

INCH-POUND

MIL-C-45010A(AR)
 AMENDMENT 4
02 March 90
 SUPERSEDING
 AMENDMENT 3
 4 December 1980

MILITARY SPECIFICATION

COMPOSITION C-4

This Amendment forms a part of Military Specification MIL-C-45010A (MU) dated 26 September 1963, and is approved for use within the US Army Armament Munitions and Chemical Command and is available for use by all Departments and Agencies of Department of Defense.

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Paragraph 1.2 - Classification: Add the following:

"Class 4 - with plasticity of 0.030 units maximum and dyed (see 3.3)."

Paragraph 2.1 - Specifications: Add the following:

"JAN-L-488 - Lead Chromate (For Use in Ammunition)".

* Paragraph 2.1 - Specifications: Delete "MIL-P-14536 - Polyisobutylene Binder" and substitute "MIL-P-14536 - Polyisobutylene Binder (see 6.10)".

* Paragraph 3.1: Delete entirely and substitute as follows: "3.1 Material. RDX complying with the requirements of MIL-R-398, Type A or B, shall be thoroughly and uniformly incorporated with a binder complying with the requirements of MIL-P-14536 or Holston Procedure Number 1340-5100-10-B (Preparation of Lacquer for Composition C-4 Building 150) to form a homogeneous composition having a soft, putty-like consistency (see 6.2 and 6.10).

Paragraph 3.1.1 - Delete in its entirety and substitute:

"3.1.1 Granulation. The RDX content of Class 3 Composition C-4 shall consist of three parts nominal Class 1 and one part nominal Class 5 RDX."

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* Paragraph 3.3: Delete "Polyisobutylene" and substitute "Polyisobutylene Binder", and wherever it appears in this paragraph.

Paragraph 3.3 - Composition: Add the following:

"Class 4 (see 6.2 and 6.7)

RDX	89.9 ± 1 percent
Polyisobutylene	10.0 ± 1 percent
Dye Composition	0.2 ± .02 percent
Dye Composition	
Lead Chromate	90 percent - JAN-L-483
Lamp Black	10 percent - Commercial Grade"

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Paragraph 4.2.3: Delete in its entirety and substitute:

"4.2.3 Testing

PRECAUTION WARNING

This specification covers sampling and testing of toxic or hazardous materials. Accordingly, it is emphasized that all applicable safety rules, regulations and procedures must be followed in handling and processing these materials.

4.2.3.1 Sampling - The tests described in 4.3 shall be performed on samples representative of the batch which were taken in accordance with ASTM Procedure E300, for solids. Approximately 1 kg sample shall be taken in accordance with MIL-STD-1235, CSP-1 Plan, Sample Frequency Code Letter B, AQL 6.5%. If any sample fails to meet any test requirement, the batch represented by the sample shall be rejected. All batches produced between the time that the last batch was tested and accepted and the batch which failed shall be tested in accordance with the applicable methods given in paragraph 4.3. If any of these batches fail to meet any of the test requirements, that batch shall also be rejected. In addition, after any failure of a batch the contractor will return to 100% inspection until "i" successive batches are accepted as required by MIL-STD-1235."

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Paragraph 4.3.1: Delete in its entirety and substitute:

"4.3.1 Moisture - The moisture shall be determined in accordance with MIL-STD-650, Method 101.4 or an approved equivalent method. (See 6.9)"

Paragraph 4.3.2.1.1 Titration Method: Delete "carbon tetrachloride" wherever it appears and substitute "aliphatic naphtha (No. 49) (see 6.8)".

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Paragraph 4.3.2.1.2 Gravimetric Method: Delete "carbon tetrachloride" wherever it appears and substitute "aliphatic naphtha (No. 49) (see 6.8)".

Paragraph 4.3.2.1.3: Delete in its entirety. (Paragraph 4.3.2.1.3 was added in Amendment 2).

Paragraph 4.3.2.2 Polyisobutylene binder: Add the following new paragraph:

"4.3.2.2 Polyisobutylene binder - The percent of polyisobutylene binder shall be calculated on a dry basis by subtracting from 100 percent the percent of RDX as obtained in 4.3.2.1."

Add the following new paragraph:

"4.3.2.3 Dye composition - The percent dye composition shall be certified by the contractor that the percent dye composition has been mixed with the composition in compliance with paragraph 3.3."

Paragraph 4.3.3: Delete entirely and substitute as follows:

"4.3.3 Determination of insoluble particles - A weighed portion of approximately 50 gms. of the sample shall be placed in a 600 ml. beaker. A 400 ml. aliquot of petroleum ether or naphtha shall be added and the sample heated on a steam bath until all lumps are broken down and all soluble material is dissolved. The solution shall be decanted through a small number 40 U.S. Standard sieve placed on a number 60 U.S. Standard sieve. The insoluble material shall be retained in the beaker. Acetone shall be added to the

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beaker and the beaker and contents warmed on a steam bath to dissolve the insoluble matter. This mixture shall be poured through the nest of sieves making sure all insoluble matter is transferred to the sieves. Any residue left on the sieve shall be washed with acetone. The sieves dried on a closed steam bath, and the particles of residue counted."

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Paragraph 6.2 Composition C-4: Delete "C-R" and substitute "C4".

Add the following:

"Class 4 composition C4 using RDX Type I or II, Class 8 has been found satisfactory"

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Add new paragraph 6.7:

"6.7 Method of manufacture for Dyed Composition C4 - The lead chromate and lampblack should be mixed thoroughly before adding to the polyisobutylene at a rate of 4 to 5 grams per minutes. The mixture should be agitated slowly in a folding action at 90 degrees C. After all the pigment has been added, the mixture should be added to a RDX/water slurry at 21 degrees C with fast agitation. Then the composition C4 should be poured directly into a vacuum pan to draw off the water. (At this point the C4 should have the appearance of tapioca pudding.) The composition should be processed in a Wabash type incorporator for 30 minutes and then dried in a drying house."

Add the following new paragraph:

"6.8 Atlantic Solvent No. 49, manufactured by Arco Chemical Company, 260 S. Broad Street, Philadelphia, PA has been found satisfactory. The aliphatic naphtha (No. 49) produced by Arco has the properties specified in Mellan, I, Handbook of Solvents, Reinhold Publishing Corporation, New York (1957)."

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Add a new paragraph:

"6.9 Moisture determination. Holston AAP Analytical Standard Method, ASM I-7 is approved as an equivalent method and may be used in lieu of Method 101.4 of MIL-STD-650."

* Add new paragraph 6.10:

"6.10 Holston slurry process. The alternate method of manufacture of Composition C-4 is by the Holston Slurry Process. Manufacture of Composition C-4 by the Holston Slurry Process exempts the manufacturer from the requirements of MIL-P-14536 except as follows:

a. Paragraph 1 and 2 shall remain in effect and in addition, the manufacturer shall use only raw materials conforming to military specification cited in paragraph 2.

b. The ratio of binder components shall be in accordance with paragraph 3.1.3 and shall be controlled on the basis of input quantities to the Holston Slurry Process. MIL-P-14536 shall be adhered to its entirety when any other Composition C-4 manufacturing process is used or when the polyisobutylene binder exists as an isolable intermediate.

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