick drying, water proofing black varnishes, free from foreign matter, grit and visible impurities. They shall give a film with a glossy finish drying when applied by brushing.

3.2 These compositions shall be manufactured from the following ingredients conforming to their respective specifications, amended to date, and in the proportions as follows:

Sl. No.	Ingredient	Specification	(Proportions Part by mass)	
			(APC 215)	(APC 216)
(a)	Industrial Bitumen	IS 702	61.0	61.0

Sl. No.	Ingredient	Specification	(Proportions Part by mass)	
			(APC 215)	(APC 216)
(b)	Cyclohexanone	JSS 6810 - 138	12.0	--
(c)	Dehydrated Castor Oil	IS 81	2.0	2.0
(d)	Coal based Naphtha	JSS 6810 - 114	25.0	22.0
(e)	Vegetable Black Dry	JSS 8010 - 73	--	15.0

4. MANUFACTURE

4.1 These compositions shall be manufactured by a process which shall produce the product conforming to this specification.

4.2 Heat the bitumen to $220\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ in about 40 minutes and maintain this temperature, stirring continuously, until frothing ceases and until a drop placed on a tin plate does not adhere strongly when cold. This normally takes about 150 minutes. Now add the dehydrated Castor Oil and cool at the same temperature for a further 60 minutes. Cool to $160\text{ }^{\circ}\text{C}$ in 30 minutes and stir in the naphtha. Cool to room temperature with continuous stirring for about 200 minutes and add the cyclohexanone / vegetable black. Mix well and pack in airtight container.

5. **TENDER SAMPLE** : The manufacturer / supplier / contractor shall submit, two tender samples each containing 500 ml essentially from the same batch / lot of manufacture, free of all charges and conforming to this specification, to the Quality Assurance Authority / Quality Assurance Officer as stated in the contract.

6. PRE - INSPECTION OF STORES / CONSIGNMENT

6.1 Manufacturers / Contractors must satisfy themselves that the stores are in accordance with the terms of the contract and fully conform to the required specification, by carrying out a thorough pre - inspection of each lot before actually tendering the same for inspection to the Quality Assurance Officer nominated under the terms of the contract. A declaration by the contractor that a necessary pre - inspection has been carried out on the stores tendered will be submitted alongwith the challan. The declaration will also indicate the method followed in carrying out pre - inspection showing the features checked / tested and will have the test certificate attached to the challan / declaration.

6.2 If the Quality Assurance Officer finds that the pre - inspection of the consignment as required above has not been carried out, the consignment is liable for rejection.

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7. QUALITY ASSURANCE

7.1 INSPECTION

7.1.1 APC 215 add APC 216 and the packages in which they are packed shall be subject to inspection by and to the approval of the Quality Assurance Officer / Quality Assurance Authority.

7.1.2 Samples of the material and of the packages may be taken from any portion of the batch / lot / consignment.

7.1.3 If, on examination, any sample be found not to conform to this specification, the whole batch / lot / consignment may be rejected.

7.1.4 The foregoing provisions shall equally apply to prime contractors and sub contractors, if any.

7.2 **SAMPLING** : A representative sample of 250 ml shall be drawn from each container. Normally the number of containers to be selected at random from a batch / lot shall depend on the size of the batch / lot and shall be in accordance with the following table :

No. of Containers in a Batch / Lot	No. of Containers to be Sampled
Up to 25	3
26 to 50	4
51 to 100	5
101 to 150	6
151 to 300	7
301 to 500	8
501 and above	10

7.3 TEST REQUIREMENTS

7.3.1 Samples taken from any portion of the batch / lot / consignment of material shall conform with clause 3 & 4 and in addition shall conform to the test requirements shown in the following table:

TABLE : TEST REQUIREMENTS OF APC 215 AND APC 216

Sl No.	Characteristics	Passing Standard		Test Method
		APC 215	APC 216	
(a)	Viscosity at 25 °C, time in second	150 Min. 200 Max.	650 900	IS 101 Part 1 : Sec 5
(b)	<u>Drying Time</u> (i) Surface dry (ii) Hard dry	1 h Max. 48 h Max.	1 h 72 h	IS 101 Part 3 : Sec 1
(c)	Flexibility	to pass the test	to pass the test	IS 101 Part 5 : Sec 2
(d)	Stripping test (Hardness)	to pass the test	to pass the test	IS 101 Part 5 : Sec 1
(e)	Resistance to water at 60 °C	”	”	IS 101 Part 7 : Sec 1
(f)	Resistance to Ammonium Nitrate	”	”	Appendix ‘A’
(g)	Keeping Qualities	6 months Min.	6 months	IS 101 Part 6 : Sec 2

7.3.2 The material shall perform to the satisfaction of the Quality Assurance Authority / Quality Assurance Officer / User when subjected to practical trials, if considered necessary.

8. *WARRANTY : The stores supplied against the contract shall be deemed to be warranted against defective material and performance by the contractor for a period of 6 months from the date of receipt of the store at the consignee’s end and shall retain the properties described above. If during this period any of the stores supplied is found defective, the same shall be replaced by the manufacturer, supplier or contractor free of charge at the consignee's premises.

*Not applicable when the store is manufactured in Ordnance Factories.

9. PACKAGING

9.1 Packing shall be as per the Code of practice given in IS 5661 and the drums used should be sound clean, dry, rust free mild steel, 20 litres capacity, conforming to IS 2552 Grade B - 2.

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9.2 **PRE - INSPECTION OF DRUMS** : The drums used for packing the stores shall be got inspected by the Quality Assurance Officer, prior to filling with respect to their suitability.

9.3 Any other form of packages shall have the prior approval of the Quality Assurance Officer / Quality Assurance Authority.

10. MARKING

10.1 All packages containing the material shall be indelibly and legibly marked as per IS 5661.

- (a) Specification Number.
- (b) Lot / Batch Number.
- (c) Consecutive Number of Package End Total Number of Packages in the Consignment.
- (d) Date of Supply.
- (e) Contractor's Initial or Recognised Trademark.

10.2 In addition to the above the Quality Assurance Officer may suggest some more marking / identification suitable at the time of Inspection.

10.3 The paint used for marking shall conform to IS 138 (latest issue) and to the satisfaction of the Quality Assurance Officer / Quality Assurance Authority.

11. SAFETY OF OPERATIONS : Nothing in this specification shall relieve the manufacturer / supplier / contractor of his responsibility for the safety of operations in manufacture, storage, transit or use of this store.

12. DEFENCE STORES CATALOGUE NUMBER

12.1 Defence Stores Catalogue Numbers allotted to these stores are 8010 - 000 311 and 8010 - 000 312.

13. SUGGESTIONS FOR IMPROVEMENT

13.1 Any suggestion for improvement in this document may be forwarded to :

The Director,
Directorate of Standardisation,
Ministry of Defence,
'H' - Block, Nirman Bhawan PO,
New Delhi - 110 011.

APPENDIX 'A'

A. RESISTANCE TO AMMONIUM NITRATE

A.1 Take a bright steel rod 110 mm long and 15 mm diameter, rounded at one end. Dip the rod with the rounded end downwards into the material to a depth of 75 mm and allow to drain for 30 seconds. Invert the rod and allow to dry for 7 days at room temperature. Immerse the coated end of the rod to a depth of 40 mm in a bottle containing a saturated solution of Ammonium nitrate in which an excess of the solid is present and maintain at a temperature of 60 °C for eight days. Remove the rod and wash well with distilled water. Allow to stand for one hour at room temperature and examine for any sign of deterioration of the coating. Remove carefully a portion of the coating with a suitable paint remover and examine the exposed metal surface for signs of corrosion. The film shall show no change in hardness and only slight change in lustre. The metal surface shall not be affected.