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Interim Revision of
Fed. Spec. R-N-91b
September 14, 1960

# INTERIM FEDERAL SPECIFICATION

## NAPHTHALENE, TECHNICAL

This Interim Federal Specification was developed by the Federal Supply Service, General Services Administration, Washington, D. C. 20407, based upon currently available technical information. It is recommended that Federal agencies use it in procurement and forward recommendations for changes to the preparing activity at the address shown above.

The General Services Administration has authorized Federal agencies to use this Interim Federal Specification as a valid exception to Federal Specification R-N-91b, dated September 14, 1960.

1. SCOPE AND CLASSIFICATION.

1.1 Scope. This specification covers one grade and three classes of naphthalene.

1.2 Classification.

1.2.1 Classes. The naphthalene shall be of the following classes, as specified (6.2).

Class A - Balls
Class B - Flakes
Class C - Crystals

2. APPLICABLE SPECIFICATIONS AND STANDARDS.

2.1 Specifications and standards. The following specifications and standards, of the issues in effect on date of invitation for bids, form a part of this specification.

Federal Specifications:

PPP-B-566 - Boxes, Folding, Paperboard
PPP-B-585 - Boxes, Wood, Wirebound
PPP-B-591 - Boxes, Fiberboard, Wood-Cleated
PPP-B-601 - Boxes, Wood, Cleated-Plywood
PPP-B-621 - Boxes, Wood, Nailed & Lock-Corner
PPP-B-636 - Box, Fiberboard
PPP-B-640 - Boxes, Fiberboard, Corrugated, Triple Wall
PPP-D-723 - Drums, Fiber

Federal Standards:

Fed. Std. No. 102 - Preservation, Packaging, and Packing Levels.
Fed. Std. No. 123 - Marking for Domestic Shipment (Civilian Agencies).

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

(Single copies of this specification and other product specifications required by activities outside the Federal Government for bidding purposes are available without charge at the General Services Administration Regional Offices in Boston, New York, Washington, D.C., Atlanta, Chicago, Kansas City, Mo., Dallas, Denver, San Francisco, Los Angeles, and Seattle, Wash.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129 - Marking for Shipment and Storage.

(Copies of Military Specifications and Standards required by contractors 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 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.

Federal Insecticide, Fungicide, and Rodenticide Act

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

3. REQUIREMENTS.

3.1 Chemical and physical requirements. The naphthalene shall conform to the requirements of Table I, when tested as specified therein.

Table I - Chemical and Physical Requirements

| Property | Requirement | Test method |
|---|---|---|
| Solidifying point, minimum | 79°C. | 4.4.1 |
| Residue on ignition | None | 4.4.2 |
| Solubility in water | Insoluble | 4.4.3 |
| Solubility in boiling ethanol | Soluble | 4.4.4 |

3.2 The material covered by this specification shall conform to the requirements of the Federal Insecticide, Fungicide, and Rodenticide Act

4. SAMPLING, INSPECTION, AND TEST PROCEDURES.

4.1 Responsibility for inspection. Unless otherwise specified, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own or any other inspection facilities and services acceptable to the Government. Inspection records of the examination and test shall be kept complete and available to the Government as specified in the contract or order. 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.

4.2 Sampling for inspection and acceptance. Sampling for inspection and acceptance shall be performed in accordance with the provisions set forth in MIL-STD-105, except where otherwise indicated herein. For purposes of sampling, an inspection lot for acceptance inspection and tests shall consist of all material of the same type submitted for inspection and delivery at one time.

4.2.1 For test. A sample shall be taken from each lot the size to be calculated as one-tenth of the square root of the number of containers in the lot raised to the next higher whole number. If there are fewer than 3 containers in the lot, each container shall be sampled. In all other cases, no fewer than three containers shall be slected. A 1-pound specimen shall be removed from each container in the sample and placed in a clean, dry container labeled to identify the lot and the container from which it was taken. A composite specimen shall be made with equal portions from each specimen except one, and the composite and the individual specimen shall be tested as specified in 4.4. Where there are only 1 or 2 specimens, each one shall be tested.

4.3 Inspection.

4.3.1 Inspection of the material and components. In accordance with 4.1, the supplier is responsible for insuring that materials and components used were manufactured, tested and inspected in accordance with the requirements of referenced subsidiary specifications and standards to the extent specified, or, if none, in accordance with this specification. In the event of conflict, this specification shall govern.

4.3.2 Examination. Sample containers of naphthalene shall be examined for preparation for delivery requirements in accordance with the classification of defects and with MIL-STD-105 at Inspection Level S-2 and Acceptable Quality Level (A.Q.L.) = 4.0 percent defective.

4.3.3 Classification of defects.

4.3.3.1 Preparation for delivery (section 5).

| Categories | Defects |
|---|---|
| Critical: | None defined |
| Major: | AQL 4.0 percent defective |
| 101 | Containers incorrect |
| 102 | Unit container not bagged as specified |
| 103 | Quantity per container incorrect |
| 104 | Container liner or coating missing where specified |
| 105 | Container closure incorrect |
| 106 | Container or bag damage (crushed, torn or punctured) |
| 107 | Strapping loose or missing |
| 108 | Marking incorrect, missing or illegible |

4.4 Test procedures.

Distilled water and analytical reagent grade chemicals shall be used throughout the tests. Where applicable blank determinations shall be run and corrections applied where significant. Tests shall be conducted as follows:

4.4.1 Solidifying point.

4.4.1.1 Apparatus. The apparatus consists of a 7/8-inch test tube, 7 inches long, surrounded by an air jacket which may consist of a bottle. The bottle is closed by a stopper which supports the test tube. This stopper should not be more than three fourths of an inch thick. If desired, the test tube containing the naphthalene may be introduced into a slightly larger test tube which is supported by the stopper of the bottle. The test tube carries a stopper one fourth of an inch thick, with suitable perforations for thermometer and stirrer. The stirrer consists of a loop of glass or platinum with a glass stem, the loop surrounding the thermometer. The test tube with its jacket is placed in a water bath. The level of the water in the water bath should be at least as high as the level of the melted naphthalene. A stirrer in the water bath is not necessary. A calibrated thermometer graduated between 74° and 102° in 0.1°C. shall be used.

4.4.1.2 Procedure. Melt the specimen of naphthalene in the test tube or in a suitable cover vessel, but do not heat above 90°C. in order to avoid loss of volatile matter. Do not heat longer than necessary. Transfer the naphthalene to the solidifying point apparatus (4.4.1.1) but do not pour into a cold tube. The temperature of the water bath shall be between 70° and 75°C., and it need not be heated during the determination. Adjust thermometer and stirrer, which has been previously warmed. This should raise the level of the melted naphthalene to about one-half inch below the stopper. The bottom of the thermometer bulb should be at least one third of an inch above the bottom of the test tube. After the temperature of the naphthalene reaches 81°C., take the readings every half minute, stirring the naphthalene continuously but not violently. In making the readings estimate to the nearest 0.01° C., taking the usual precautions to avoid parallax. The solidifying point corresponds to the first series of five or more readings during which the temperature remains constant (change not over 0.02°C.). Usually supercooling will occur, in which case the constant temperature will be observed immediately after the supercooling ceases. In case the five readings are not identical, take the average of the five readings.

4.4.2 Residue on ignition. Weigh to the nearest milligram (mg.) approximately 5 grams (g.) of the specimen into a tared crucible. Burn off the combustible matter slowly and ignite the residue until all of the carbonaceous matter is burnt. There shall be no weighable residue left.

4.4.3 Solubility in water. Place approximately 5 g. of the specimen in a beaker with 25 milliliters (ml.) of water and stir for about 5 minutes. Filter and evaporate the filtrate to dryness over a steam bath. No residue shall remain from the evaporated filtrate.

4.4.4 Solubility in alcohol. Transfer approximately 5 g. of the specimen to a beaker containing about 300 ml. of ethanol. Heat the alcohol to boiling for about 5 minutes while stirring the contents of the beaker. The specimen shall dissolve completely and result in a clear solution.

4.5 Acceptance/rejection criteria. If the individual or composite specimen fails to meet the requirements of this specification when tested as specified in 4.4, the lot represented shall be rejected.

5. PREPARATION FOR DELIVERY.

(For civil agency procurement, the definitions and applications of the levels of packaging and packing shall be in accordance with Fed. Std. No. 102.)

5.1 Packaging. Packaging shall be level A, B or C as specified (6.2).

5.1.1 Level A. One pound quantities of naphthalene shall be packaged in boxes of appropriate size conforming to PPP-B-566, style 1, type A, class optional. Closure and sealing shall be in accordance with the appendix to the box specification.

5.1.1.1 Intermediate packaging. Ten (10) unit packages of naphthalene shall be intermediate packaged in a close-fitting box conforming to PPP-B-636, class weather-resistant. Closure and sealing shall be in accordance with the appendix to the box specification.

5.1.2 Level B. The naphthalene shall be packaged as specified in 5.1.1.

5.1.2.1 Intermediate packaging. Ten (10) unit packages of naphthalene shall be intermediate packaged as specified in 5.1.1.1, except that the box shall be class domestic. Closure and sealing shall be in accordance with the appendix to the box specification.

5.1.3 Level C. The naphthalene shall be packaged in accordance with the supplier's commercial practice.

5.2 Packing. Packing shall be level A, B or C as specified (6.2).

5.2.1 Level A. The naphthalene, packaged as specified in 5.1.1.1, shall be packed in any of the following containers at the option of the contractor:

| Specification | Type and class |
|---|---|
| PPP-B-585 | Class 3 |
| PPP-B-591 | Overseas type |
| PPP-B-601 | Overseas type |
| PPP-B-621 | Class 2 |
| PPP-B-636 | Class weather-resistant |
| PPP-B-640 | Class 2, grade A |

The gross weight of wood boxes shall not exceed 200 pounds. The gross weight of fiberboard boxes shall be subject to the limitation of the box specification. Closure and strapping shall be in accordance with the appendix to the applicable specification.

5.2.1.1 Bulk quantities. The naphthalene shall be packed in drums conforming to PPP-D-723, type II, grade A. Each drum shall be provided with an interior lining or coating which shall neither affect nor be affected by the contents.

5.2.2 Level B. Six (6) intermediate packages of naphthalene shall be packed in a box conforming to PPP-B-636, class domestic. Closure shall be in accordance with the appendix to the box specification.

5.2.3 Level C. The naphthalene shall be packed to insure carrier acceptance and safe delivery at destination in containers complying with the rules and regulations applicable to the mode of transportation.

5.3 Standard pack (civil agency procurements). The standard pack for civil agency procurements shall be as specified in 5.1.2 and 5.2.2 (6.3).

5.4 Marking.

5.4.1 Civil agencies. In addition to markings required by the contract or order, the packages and shipping containers shall be marked in accordance with Fed. Std. No. 123.

5.4.2 Military activities. In addition to markings required by the contract or order, the packages and shipping containers shall be marked in accordance with MIL-STD-129.

6. NOTES.

6.1 Intended use. The naphthalene covered by this specification is intended for use as an insecticide, primarily as a moth preventive. The class c crystal form should be stored at temperature below 85°F. Naphthalene is not compatible with paradichlorobenzene. As crystal naphthalene resembles the normal commercial paradichlorobenzene item, care should be taken not to use these two items interchangeably.

6.2 Ordering data. Procurement documents should specify:

(a) Title, number, and date of specification
(b) Class of material required
(c) Unit quantities and level of packaging and packing.

6.3 Standard pack for civil agencies. The standard pack requirements in 5.3 are intended for use in procurements of stores stock replenishments. Procuring officers should use the standard pack requirements when it is known that the material will be shipped from a supplier to a domestic warehouse, supply depot or intermediate storage point for temporary storage, subsequent issue or shipment to eventual user.