

TT-N-95b  
 July 10, 1967  
 SUPERSEDING  
 Fed. Spec. TT-N-95a  
 January 11, 1955

FEDERAL SPECIFICATION

NAPHTHA; ALIPHATIC

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers aliphatic naphtha of the types suitable for use in organic coatings and as a cleaner for acrylic plastics.

1.2 Classification. Aliphatic naphtha shall be of one grade and of the following types, as specified (see 6.2):

Type I - For organic coatings.  
 Type II - For cleaning acrylic plastics.<sup>1/</sup>

2. APPLICABLE DOCUMENTS

2.1 Specifications and standards. The following specifications and standards, of the issues in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

Federal Specifications:

TT-P-143 - Paint, Varnish, Lacquer, and Related Materials; Packaging, Packing, and Marking.  
 CCC-C-458 - Cloth, Flannel, Cotton.

Federal Standards:

Fed. Std. No. 123 - Marking For Domestic Shipment (Civilian Agencies).  
 Fed. Test Method Std. No. 141 - Paint, Varnish, Lacquer, and Related Materials; Methods of Inspection, Sampling, and Testing.  
 Fed. Test Method Std. No. 791 - Lubricants, Liquid Fuels, and Related Products; Methods of Testing.

(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., Fort Worth, 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 Specification:

MIL-P-5425 - Plastic, Sheet, Acrylic, Heat Resistant.

Military Standards:

MIL-STD-129 - Marking for Shipment and Storage.  
 MIL-STD-290 - Packaging, Packing and Marking of Petroleum and Related Products.

(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.)

<sup>1/</sup> Type II naphtha may also be used for any application requiring type I.

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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.

Interstate Commerce Commission:

49CFR 71-90- Interstate Commerce Commission Rules and Regulations for the Transportation of Explosives and Other Dangerous Articles.

(The Interstate Commerce Commission regulations are a part of the Code of Federal Regulations available from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., 20402. Application for orders should cite "49CFR 71-90".)

3. REQUIREMENTS

3.1 Physical properties. The physical properties of aliphatic naphtha types I and II, shall conform to the requirements of table I.

3.2 Acrylic crazing (type II only). Type II aliphatic naphtha shall not cause crazing of acrylic plastics when tested as specified in section 4. Edge crazing, when observed within 1/8 inch from edge of specimen, shall be disregarded.

TABLE I. Requirements for types I and II naphtha

	Requirement
Appearance	Clear; free from suspended matter and undissolved water
Color, saybolt, minimum	+25
Odor	Normal
Copper corrosion	No blacking or corroding of clean metallic copper
Distillation (at 760 mm. pressure):	
Initial boiling point	85° C., maximum
10 percent fraction (by volume)	102° C., maximum
50 percent fraction (by volume)	107° C., maximum
90 percent fraction (by volume)	121° C., maximum
End point	143° C., maximum
Acidity	No free mineral acid
Doctor test	Negative
Spot test	Negative
Specific gravity at 20°/20° C.	0.708, minimum-0.768, maximum
Nonvolatile matter, maximum, grams per 100 milliliters	0.005
Kauri-butanol value	30, minimum-45, maximum

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, the supplier may utilize his own facilities or any commercial laboratory acceptable to 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 that supplies and services conform to prescribed requirements.

4.2 Sampling, inspection, and testing. Unless otherwise specified, sampling, inspection, and testing of naphtha shall be in accordance with methods 1011, 1021, and 1031 of Fed. Test Method Std. No. 141.

4.2.1 Inspection of preparation for delivery. An inspection shall be made to determine that the packaging, packing, and marking requirements comply with section 5.

4.3 Test methods. Tests shall be made in accordance with the applicable methods of Fed. Test Method Std. Nos. 141 and 791, and as specified hereinafter.

4.3.1 The following tests shall be conducted in accordance with Fed. Test Method Std. No. 141:

Test	Method No.
Appearance <sup>1/</sup> .....	4261
Distillation .....	4301.1
Odor .....	4401
Copper corrosion .....	5101.1
Kauri-butanol .....	5191

<sup>1/</sup> Examine also for the presence of water.

4.3.2 The following tests shall be conducted in accordance with Fed. Test Method Std. No. 791:

Test	Method No.
Color <sup>1/</sup> .....	101.6
Doctor test .....	5203.2

<sup>1/</sup> Twenty-five on the saybolt chromometer is approximately equivalent to the color of a freshly prepared solution of 0.0030 grams of A.C.S. reagent grade potassium dichromate in liter of distilled water.

4.3.3 Acidity. The cooled residue from the distillation test of 4.3.1 shall be collected in a test tube from the distillation flask, three volumes of distilled water added, and the tube shaken thoroughly. The mixture shall be allowed to separate, and the aqueous layer shall be removed to a clean test tube by means of a pipette. One drop of 1 percent aqueous solution of methyl orange shall be added. A pink or red color indicates the presence of mineral acid.

4.3.4 Spot test. Five drops of the sample shall be transferred by means of a small pipette or burette to the center of a clean white filter paper supported on a 7-centimeter crystallizing dish. The liquid shall be permitted to evaporate at room temperature, away from direct sunlight, and examined after 30 minutes for the presence of an oily spot or other residual matter.

4.3.5 Specific gravity. Specific gravity shall be determined at 20°/20° C. (68°/68° F.) by any convenient method that is accurate to the third decimal place.

4.3.6 Nonvolatile matter. One hundred milliliters of the sample shall be placed in a weighed porcelain dish and evaporated over a steam bath or hotplate almost to dryness. The operation should be performed in the hood, away from open flames. The dish with residue shall be heated in an oven at 105° ± 2° C. (221° ± 4° F.) to constant weight, then cooled and weighed. The difference in weight shall be reported as grams of nonvolatile matter per 100 milliliters of the sample.

4.3.7 Acrylic crazing (type II only). Three specimens of acrylic plastic conforming to MIL-P-5425, shall be cut and assembled as a cantilever beam as shown in figure 1, and loaded to a maximum tensile outer fiber stress of 2000 pounds per square inch (p.s.i.) at the fulcrum. The required load for each specimen shall be computed as follows:

$$P = \frac{Sbd^2}{6L}$$

Where:

P = Load in pounds.  
 S = Stress in pounds per square inch (=2000).  
 L = Distance from fulcrum to load in inches (=4).  
 b = Width of panel in inches (measured to nearest 0.001 inch).  
 d = Thickness of panel in inches (measured to nearest 0.001 inch).

Ten minutes after the panels have been stressed they shall be examined for craze. Panels showing craze shall be replaced. After the ten minute period, the naphtha being tested shall be wiped on, while the panel is under load, with a saturated clean flannel cloth conforming to CCC-C-458, type III, class 1, to the top (tension) side of the specimen at intervals of 0,7,24, and 31 hours. After 48 hours, examination for craze shall be made while the specimens are under stress. The specimen shall be observed for crazing over a source of light at such an angle that the light will be reflected to the eye from the surfaces of any crazing fissures which are present. To prevent heating of specimens, the light source shall be utilized only when examining the specimen for craze.

## 5. PREPARATION FOR DELIVERY

### 5.1 Packaging and packing.

5.1.1 Civil agencies. Naphtha shall be packaged and packed in accordance with the requirements as specified in TT-P-143, in the quantity and for the applicable level as specified in the contract or order (see 6.2).

5.1.2 Military agencies. Naphtha shall be packaged and packed in accordance with the requirements as specified for solvents in MIL-STD-290, in the quantity and for the applicable level as specified in the contract or order (see 6.2).

5.2 Marking. In addition to any special marking required by the contract or order, marking for shipment shall be in accordance with the requirements of Fed. Std. No. 123 for civil agency, or MIL-STD-129 for Military agency procurement, as applicable.

5.2.1 I.C.C. and warning labels. Each shipping container, each can packed therein, and each pail or drum requiring no overpacking shall bear, in addition to the label prescribed in the Code of Federal

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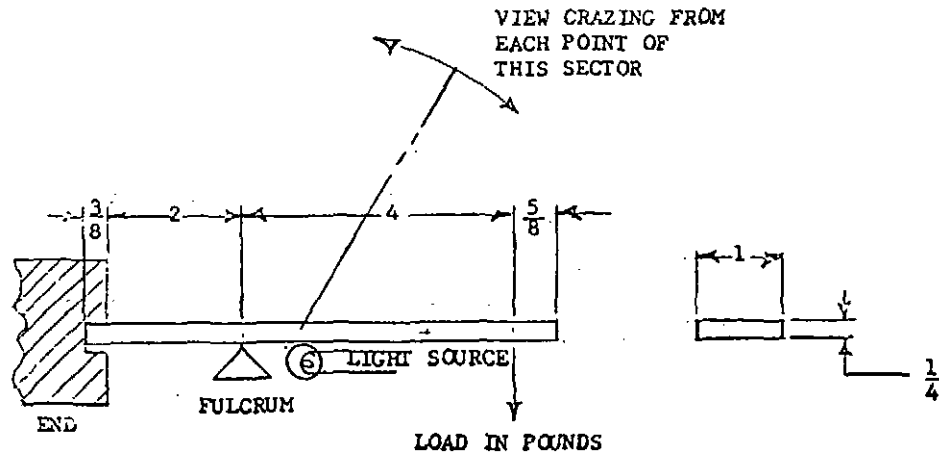
DIMENSIONS IN INCHES, TOLERANCES  $\pm 1/32$ 

FIGURE 1. Stress Crazing Beam

Regulations, Title 49, Transportation Parts 71 to 78, a label written in red letters as follows:

**WARNING: FLAMMABLE VAPOR HARMFUL**

Keep away from heat and open flame.  
 Keep container closed.  
 Use with adequate ventilation.  
 Avoid prolonged breathing of vapor.  
 Avoid prolonged or repeated contact with skin.

In addition, the following precautionary marking shall appear on containers containing type I naphtha:

"DO NOT USE ON ACRYLIC PLASTIC"

Container containing type II naphtha should be marked:

"This type II material may be used for any application requiring type I material."

#### 6. NOTES

6.1 Intended use. Both types of aliphatic naphtha covered by this specification are low-boiling, fast-evaporating thinners. Type I is intended for use in the manufacture of organic coatings, and type II for use in cleaning acrylic plastics.

6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in procurement documents:

- (a) Title, number, and date of this specification.
- (b) Type of aliphatic naphtha required (see 1.2).
- (c) Size and type of containers required.
- (d) Levels of packaging and packing required (see 5.1).
- (e) Quantity desired (include applicable temperature for volume correction of different than 60° F.).

6.3 Purchase unit. Aliphatic naphtha shall be furnished either (a) by volume, the unit being a gallon of 231 cubic inches at 60° F. (15.5° C.), or (b) by weight in units of a pound or of 100 pounds. The exact weight in pounds per gallon of any sample may be determined by multiplying the specific gravity at 60°/60° F. (15.5°/15.5° C.) by 8.33.

6.4 Correction of volume. If the volume of naphtha is corrected to the standard temperature

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of 60° F. (15.5° C.), the correction shall be made by means of factors given for group 3, table 7 of ASTM-IP Petroleum Measurement Tables published by the American Society for Testing and Materials, Philadelphia, Pa., 19103. Volume corrections ordinarily are not made on less than tank car deliveries.

MILITARY INTEREST:

Custodians:

Army - MU  
Navy - AS  
Air Force - 68

Review activities:

Army - MU  
Navy - AS  
Air Force - 68

User activities:

Navy - SH, MC, OS

Preparing activity:

Navy - AS

CIVIL AGENCY INTEREST:

Interested activity:

GSA-FSS

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Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein. Price 5 cents each.

SPECIFICATION ANALYSIS SHEET		Form Approved Budget Bureau No. 119-R004	
<b>INSTRUCTIONS</b>			
This sheet is to be filled out by personnel either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity (as indicated on reverse hereof).			
SPECIFICATION			
ORGANIZATION (Of submitter)		CITY AND STATE	
CONTRACT NO.	QUANTITY OF ITEMS PROCURED	DOLLAR AMOUNT	
		\$	
MATERIAL PROCURED UNDER A			
<input type="checkbox"/> DIRECT GOVERNMENT CONTRACT		<input type="checkbox"/> SUBCONTRACT	
1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?			
A. GIVE PARAGRAPH NUMBER AND WORDING.			
B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES.			
2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID			
3. IS THE SPECIFICATION RESTRICTIVE?			
<input type="checkbox"/> YES		<input type="checkbox"/> NO IF "YES", IN WHAT WAY?	
4. REMARKS (Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)			
SUBMITTED BY (Printed or typed name and activity)		DATE	

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