

MIL-I-81970 (AS)  
5 April 1974

## MILITARY SPECIFICATION

### IGNITION COMPOUND

This specification has been approved by the Naval Air Systems Command, Department of the Navy.

#### 1. SCOPE

1.1 Scope. This purchase description covers the minimum requirements for three types of ignition compounds composed of magnesium and polytetrafluoroethylene.

1.2 Classification. The ignition compound shall be of the following types and will be referred to herein as "Type".

<u>Type</u>	<u>Configuration</u>
I	Powder
II	Pellet (Figure 1)
III	Powder and Wafer (Figure 2)

#### 2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on the date of invitation for bids or request for proposal form a part of this document to the extent specified herein.

#### SPECIFICATIONS

##### Federal

L-P-403 Plastic Molding Material, Polytetrafluoroethylene.

##### Military

MIL-D-3464 Desiccants, Activated, Bagged Packaging, Use and Static Dehumidification.

FSC 1325
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SPECIFICATIONS (Cont'd)

Military

MIL-P-14067 Powders, Metal, Atomized (For Use In Ammunition).

STANDARDS

Military

MIL-STD-129 Marking for Shipment and Storage.

PUBLICATIONS

Naval Air Systems Command  
(Code Ident 30003)

AD 578 Instructions for Blending Ignition Compound, Loading and Assembly of Igniter, Bomb, Mark 273 Mod 1.

Naval Ordnance Systems Command  
(Code Ident 10001)

OD 30752 Instructions for Blending Ignition Compound and Loading and Assembly of Igniter, Bomb, Mark 273 Mod 0.

(Copies of specifications, standards, drawings and other publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following document forms a part of this document 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

49 CFR 171-179 Transportation.

(Application for copies should be addressed to the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402.)

### 3. REQUIREMENTS

3.1 First article lot. A first article lot consisting of a minimum of 20 pounds of Type I and 20 pounds of Type II compound or, as applicable, 40 pounds of Type III, Table IB, of which 20 pounds are of powder configuration and 20 pounds are of wafer configuration shall be manufactured. The compound shall be blended using methods and procedures proposed for all following production lots. Samples from this lot shall be selected and tested as specified in Section 4.

3.1.1 First article approval. The supplier shall obtain written approval of the first article sample by the procuring activity before proceeding with regular production. Further production of the compound, by the supplier, prior to the approval of the first article sample, shall be at the supplier's risk.

3.1.2 Retest. At the discretion of the procuring activity during the course of production any or all of the first article lot tests or any portion thereof, shall be repeated under any of the following conditions:

- (a) The supplier has modified his product such as a change of process, production procedures, or methods. It shall be the responsibility of the supplier to notify the procuring activity prior to the incorporation of any such changes and procure written approval of these changes. The notification procedure shall provide quantitative evidence of the effect of such changes on the performance characteristics of the product. Requirement for such tests will be based on an evaluation of the evidence supplied.
- (b) Where there is evidence that the quality of the product has not been maintained. This evidence may be in the form of accumulated failure reports of the igniter, of system failures attributable to the igniter, or failure of the igniter to pass any of the tests for quality conformance that may be conducted by or for the procuring activity.
- (c) Any change in design or documentation by the procuring activity.

3.2 Conformance to documents. The compounds shall conform to the requirements specified herein and to the applicable documents listed in Section 2.

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3.3 Composition - physical and performance characteristics.

3.3.1 Type I and Type III. The Type I or, as applicable Type III compound shall be a completely homogeneous mixture consisting of the ingredients and percentages as specified in Table I, Table IA or Table IB, when tested in accordance with 4.6.1(b).

Table I. Composition of Type I

Ingredient	Percent by weight by ingredient	Applicable specification	Percent by weight by analysis (3.3.1, 4.6.1)
Magnesium	60 $\pm$ 3	MIL-P-14067, Type I 22 $\pm$ 8 microns	---
Polytetrafluoroethylene (Teflon 5-B or equivalent)	40 $\pm$ 3	L-P-403, Type II, except that particle size shall be 275 $\pm$ 100 microns and apparent density, (grams/liter), shall be 625 $\pm$ 75	40 $\pm$ 3

Table IA. Alternate Composition of Type I

Ingredient	Percent by weight by ingredient	Applicable specification	Percent by weight by analysis (3.3.1, 4.6.1)
Magnesium	60 $\pm$ 3	MIL-P-14067, Type IV, except that granulation and apparent density shall be as follows: <u>Sieve</u> <u>Percentage</u> on 200 mesh            0.0-1.0 on 325 mesh            27.0-36.0 thru 325 mesh        63.0-72.0 Apparent density, (gram/milliliter) shall be 0.410 minimum.	---
Polytetrafluoroethylene (Teflon 5-B or equivalent)	40 $\pm$ 3	L-P-403, Type II, except that particle size shall be 275 $\pm$ 100 microns and apparent density, (grams/liter), shall be 625 $\pm$ 75.	40 $\pm$ 4

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Table IB. Proprietary Alternate Composition of Type III (see 6.5)

Ingredient	Percent by weight by ingredient	Applicable specification	Percent by weight by analysis (3.3.1, 4.6.1)								
Magnesium	60 $\pm$ 3	MIL-P-14067, Type IV, except that granulation and apparent density shall be as follows:  <table border="1"> <thead> <tr> <th>Sieve</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>on 200 mesh</td> <td>0.0-1.0</td> </tr> <tr> <td>on 325 mesh</td> <td>27.0-36.0</td> </tr> <tr> <td>thru 325 mesh</td> <td>63.0-72.0</td> </tr> </tbody> </table> Apparent density, (gram/milliliter) shall be 0.410 minimum.	Sieve	Percentage	on 200 mesh	0.0-1.0	on 325 mesh	27.0-36.0	thru 325 mesh	63.0-72.0	---
Sieve	Percentage										
on 200 mesh	0.0-1.0										
on 325 mesh	27.0-36.0										
thru 325 mesh	63.0-72.0										
Polytetrafluoroethylene (Teflon 7 or equivalent)	40 $\pm$ 3	L-P-403, Type IV	40 $\pm$ 4								

3.3.2 Type II. The Type II compound shall be a completely homogeneous mixture consisting of the ingredients and percentages as specified in Table II or Table IIA, when tested in accordance with 4.6.1(d).

Table II. Composition of Type II

Ingredient	Percent weight by ingredient	Applicable specification	Percent by weight by analysis (3.3.2, 4.6.1)
Magnesium	23.2 $\pm$ 2	MIL-P-14067, Type I 22 $\pm$ 8 microns	---
Magnesium	32.6 $\pm$ 2	MIL-P-14067, Type I 200 $\pm$ 25 microns	---
Polytetrafluoroethylene (Teflon 5-B or equivalent)	37.2 $\pm$ 2	L-P-403, Type II, except that particle size shall be 275 $\pm$ 100 microns and apparent density, (grams/liter), shall be 625 $\pm$ 75	37.2 $\pm$ 2
Perchloropentacyclodecane (Dechlorane 4070 or equivalent)	7.0 $\pm$ 1	40 - 70 micron particle size	7.0 $\pm$ 1

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Table IIA. Alternate Composition of Type II

Ingredient	Percent by weight by ingredient	Applicable specification	Percent by weight by analysis (3.3.2, 4.6.1)								
Magnesium	16 ± 2	MIL-P-14067, Type IV, except that granulation and apparent density shall be as follows:  <table border="1" data-bbox="631 603 1030 740"> <thead> <tr> <th>Sieve</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>on 200 mesh</td> <td>0.0-1.0</td> </tr> <tr> <td>on 325 mesh</td> <td>27.0-36.0</td> </tr> <tr> <td>thru 325 mesh</td> <td>63.0-72.0</td> </tr> </tbody> </table> Apparent density, (gram/milliliter) shall be 0.410 minimum.	Sieve	Percentage	on 200 mesh	0.0-1.0	on 325 mesh	27.0-36.0	thru 325 mesh	63.0-72.0	---
Sieve	Percentage										
on 200 mesh	0.0-1.0										
on 325 mesh	27.0-36.0										
thru 325 mesh	63.0-72.0										
Magnesium	38.5 ± 3	MIL-P-14067, Type I, 200 ± 25 microns.	---								
Polytetrafluoroethylene (Teflon 5-B or equivalent)	38 ± 3	L-P-403, Type II, except that particle size shall be 275 ± 100 microns and apparent density, (grams/liter), shall be 625 ± 75.	38 ± 4								
Perchloropentacyclodecane (Dechlorane 4070 or equivalent)	7.5 ± 1	40-70 micron particle size	7.5 ± 1.5								

3.3.3 Moisture content. The moisture content of the ignition compounds (Types I, II, and III) shall not exceed 0.5 percent, of the total sample weight, when tested in accordance with 4.6.2.

3.3.4 Heat of reaction. The heat of reaction of the ignition compounds shall be not less than 1,350 calories per gram (cal/gm) for Type I, 1,250 cal/gm for Type III (Table IB) and 1,200 cal/gm for Type II, when tested in accordance with 4.6.3.

3.3.5 Burn time. The burn time of the Type II compound (pellet) and Type III compound (wafer) shall be a minimum average of 2.5 seconds and 2.2 seconds respectively, when tested in accordance with 4.6.4.

3.3.6 Crush strength. The Type II compound (pellet) shall have an arithmetic mean crush strength of 16,500  $\pm$  1,500 grams with an observed standard deviation of not more than 1,500 grams on the observed mean, when tested in accordance with 4.6.5.

3.3.7 Configuration. The Type II compound (pellet) shall meet the requirements specified in Figure 1 while the Type III compound (wafer) shall meet the requirements specified in Figure 2 when tested in accordance with 4.6.6.

3.3.8 Weight. When tested in accordance with 4.6.7, the weight of the Type II compound, after being pressed into pellet form, shall be 2.2 grams minimum average for the standard compound and 1.9 grams minimum average for the alternate compound. The weight of the Type III (Table IB) alternate compound, after being pressed into wafer form shall be 45.0 grams minimum average.

3.3.9 Density. The density of the Type III (Table IB) alternate compound after being pressed into wafer form, shall be 1.40 gm/cc minimum average when tested in accordance with 4.6.8.

3.3.10 Mixing procedures. The mixing procedures of OD 30752/AD 578 are advisory for the mixing of the ignition compounds (see Section 2).

#### CAUTION

Personnel engaged in the mixing, handling and testing of ignition compound should be familiar with the safety provisions of Section 6.

3.4 Workmanship. Workmanship shall be that required to assure conformance with all the requirements of this document and the applicable drawings and specifications. The workmanship exhibited will be evaluated to determine acceptability and conformance to the best commercial standards and practices.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may utilize his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

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4.2 Lot. A lot of Type I, Type II or Type III compound shall be defined as all compounds prepared from raw materials from single accepted lots of raw materials and blended or consolidated at one time under homogeneous conditions of manufacture.

4.2.1 Sublot. A subplot of Type II or Type III compound shall consist of consolidated compound from a single lot produced in one continuous operation under homogeneous conditions of manufacture by a single powder press.

4.2.2 Lot designation. Beginning with the first subplot produced under the contract, the lots shall be numerically identified by master and subplot designations. A change in the master lot designation shall occur any time that a new batch of any chemical component is employed and the subplot designation numbering shall be started over again.

4.2.3 Lot identification. The lot shall be traceable to the date of certification of raw materials, date of blending, serial number of blending or consolidating machine, date of consolidating and date of acceptance.

4.3 Classification of tests. Tests shall be classified as follows:

- (a) First article lot tests (see 4.4).
- (b) Quality conformance. (Acceptance tests) (see 4.5).

4.4 First article lot tests.

4.4.1 Type I or Type III. Random samples shall be selected and tested as specified in Table III or, as applicable, Table IIIA. Failure of any sample to meet the requirements specified herein shall be cause for rejection of the first article lot. Upon completion of the tests, the remainder of the lot shall be destroyed. The maximum number of repetitions of each test as required in Table III or, as applicable, Table IIIA shall be performed if any one of the minimum repetitions fails to meet the test requirements specified herein. When the maximum number of repetitions is used, all of the additional repetitions shall meet the minimum requirements as specified herein.



Table III. First Article Lot Tests for Type I or, as Applicable, Type III (Powder)

Sample size and number of repetitions required	Test	Requirement paragraph	Test paragraph
25 grams for 5 repetitions min. 10 repetitions max.	Moisture content	3.3.3	4.6.2
25 grams for 5 repetitions min. 10 repetitions max.	Chemical analysis (optional)	3.3.1	4.6.1
30 grams for 15 repetitions min. 30 repetitions max.	Heat of reaction	3.3.4	4.6.3

Table IIIA. First Article Lot Tests for Type III (wafer)

Sample size and number of repetitions required	Test	Requirement paragraph	Test paragraph
10 wafers for 5 repetitions min. 10 repetitions max.	Chemical analysis (optional)	3.3.1	4.6.1
5 wafers for 5 repetitions	Moisture content	3.3.3	4.6.2
15 wafers for 15 repetitions min. 30 repetitions max.	Heat of reaction	3.3.4	4.6.3
30 wafers for 30 repetitions min. 60 repetitions max.	Burn time	3.3.5	4.6.4
15 wafers for 15 repetitions	Density	3.3.9	4.6.8
30 wafers for 30 repetitions	Configuration	3.3.7	4.6.6
15 wafers for 15 repetitions	Weight	3.3.8	4.6.7

4.4.2 Type II. The first article lot of Type II compound (see 3.1), shall have random samples drawn and tested as specified in Table IV. Failure of any sample to meet the requirements specified herein shall be cause for rejection of the lot represented. The maximum number of repetitions of each test as required in Table IV shall be performed if any one of the minimum repetitions fails to meet the test requirements specified herein.

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When the maximum number of repetitions is used, all of the additional repetitions shall meet the minimum requirements as specified herein. Upon completion of the tests, the remainder of the lot shall be destroyed.

Table IV. First Article Lot Tests for Type II

Sample size and number of repetitions required	Test	Requirement paragraph	Test paragraph
10 pellets for 5 repetitions min. 10 repetitions max.	Chemical analysis (optional)	3.3.2	4.6.1
5 pellets for 5 repetitions	Moisture content	3.3.3	4.6.2
15 pellets for 15 repetitions min. 30 repetitions max.	Heat of reaction	3.3.4	4.6.3
30 pellets for 30 repetitions min. 60 repetitions max.	Burn time	3.3.5	4.6.4
15 pellets for 15 repetitions	Crush strength	3.3.6	4.6.5
30 pellets for 30 repetitions	Configuration	3.3.7	4.6.6
15 pellets for 15 repetitions	Weight	3.3.8	4.6.7

4.5 Quality conformance tests. Quality conformance testing is specified in Table V for Type I or, as applicable, Type III (powder), Table VA for Type III (wafer) and Table VI for Type II. A sufficient amount of Type I and Type II ignition compound shall be removed from each lot to perform the tests in accordance with the tables. The Type II compound (pellets) or, as applicable, Type III compound (wafers) from any two consolidating machines shall not be mixed to produce a sample. Failure of any sample to meet the requirements specified herein shall be cause for rejection of the lot represented. The maximum number of repetitions of each test as required in Tables V, VA and VI shall be performed if any one of the minimum repetitions fails to meet the test requirements specified herein. When the maximum number of repetitions is used, all of the additional repetitions shall meet the minimum requirements as specified herein.

Table V. Quality Conformance Tests for Type I or, as  
as Applicable, Type III (Powder)

Sample size and number of repetitions required	Test	Requirement paragraph	Test paragraph
25 grams for 5 repetitions min. 10 repetitions max.	Chemical analysis (optional)	3.3.1	4.6.1
10 grams for 5 repetitions min. 10 repetitions max.	Moisture content	3.3.3	4.6.2
20 grams for 10 repetitions min. 20 repetitions max.	Heat of reaction	3.3.4	4.6.3

Table VA. Quality Conformance Tests for Type III (wafers)

Sample size and number of repetitions required	Test	Requirement paragraph	Test paragraph
10 wafers for 5 repetitions min. 10 repetitions max.	Chemical analysis (optional)	3.3.1	4.6.1
5 wafers for 5 repetitions min. 10 repetitions max.	Moisture content	3.3.3	4.6.2
10 wafers for 10 repetitions min. 20 repetitions max.	Heat of reaction	3.3.4	4.6.3
10 wafers for 10 repetitions min. 20 repetitions max.	Burn time	3.3.5	4.6.4
10 wafers for 10 repetitions	Density	3.3.9	4.6.8
5 wafers for 5 repetitions	Configuration	3.3.7	4.6.6

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Table VI. Quality Conformance Tests for Type II

Sample size and number of repetitions required	Test	Requirement paragraph	Test paragraph
10 pellets for 5 repetitions min. 10 repetitions max.	Chemical analysis (optional)	3.3.2	4.6.1
5 pellets for 5 repetitions min. 10 repetitions max.	Moisture content	3.3.3	4.6.2
10 pellets for 10 repetitions min. 20 repetitions max.	Heat of reaction	3.3.4	4.6.3
10 pellets for 10 repetitions min. 20 repetitions max.	Burn time	3.3.5	4.6.4
10 pellets for 10 repetitions	Crush strength	3.3.6	4.6.5
5 pellets for 5 repetitions	Configuration	3.3.7	4.6.6

4.6 Test methods.4.6.1 Chemical analysis (optional).(a) Equipment and materials:

1. Mortar and pestle.
2. Two 230 milliliter (ml) medium porosity fritted glass crucibles.
3. Reagent grade benzene.
4. Reagent grade acetone.
5. Reagent grade HCl.
6. 1:1 HCl:H<sub>2</sub>O solution.
7. 250 ml Erlenmeyer flask with 24/40 standard taper neck.
8. Reflux unit with 24/40 standard taper connectors at bottom of condenser.

## (b) Procedure for Type I or Type III ignition compound.

1. Weigh sample (5 grams) to nearest 1.0 milligram (mg) and record as  $S_{w1}$ . (Note: Type III compound (wafer) shall be thoroughly crushed in the mortar with the pestle prior to placing in flask.)
2. Place sample in 250 ml flask and slowly add the 1:1 HCl:H<sub>2</sub>O solution until hydrogen evolution has ceased.

Add 50 ml concentrated HCl and reflux approximately one hour.

3. Weigh crucible and record as  $W_{1b}$ .
4. Transfer contents of reflux flask to crucible  $W_{1b}$  and wash Polytetrafluoroethylene with concentrated HCl.
5. Rinse well with distilled water, then with acetone to remove acid and water respectively. Place in 80 degree centigrade (°C) oven for 30 minutes. Cool and weight, weight to be recorded as  $W_{2b}$ .

## (c) Calculations:

1. Percent of Polytetrafluoroethylene (Teflon)

$$= \frac{W_{2b} - W_{1b}}{S_{w1}} \times 100$$

## (d) Procedure for Type II ignition compound.

1. Weigh sample (2 pellets) to nearest 1.0 mg and record as  $S_w$ . (Note: Type II compound shall be thoroughly crushed in the mortar with the pestle prior to placing in flask.)
2. Place sample in 250 ml flask with 100 ml benzene. Reflux samples on heating unit for 30 minutes.
3. Weigh crucible and record as  $W_{1d}$ .
4. Cool slightly and transfer contents of reflux flask to crucible  $W_{1d}$ .

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5. Wash thoroughly with cold benzene and place in 80°C oven for 30 minutes. Cool in desiccator for 30 minutes and weigh, weight to be recorded as  $W_2$ .
6. Transfer contents of crucible to same reflux flask and slowly add the 1:1 HCl:H<sub>2</sub>O solution until hydrogen evolution has ceased. Add 50 ml concentrated HCl and reflux for one hour.
7. Transfer to crucible used for first extraction and wash remaining Teflon with concentrated HCl.
8. Rinse well with distilled water, then with acetone to remove excess acid and water respectively. Place in 80°C oven for 30 minutes. Cool and weigh, weight to be recorded as  $W_3$ .

(e) Calculations:

1. Percent of Perchloropentacyclodecane

$$= \frac{S_w - (W_2 - W_{1d})}{S_w} \times 100$$

2. Percent of Polytetrafluoroethylene (Teflon)

$$= \frac{W_3 - W_{1d}}{S_w} \times 100$$

4.6.1.1 Acceptance criteria for Type I and Type III compounds. To be acceptable, the sample shall meet the requirements of 3.3.1.

4.6.1.2 Acceptance criteria for Type II compound. To be acceptable, the sample shall meet the requirements of 3.3.2.

4.6.2 Moisture content. Moisture content shall be determined by weighing the sample, heating in an oven at 110  $\pm$  5°C until the sample reaches constant weight, and weighing after heating. The difference in weight is the moisture content. To be acceptable, the sample shall meet the requirements of 3.3.3.

4.6.3 Heat of reaction. The calorimetric value for heat of reaction shall be determined as follows; the two (2) gram samples (Type II may use samples from crush strength test and Type III (wafer) may use samples from chemical analysis test that have been powdered in a mortar) shall be

placed in the combustion chamber of a Parr Bomb Calorimeter, Model 1221 or approved equivalent. Conduct the test in accordance with the manufacturer's manual Number 120 with the following exceptions:

- (a) Do not add water to the bomb cylinder. The cylinder shall be dried prior to use.
- (b) Purge the bomb three (3) times with helium or argon under 25 atmospheres (atm) and conduct tests maintaining the 25 atm purging gas.

To be acceptable, the sample shall meet the requirements of 3.3.4.

4.6.4 Burn time (Type II (pellet), or as applicable, Type III (wafer)). Connect a variable voltage source to ends of a piece of nichrome ribbon  $3 \pm 1/16 \times 3/32 \pm 1/32 \times .008 \pm .002$  in. thick or equivalent. Adjust the voltage source until the ribbon glows red-orange. Leave voltage source at this setting for remainder of test. With voltage source off and using a new piece of ribbon for each test, wrap the piece of ribbon a minimum of once around the pellet or through the wafer and connect the ribbon to voltage source. (Note: This should be placed in a fume hood or other suitable area.) Place a Solar Systems Detector SS23L or equivalent so that the sample is within the detector field of view at a separation distance of  $4 \pm 0.1$  feet. Connect output to Texas Instruments Chart Recorder PICH-DA2 or equivalent with sensitivity of at least 0.05 Volt/cm and chart speed of at least 5 mm/second. Turn on recorder, turn on voltage source and record burning time of sample. The burn time shall be measured along the baseline of the recorder trace. To be acceptable, the sample shall meet the requirements of 3.3.5.

4.6.5 Crush strength. The crush strength of Type II at a stabilized temperature of  $70 \pm 10$  degrees Fahrenheit ( $^{\circ}$ F) shall be determined, within 12 hours of manufacture, using a F.V. Stokes Company hardness test machine or equivalent. The anvils of the test machine shall be flat and in no way afford any radial support to the sample. An increasing load shall be applied along the longitudinal axis of the sample until cleavage is observed. The load at which cleavage was observed shall be recorded. To be acceptable, the sample shall meet the requirements of 3.3.6.

4.6.6 Configuration. The type II compound (pellet) samples, as specified in Tables IV and VI, and Type III compound (wafer) samples, as specified in Tables IIIA and VA, shall meet the requirements of Figures 1 or 2 (as applicable) and 3.3.7, when examined.

4.6.7 Weight. The Type II compound (pellet) samples as specified in Tables IV and VI and Type III compound (wafer) samples, as specified in Tables IIIA and VA shall meet the requirement of 3.3.8 when weighed on weighing device accurate to  $\pm 0.001$  gram.

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4.6.8 Density. The density of Type III (wafer) shall be determined by such methods as (a) determination of loss of weight in a liquid medium, or (b) determination of weight and volume of liquid displacement. Castor oil is required as the liquid medium. The measurements shall be accurate to the nearest 0.1 milligram. To be acceptable, the sample shall meet the density requirements of 3.3.9.

4.7 Packaging and marking. Examination shall be made to determine compliance with Section 5 of this document.

## 5. PREPARATION FOR DELIVERY

### 5.1 Preservation and packaging.

5.1.1 Level A. The ignition compounds shall be packaged in units of 30 pounds for Type I and Type III powder and 60 pounds for Type II and Type III (wafer). Unit packages shall afford moisture protection by means of sealable liners and indicating desiccants, in accordance with MIL-D-3464. Packaging shall comply in all respects with 49 CFR 171-179.

5.1.2 Level B. Not applicable.

5.1.3 Level C. Not applicable.

### 5.2 Packing.

5.2.1 Level A. Exterior containers shall comply in all respects with 49 CFR 171-179.

5.2.2 Level B. Not applicable.

5.2.3 Level C. Not applicable.

5.3 Marking. In addition to any special marking required by the contract or purchase order, shipments shall be marked in accordance with MIL-STD-129 and 49 CFR 171-179.

## 6. NOTES

6.1 Intended use. Type I, Type II and Type III ignition compounds are the combustible components used in the Igniter, Bomb, MARK 273 MOD 0 and MOD 1.

6.2 Ordering data. Procurement documents should specify:

(a) Title, number, and date of this document.

(b) Instructions to contracting officer for inspection system requirements (see 6.3).



- (c) Quantity of first article lot if different from 3.1.
- (d) Lot if different from 4.2.
- (e) The facility responsible for testing the initial lot sample.
- (f) Type of compound and quantity.
- (g) Responsibility for retest. Retest required under the provisions of 3.1.2(a) and (b) shall be the suppliers responsibility, and shall be conducted as designated by the procuring activity at no additional expense to the Government. Retest required under the provisions of 3.1.2(c) shall be conducted as designated by the procuring activity at Government expense.

6.3 Safety precautions. The loading, assembly, and handling of the explosives, subassemblies, and the finished items covered by this document, involve hazardous operations and therefore require suitable explosives safety precautions. Standard safety precautions for explosive-loaded items are contained in MIL-STD-1314.

6.4 Table IB is a proprietary composition. Permission to use must be obtained from Ordnance Research Inc., P.O. Box 1426, Fort Walton Beach, Florida 32548.

6.5 This specification supersedes Purchase Description AS 2174 of 25 Sept 1970 and Amendment 2 of 11 Aug 1972.

Preparing Activity  
Navy - AS  
Project No. 1325-N054

MIL-I- 81970 (AS)

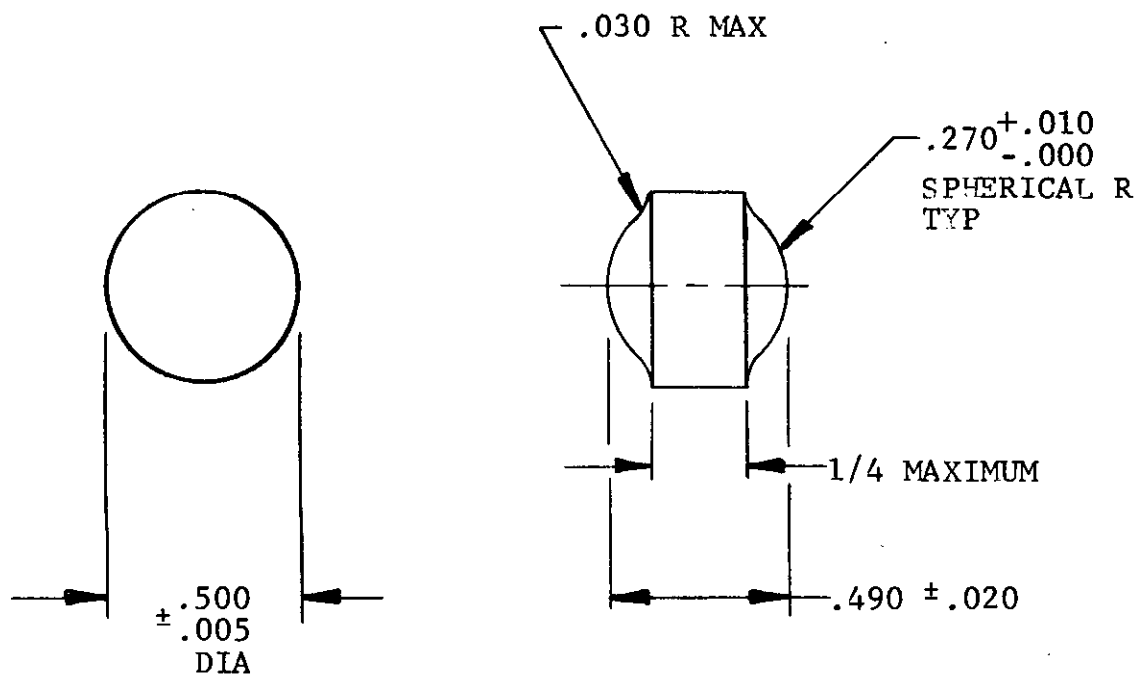


FIGURE 1. TYPE II, PELLET CONFIGURATION.  
DIMENSIONS IN INCHES

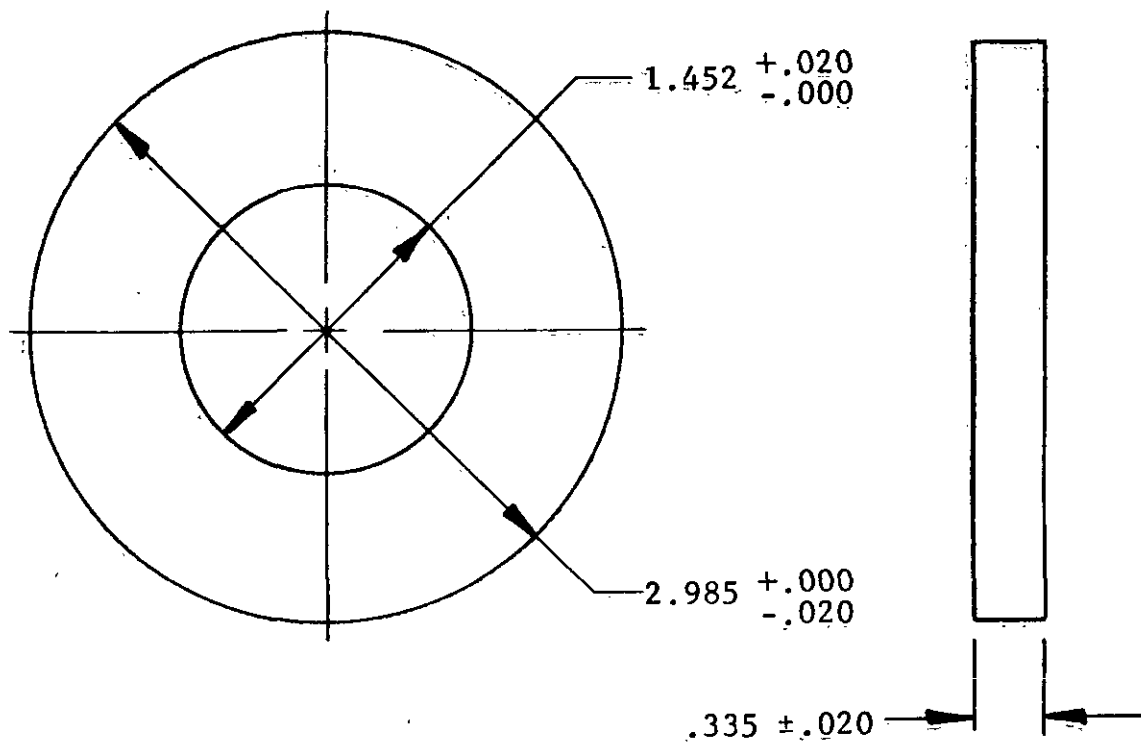


FIGURE 2. TYPE III COMPOUND (WAFER)  
(FOR MK 273 MOD 1 IGNITER ONLY)

DIMENSIONS IN INCHES

FOLD

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DEPARTMENT OF THE NAVY  
Naval Air Engineering Center  
Philadelphia, Pa 19112

POSTAGE AND FEES PAID

Department of the Navy  
DOD 316



OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE \$300

Engineering Specifications and Standards Department (ES)  
Naval Air Engineering Center  
Philadelphia, Pa 19112

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FOLD

## STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

OMB Approval  
No. 22-R255

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## DOCUMENT IDENTIFIER AND TITLE

MIL-I-81970(AS) Ignition Compound

## NAME OF ORGANIZATION AND ADDRESS

## CONTRACT NUMBER

## MATERIAL PROCURED UNDER A

 DIRECT GOVERNMENT CONTRACT     SUBCONTRACT

## 1. HAS ANY PART OF THE DOCUMENT CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?

A. GIVE PARAGRAPH NUMBER AND WORDING.

B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES

## 2. COMMENTS ON ANY DOCUMENT REQUIREMENT CONSIDERED TOO RIGID

## 3. IS THE DOCUMENT RESTRICTIVE?

 YES     NO (If "Yes", in what way?)

## 4. REMARKS

SUBMITTED BY (Printed or typed name and address - Optional)

TELEPHONE NO.

DATE

DD FORM 1426  
1 JAN 72

REPLACES EDITION OF 1 JAN 66 WHICH MAY BE USED

S/N 0102-014-1802