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MILITARY SPECIFICATION

PROPELLANTS FOR SMALL ARMS AMMUNITION

This amendment forms a part of Military Specification MIL-P-3984G(AR), dated 10 December 1976, and is approved for use by the US Army Armament, Munitions and Chemical Command, and is available for use by all Departments and Agencies of the Department of Defense.

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2.1

STANDARDS

MILITARY: Add the following:

"MIL-STD-129 Marking for Shipment and Storage
MIL-STD-652 Propellants Solid for Cannons, Requirements and Packing"

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2.1 Drawing: Delete 20-4-77 entirely.

Add the following:

"2.2 Other Publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

CODE OF FEDERAL REGULATIONS, TITLE 49, TRANSPORTATION PARTS 100-199.

(The Code of Federal Regulations is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.) Others should specify "49 CFR 100-199" (latest revision)."

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3.2.5 Delete in its entirety and substitute the following:

"3.2.5 Smoke and flash. The smoke and flash produced by test cartridges shall not exceed the smoke and flash produced by reference cartridges or by production components loaded with propellant from an accepted lot fired at the same time and under the same conditions (see 6.2). A flash assessment is not needed for 5.56mm blank propellant."

3.2.8 Delete in its entirety and substitute the following:

"3.2.8 Screen perforation. Blank test cartridges shall not cause any perforations, due to unburnt propellant, in a paper screen placed 15 feet from the muzzle of the weapon. A screen perforation assessment is not needed for 5.56 blank propellant."

3.2.9 Delete in its entirety and substitute the following:

"3.2.9 Cyclic rate. The cyclic rate per minute produced by blank test cartridges, when fired fully automatic, shall comply with the following:

Weapon	Cyclic Rate
5.56mm (rifle)	550 to 920
7.62mm (rifle)	700 minimum
7.62mm (MG)	500 minimum
Caliber .30 (MG)	450 to 650

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4.3.3.2.1 Velocity uniformity. Add the following table:

	"Ballistic Sample" Velocity	"Representative Sample" Vel. Variation	"Representative Sample" Vel. Std. Dev. Initial Test	"Representative Sample" (Max.) Retest
"20mm, HEI, PGU-17/B	3680 ± 15	± 30	36	30
20mm TP, PGU-18/B	3680 ± 15	± 30	36	30"

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4.3.3.3 Packing and marking inspection. Delete in its entirety and substitute the following:

"4.3.3.3 Packing and marking inspection. Packing and marking shall comply with the requirements of 5.1 when inspected as specified in MIL-STD-652."

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Add the following to Table 1:

"TABLE I

BALLISTIC REQUIREMENTS FOR PROPELLANTS

CARTRIDGE CALIBER, TYPE & MODEL 20MM	INSTRUMENT VELOCITY		CHAMBER PRESSURE (PSI) MAXIMUM AVERAGE	INDV MAX ACT TIME (MS)	EXTREME TEMPERATURE	
	(FPS) AVERAGE AT 78.0 FT	STD DEV (MAX)			INDV MAX CHAMBER PRESSURE (PSI)	INDV MAX ACTION TIME (MS)
HE1 PGU 17/B	3680	40	*15	3.5	69,000	3.5
TP PGU 18/B	3680	40	*15	3.5	69,000	3.5

*15 The average pressure plus 3 standard deviations shall not exceed 66,000 psi when tested using Pressure Transducer Model PCB 118A mounted in accordance with PCB drawing 108-1010-90 and MANN Barrel Drawing 7259356."

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Add the following to Table II:

"TABLE II

SAMPLE SIZE OF TEST CARTRIDGES FOR BALLISTIC TESTS

CARTRIDGE CALIBER, TYPE & MODEL 20MM	Velocity	Chamber Pressure	Action Time	Smoke	Flash	Extreme Temperature	Totals by Lot
HE1 5 PGU 17/B	20		20	100	100	20	260
TP PGU 18/B	20		20	100	100	20	260"

Delete the following from Table II:

For 5.56MM Blank, M200

Flash Column "100"

Screen Perforation Column "200"

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Add the following paragraph:

"4.5 Examinations applicable to reusable fiber drums before filling.

Critical: None defined

MAJOR	100% INSPECTION	METHOD OF EVALUATION
101	Drum design shall be in conformance with current para. 5.1.3 requirements.	Visual
102	The drum shall be clean, free of foreign material - rust, propellant, grease, oil, mildew, watermarks, etc.	Visual
103	The gasket shall not be missing, torn, damaged, loose from the lid groove, or show signs of permament compression.	Visual/Manual
104	The lid shall not be bent, creased or deformed in gasket area or around edge.	Visual
105	The lid and bottom shall be free of holes, dents, and gouges which either penetrate or delaminate the surface.	Visual
106	The sidewall shall be free of holes, dents gouges which either penetrate or delaminate the surface, ridges, and accordian effect.	Visual
107	The metal chine at the top and bottom of the sidewall shall be free of dents and tears.	Visual
108	The closure ring and locking lever shall be in operating condition, free of rust, dents, bends, etc.	Visual/Manual

MINOR: None defined"

5.1.1 Change to read, "5.1.1 Level A. The propellant shall be placed in clean, airtight containers conforming to drawings 76-4-46, 7549033 or 9256486."

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5.1.2 Delete in its entirety and substitute the following:

"5.1.2 Level B. Packaging shall be as specified in Paragraph 5.1.1."

* 5.1.3 Add the following paragraph:

"5.1.3 Level C. For Trucks or Trailer On Flat Car (TOFC) shipment and short term storage (2 years maximum), not less than 50 pounds, average net weight of propellant, shall be packed in a fiber drum, certified in accordance with DOT specification 21C of Code of Federal Regulations, Title 49, Parts 100-199. Propellant should not be packed in fiber drums if it is intended to be stored for more than two years. Additionally, the fiber drums must meet the following requirements. The body shall be wound with hot melt or thermoplastic adhesive. The bottom shall be either steel or waterproof laminated fiberboard. A layer of aluminum foil shall be laminated into the body and bottom if the bottom is made of fiberboard. The bottom and top edge of the drum shall have galvanized steel chimes. The cover shall have a moisture proof gasket and shall be secured with a lever locking galvanized band. The cover shall be steel with a galvanized or baked varnish finish, resistant to chipping, peeling or cracking. The fiber drums may be reused if they comply with the inspection requirement of Paragraph 4.5.".

* 5.2.1 Delete in its entirety and substitute the following:

"5.2.1 Levels A and B. The containers shall be sealed and marked in accordance with Drawings 8858577 or 8858848. Address marking shall be in accordance with MIL-STD-129".

* 5.2.2 Delete in its entirety and substitute the following:

"5.2.2 Level C. Containers shall be marked on the side with the same markings as required for the side of the box shown on Drawing 8858848. Address marking shall be in accordance with MIL-STD-129. For reuse of fiber containers, obliterating paint (sand color) shall be applied as necessary per MIL-STD-129, para 4.2.2.3 for purposes of reidentifying the drums."

* 5.2.3 Delete in its entirety and substitute the following:

"5.2.3 Special Marking. All level A and B containers shall have a printed label affixed to the side with the following information:

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NOTICE

AFTER FIVE YEARS FROM DATE OF MANUFACTURE, APPROVAL BY THE RESPONSIBLE ENGINEERING AGENCY IS REQUIRED PRIOR TO THE LOADING OF THIS PROPELLANT INTO SMALL ARMS AMMUNITION."

5.3 Add "or C" after "Level B" in second sentence.

The margins of this amendment are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous amendment were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous amendment.

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