

**FOAM, FIRE EXTINGUISHING LIQUID
Protein and Fluoroprotein**

1. SCOPE:

- 1.1 Form: This specification covers two types of fire extinguishing foam concentrate in the form of a liquid.
- 1.2 Application: Primarily for use in mechanical generating equipment for extinguishing fires in flammable liquids such as gasoline and oils. At time of use, six parts of the concentrate will be diluted with 94 parts of fresh or sea water to form a fire extinguishing liquid.
- 1.3 Classification: This specification covers two types of foam concentrate as follows:

Type I - Protein
Type II - Fluoroprotein

1.3.1 Unless a specific type is ordered, either type may be supplied.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications and Aerospace Recommended Practices shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

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2.1.1 Aerospace Material Specifications:

- AMS 2350 - Standards and Test Methods
- AMS 2470 - Anodic Treatment of Aluminum Alloys, Chromic Acid Process
- AMS 2475 - Protective Treatments, Magnesium Alloys
- AMS 2825 - Material Safety Data Sheets
- AMS 4037 - Aluminum Alloy Sheet and Plate, 4.4Cu - 1.5Mg - 0.60Mn
(2024; -T3 Flat Sheet, -T351 Plate)
- AMS 4041 - Aluminum Alloy Sheet and Plate, Alclad, 4.4Cu - 1.5Mg -
0.60Mn (Alclad 2024 and 1-1/2% Alclad 2024-T3 Flat Sheet;
1-1/2% Alclad 2024-T351 Plate)
- AMS 4049 - Aluminum Alloy Sheet and Plate, Alclad, 5.6Zn - 2.5Mg - 1.6Cu -
0.23Cr (Alclad 7075; -T6 Sheet, -T651 Plate)
- AMS 4376 - Magnesium Alloy Plate, 3.0Al - 1.0Zn (AZ31B-H26)
- AMS 4911 - Titanium Alloy Sheet, Strip, and Plate, 6Al - 4V, Annealed
- AMS 5045 - Steel Sheet and Strip, 0.25 Max Carbon, Hard Temper

2.1.2 Aerospace Recommended Practices:

- ARP 1511 - Corrosion of Low-Embrittling Cadmium Plate by Aircraft
Maintenance Chemicals
- ARP 1512 - Corrosion of Aluminum Alloys by Aircraft Maintenance Chemicals,
Sandwich Test

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

- ASTM D96 - Water and Sediment in Crude Oils
- ASTM D97 - Pour Point of Petroleum Oils
- ASTM D445 - Kinematic Viscosity of Transparent and Opaque Liquids (and
the Calculation of Dynamic Viscosity)
- ASTM D460 - Sampling and Chemical Analysis of Soap and Soap Products
- ASTM D910 - Aviation Gasolines
- ASTM D1193 - Reagent Water
- ASTM D1298 - Density, Relative Density (Specific Gravity), or API Gravity
of Crude Petroleum and Liquid Petroleum Products by Hydrometer
Method
- ASTM E11 - Wire Cloth Sieves for Testing Purposes
- ASTM E70 - pH of Aqueous Solutions with the Glass Electrode
- ASTM F483 - Total Immersion Corrosion Test for Aircraft Maintenance
Chemicals
- ASTM F484 - Stress Cracking of Acrylic Plastics in Contact with Liquid or
Semi-Liquid Compounds
- ASTM F502 - Effects of Cleaning and Chemical Maintenance Materials on
Painted Aircraft Surfaces
- ASTM F519 - Mechanical Hydrogen Embrittlement Testing of Plating Processes
and Aircraft Maintenance Chemicals

2.3 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Military Specifications:

MIL-P-25690 - Plastic, Sheets and Parts, Modified Acrylic Base,
Monolithic, Crack Propagation Resistant

2.3.2 Military Standards:

MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing of

3. TECHNICAL REQUIREMENTS:

3.1 Material: Shall be essentially a concentrated, homogeneous solution of hydrolyzed proteins, foam stabilizers, metallic salts, and other additives as required to produce a product meeting the requirements of 3.2. For Type II foam, fluorine-based and other surfactants may be included to produce a fluoroprotein type agent meeting the requirements of 3.2.

3.2 Properties: The product shall conform to the following requirements; tests shall be performed in accordance with specified test methods on the product supplied in concentrated form, except as specified in 3.2.8:

3.2.1 Specific Gravity: Shall be not lower than 1.12, determined in accordance with ASTM D1298 at 15°/15°C (60°/60°F).

3.2.1.1 Specific gravity of production shipments of the product shall be within +0.03 of the preproduction value, established as in 4.4.1, but in no case lower than 1.12.

3.2.2 Viscosity (Kinematic):

3.2.2.1 At 0°C (32°F): Shall be not greater than 110 cSt (110 mm²/s), determined in accordance with ASTM D445 at 0°C (32°F). Viscosity of production shipments of the product shall be within +20 cSt (+20 mm²/s) of the preproduction value established as in 4.4.1, but in no case greater than 110 cSt (110 mm²/s).

3.2.2.2 At 20°C (68°F): Shall be not greater than 30 cSt (30 mm²/s), determined in accordance with ASTM D445 at 20°C (68°F).

3.2.3 pH: Shall be 6.5 - 7.5, determined in accordance with ASTM E70 at 20°C (68°F).

3.2.3.1 The pH shall not vary from the range 6.0 - 7.5, determined in accordance with ASTM E70 at 20°C (68°F) on a 6% solution of the product in synthetic sea water of the following nominal composition:

% by Weight

Magnesium Chloride (MgCl ₂ ·6H ₂ O)	1.10
Calcium Chloride (CaCl ₂ ·2H ₂ O)	0.16
Anhydrous Sodium Sulfate (Na ₂ SO ₄)	0.40
Sodium Chloride, C.P. (NaCl)	2.50
ASTM D1193 Water	95.84

- 3.2.3.2 The pH value of production shipments of the product shall be within ± 0.4 of the preproduction value, established as in 4.4.1 at 20°C (68°F), but in no case shall be outside the range 6.5 - 7.5.
- 3.2.3.3 The pH value of the product, after high temperature stability test at 60°C (140°F) of 3.2.7.2, shall be within ± 0.6 of the preproduction value, established as in 4.4.1, but in no case shall be outside the range 6.5 - 7.5.
- 3.2.4 Pour Point: Shall be not higher than -9°C (16°F), determined in accordance with 4.5.1. The pour point of production shipments of the product shall be within $+3^{\circ}\text{C}$ ($+5^{\circ}\text{F}$) of the preproduction value, established as in 4.4.1, but shall be not higher than -9°C (16°F).
- 3.2.5 Sedimentation: Shall be not greater than 0.25% by volume, determined in accordance with ASTM D96. Sediment, if present, shall be completely dispersible on mild shaking and shall readily pass through an 80-mesh (180- μm) screen, determined in accordance with 4.5.2.
- 3.2.6 Precipitation: The product shall be readily miscible with synthetic sea water (See 3.2.3.1) and shall show a precipitation of not more than 0.05% by volume, determined in accordance with 4.5.3.
- 3.2.7 Stability:
- 3.2.7.1 At -65°C (-85°F): Sedimentation shall not exceed 0.25% by volume, determined in accordance with 4.5.4. Sediment, if present, shall be completely dispersible on mild shaking and shall readily pass through an 80-mesh (180- μm) screen.
- 3.2.7.2 At 60°C (140°F): The product shall not show any physical, chemical, or performance changes in excess of limits permitted in 3.2.1.1, 3.2.2, 3.2.3.2, 3.2.4, 3.2.5, 3.2.6, 3.2.8 and 3.2.9 except that the product shall have sedimentation not greater than 1.0% by volume, determined in accordance with 4.5.5. Sediment, if present, shall be completely dispersible on mild shaking and shall readily pass through an 80-mesh (180- μm) screen.
- 3.2.8 Foam Characteristics:
- 3.2.8.1 Foam Expansion: The foam generated at $20^{\circ}\text{C} + 2$ ($68^{\circ}\text{F} + 4$) from a 6% by volume premixed solution of the product in tap water shall have an expansion ratio greater than 7:1, determined in accordance with 4.5.6.1.
- 3.2.8.2 Drainage: The foam generated at $20^{\circ}\text{C} + 2$ ($68^{\circ}\text{F} + 4$) from a 6% by volume premixed solution of the product in tap water shall have a 25% drainage time greater than 6.5 min., determined in accordance with 4.5.6.2.
- 3.2.9 Fire Extinguishment:

3.2.9.1 Coverage: The product as received and after exposure at 60°C (140°F) as in 3.2.7.2 shall control and completely extinguish the fire in the time periods shown below, determined in accordance with 4.5.7:

	90% Control	Total Extinguishment
Type I	140 sec	180 sec
Type II	75 sec	110 sec

3.2.9.2 Fluidity: The product shall extinguish the fire in a positive and progressive manner after start of foam application. The foam produced shall form a continuous blanket over gasoline, shall flow readily into corners of the tank, and shall not break up into separate masses or voids in the foam blanket, determined in accordance with 4.5.7.

3.2.9.3 Burnback: The foam blanket shall prevent complete reinvolvement of the fire within 10 min., determined in accordance with 4.5.8.

3.2.10 Corrosion of Metal Surfaces:

3.2.10.1 Sandwich Corrosion: Specimens, after test, shall show a rating not worse than 2, determined in accordance with ARP 1512.

3.2.10.2 Total Immersion Corrosion: The product shall neither show evidence of corrosion nor cause a weight change of any single test panel greater than the following, determined in accordance with ASTM F483:

Test Panel	Weight Change mg/cm ² per 24 hr
AMS 4037 - Aluminum Alloy, anodized as in AMS 2470	0.3
AMS 4041 - Aluminum Alloy	0.3
AMS 4049 - Aluminum Alloy	0.3
AMS 4376 - Magnesium Alloy, dichromate treated as in AMS 2475	0.2
AMS 4911 - Titanium Alloy	0.1
AMS 5045 - Carbon Steel	0.8

3.2.10.3 Low-Embrittling Cadmium Plate: Test panels coated with low-embrittling cadmium plate shall not show a weight change greater than 0.3 mg/cm² per 24 hr, determined in accordance with ARP 1511.

3.2.11 Hydrogen Embrittlement: The product shall be non-embrittling, determined in accordance with ASTM F519, Method 1a, 1c or 2a.

3.2.12 Effect on Painted Surfaces: The product shall neither decrease the paint film hardness by more than two pencil hardness levels nor shall it produce any blistering of the paint film, determined in accordance with ASTM F502.

- 3.2.13 Effect on Transparent Plastic: Crazing, staining, or discoloring of MIL-P-25690 stretched acrylic plastic by the product shall be determined in accordance with ASTM F484 and the results reported but evidence of crazing, staining, or discoloring shall not be cause for rejection of the product.
- 3.2.14 Rinsibility: The product shall be completely rinsible in tap water, determined in accordance with 4.5.10.
- 3.3 Quality: The product, as received by purchaser, shall be uniform in quality and condition, clean, homogeneous, and free from foreign materials detrimental to intended use of the product.
4. QUALITY ASSURANCE PROVISIONS:
- 4.1 Responsibility for Inspection: The vendor of the product shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.6. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to the requirements of this specification.
- 4.2 Classification of Tests:
- 4.2.1 Acceptance Tests: Tests to determine conformance to requirements for viscosity (3.2.2), stability (3.2.7), foam characteristics (3.2.8), fire extinguishment (3.2.9), sandwich corrosion (3.2.10.1), and quality (3.3) are classified as acceptance tests and shall be performed on each lot.
- 4.2.2 Periodic Tests: Tests to determine conformance to requirements for specific gravity (3.2.1), pH (3.2.3), pour point (3.2.4), sedimentation (3.2.5), and precipitation (3.2.6) are classified as periodic tests and shall be performed at a frequency selected by the vendor unless frequency of testing is specified by purchaser.
- 4.2.3 Preproduction Tests: Tests to determine conformance to all technical requirements of this specification are classified as preproduction tests and shall be performed prior to or on the initial shipment of the product to a purchaser, when a change in ingredients, processing, or both requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.
- 4.2.3.1 For direct U.S. Military procurement, substantiating test data and, when requested, preproduction test material shall be submitted to the cognizant agency as directed by the procuring activity, the contracting officer, or the request for procurement.
- 4.3 Sampling: Shall be in accordance with all requirements of ASTM D460 as applicable to liquid soap; a lot shall be all foam concentrate produced in one continuous manufacturing operation from the same batches of raw materials and presented for vendor's inspection at one time.

4.3.1 When a statistical sampling plan and acceptance quality level (AQL) have been agreed upon by purchaser and vendor, sampling shall be in accordance with such plan in lieu of sampling as in 4.3 and the report of 4.6 shall state that such plan was used.

4.4 Approval:

4.4.1 Sample foam shall be approved by purchaser before foam for production use is supplied, unless such approval be waived by purchaser. Results of tests on production foam shall be essentially equivalent to those on the approved sample.

4.4.2 Vendor shall use ingredients, manufacturing procedures, and methods of inspection on production foam which are essentially the same as those used on the approved sample foam. If necessary to make any change in ingredients or in manufacturing procedures, vendor shall submit for reapproval a statement of the proposed changes in material, processing, or both and, when requested by purchaser, sample foam. Production foam made by the revised procedure shall not be shipped prior to receipt of reapproval.

4.5 Test Methods: Shall be as follows:

4.5.1 Pour Point: Shall be determined in accordance with ASTM D97 and the following: The temperature of the cooling bath shall be maintained between -40° and -45°C (-40° and -50°F). The jacket containing the test jar shall be supported in a vertical position in the cooling bath so that not more than 1 in. (25 mm) of the jacket projects out of the cooling medium. Beginning at a foam liquid temperature of -10°C (15°F) and continuing to decrease at 0.5°C (1°F) intervals, the test jar shall be removed from the jacket and shall be tilted just enough to determine whether there is any movement of the foam in the jar. The complete operation of removal and replacement shall not require more than 3 seconds. As soon as the foam does not flow when the jar is tilted, the jar shall be held in a horizontal position for 5 seconds. If the foam shows any movement under these conditions, the jar shall immediately be replaced in the jacket and the test shall be repeated at the next lower 0.5°C (1°F). The test shall be continued in this manner until a temperature is reached at which the liquid foam in the jar shows no movement when the jar is held in a horizontal position for 5 seconds. The temperature of the liquid foam at this point shall be noted and the pour point shall be recorded as the temperature 2°C (3°F) above this point.

4.5.2 Sedimentation: A representative sample shall be taken from the container after thoroughly mixing the contents. Sedimentation shall be determined in accordance with ASTM D96, using the cone-shaped tube, except that the solvent and emulsifier shall not be added and the tests shall be conducted at $20^{\circ}\text{C} + 1$ ($68^{\circ}\text{F} + 2$). One pint (475 mL) of the thoroughly stirred liquid foam shall be filtered through an 80-mesh (180- μm) screen filter conforming to ASTM E11. The screen shall be approximately 1 in. (25 mm) in diameter and mounted in a brass or corrosion-resistant steel frame 10 in. (250 mm) long.

- 4.5.3 Precipitation: A portion of the supernatant liquid obtained after the sedimentation tests (See 4.5.2) shall be used in preparing a 6% solution of the foam in synthetic sea water (See 3.2.3.1). Determine presence of precipitation using the method specified in 4.5.2.
- 4.5.4 Stability at -65°C (-85°F): Representative samples shall be taken from a previously unopened container of foam after thoroughly mixing the contents. A sample shall be placed in a polyethylene container, sealed, and rapidly solidified by exposure to a temperature not higher than -65°C (-85°F) for 24 hr + 0.25. The polyethylene container shall be hammered with a mallet to break up the solidified foam into small pieces which shall be transferred to a 100 mL centrifuge tube and a 1 pint (475 mL) wide mouth bottle, both of which shall then be capped. The centrifuge tube and bottle shall be exposed for 7 days to -5°C + 1 (23°F + 2) and, at the end of 7 days, returned to room temperature. Sedimentation in the centrifuge tube shall be determined in accordance with 4.5.2. The 1 pint (475 mL) sample shall be filtered as in 4.5.2 through an 80-mesh (180- μ m) screen conforming to ASTM E11.
- 4.5.5 Stability at 60°C (140°F): The foam in an unopened container shall be heated to 60°C + 1 (140°F + 2) within 4 hr, held at heat for 24 hr + 0.25, and then cooled to room temperature. The foam in the container may be heated to 60°C + 1 (140°F + 2) by immersion of the container in an upright position to within 1 in. (25 mm) of the top of the container in a water bath maintained at 60°C + 1 (140°F + 2). The container may be permitted to remain immersed in the water bath for the 24-hr period or may be transferred to a circulating-air oven maintained at 60°C + 1 (140°F + 2) for the 24 hr storage period. After cooling to room temperature, the contents of the container shall be thoroughly mixed and the liquid foam tested for conformance to the requirements of 3.2.7.2. A 100 mL sample of the thoroughly mixed foam in a centrifuge tube and a 1 pint (475 mL) sample in a wide-mouth bottle shall be heated as above to 60°C + 1 (140°F + 2), held at heat for 24 hr + 0.25, and sedimentation in the container, the centrifuge tube, and the wide mouth bottle, determined in accordance with 4.5.2. The contents of the 1 pint (475 mL) bottle shall be filtered as in 4.5.2 through an 80-mesh (180- m) screen conforming to ASTM E11.
- 4.5.6 Foam Production: Shall be performed using the 5 L per min. branchpipe shown in Fig. 1. A 6% solution of foam liquid shall be prepared at 20°C + 2 (68°F + 4) using tap or synthetic sea water (as defined in 3.2.3.1). The premixed solution shall be delivered to the branch-pipe from a 20 L pressurized container through a 12 mm bore diameter hose. A pressure of 100 psig (690 kPag) is applied to the container and maintained throughout the foam production operation. The branchpipe shall be supported horizontally with the by-pass outlet holes directed vertically downwards. The collar of the by-pass outlet section shall be adjusted so that the discharge from the nozzle is between 725 and 775 g per minute. This is ascertained by collecting the discharge over a period of six sec in a suitable container and weighing. Two consecutive weighings shall be within the specified limits. Before collecting each sample, the branchpipe shall be permitted to operate for ten sec to establish uniform functioning. Foam from the bypass outlet holes shall not be used.

- 4.5.6.1 Foam Expansion Ratio: Shall be determined by collecting discharged foam in a preweighed (W_1) container of known volume (V) (nominally one litre size) such that the collecting vessel is completely filled (and levelled to the brim) with aerated foam. The filled vessel is reweighed (W_2) and the expansion calculated after two averaged determinations (W_2).

$$\text{Expansion Ratio: } \frac{V}{W_2 - W_1}$$

- 4.5.6.2 Quarter Drainage: Shall be measured using the equipment shown in Fig. 2. The 25% drainage volume (D) is calculated from the foam expansion ratio (R) and the drainage pan volume (1630 mL).

$$D = \frac{1630}{4} \times \frac{1}{R}$$

- 4.5.6.2.1 Foam shall be collected from the branchpipe (Fig. 1) and collected in the cock-closed drainage pan. Drainage time shall be measured from the commencement of foam collection. When full, the drainage pot is levelled to the brim and supported vertically with cock lowermost. By careful manipulation of the cock the drained foam liquid shall be drawn from the base of the pan into a graduated vessel of sufficient size to collect the drainage volume. The drainage time is complete when sufficient drained foam liquid has been collected to attain the drainage volume.

- 4.5.7 Fire Resistance: Foam, as received and after elevated temperature exposure as in 4.5.5, shall be subjected to individual fire tests. The apparatus used is shown in Figs. 3 and 4. Foam shall be produced as described in 4.5.6 and a check made to ensure that the foam stream falls in the center of the 0.25 m² tray. The tray shall be washed with cold water and allowed to drain prior to use. The central cock shall be closed and 9 L of aviation unleaded gasoline (ASTM D910, grade 100LL) shall be poured into the tray. One L of aviation unleaded gasoline (ASTM D910, grade 100LL) shall be measured into the burnback pot which shall be placed in readiness a safe distance from the fire tray. The fuel shall be lit, and a stop watch started when full involvement of the fuel is attained. After 50 sec, direct the branchpipe away from the fire and start foam discharge. After 60 sec, move the branchpipe so that the foam is discharged into the centre of the fire tray. The time the fire is reduced to one-tenth its original size shall be noted (90% control), as shall be the time of total extinguishment. Foam shall be applied for a total time of three min. at which time the branchpipe shall be turned off.

- 4.5.8 Burnback: The burnback pot shall be lowered into the center of the tray and, if necessary, supported so that foam cannot flow into the pot. One min. after foam application has ceased, the contents of the burnback vessel shall be lit and the pot lowered into the tray. The time taken to achieve total fuel reinvolvement shall be noted.

4.5.9 Rinsibility: A 3 x 8 in. (75 x 200 mm) panel of clear glass shall be cleaned to provide a water-break free surface, dried, and coated with the foam by pouring the liquid foam over the panel while the panel is held in a horizontal position. The coated panel shall be inclined at 45 deg + 5 for 10 min. + 0.5, then placed in a horizontal position for 24 hr + 0.25 at room temperature. After the 24 hr exposure, the coated panel shall be rinsed in tap water for 5 - 6 min., dried, and examined for visible traces of the foam.

4.6 Reports: Unless waived by purchaser, the vendor of foam shall furnish with each shipment a report showing the results of tests to determine conformance to the acceptance test requirements and, when performed, to the periodic test requirements, and stating that the foam conforms to the other technical requirements of this specification. This report shall include the purchase order number, AMS 1800, type number, manufacturer's identification, lot number, and quantity.

4.6.1 A material safety data sheet conforming to AMS 2825 or equivalent shall be supplied to each purchaser prior to, or concurrent with, the report of preproduction test results or, if preproduction testing be waived by purchaser, concurrent with the first shipment of foam for production use. Each request for modification of foam formulation shall be accompanied by a revised data sheet for the proposed formulation.

4.7 Resampling and Retesting: If any sample used in the above tests fails to meet the specified requirements, disposition of the product may be based on the results of testing three additional samples for each original nonconforming sample. Failure of any retest sample to meet the specified requirements shall be cause for rejection of the product represented and no additional testing shall be permitted. Results of all tests shall be reported.

5. PREPARATION FOR DELIVERY:

5.1 Packaging and Identification:

5.1.1 The product shall be packaged in suitable containers of a type and size agreed upon by purchaser and vendor.

5.1.2 Each container shall be legibly marked with not less than AMS 1800, type number, purchase order number, manufacturer's identification, lot number, and quantity.

5.1.3 Containers of the product shall be prepared for shipment in accordance with commercial practice and in compliance with applicable rules and regulations pertaining to the handling, packaging, and transportation of the product to ensure carrier acceptance and safe delivery. Packaging shall conform to carrier rules and regulations applicable to the mode of transportation.

5.1.4 For direct U.S. Military procurement, packaging shall be in accordance with MIL-STD-794, Level A or Level C, as specified in the request for procurement. Commercial packaging as in 5.1.1 and 5.1.3 will be acceptable if it meets the requirements of Level C.

6. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.

7. REJECTIONS: Foam not conforming to this specification or to modifications authorized by purchaser will be subject to rejection.

8. NOTES:

8.1 Appendix:

8.1.1 Fire Tray: The fire tray (Fig. 3) is constructed of brass 0.05 in. (1.25 mm) thick to the following dimensions:

Internal diameter	22.6 in.	(565 mm)
Vertical side	6.0 in.	(150 mm) height (turned over to a rim 0.6 in. (15 mm) deep)
Conical base	1.2 in.	(30 mm) deep
Area	2.7 ft ²	(0.25 m ²)
Drain point	0.5 in.	(12.5 mm) diameter fitted to the center of the tray with a gate valve

8.1.1.1 The tray is supported approximately one metre above the floor in a steel frame with four legs. All tests are conducted internally beneath an extraction hood situated so that the smoke will be extracted without interfering markedly with the fire.

8.1.2 Branchpipe: The branchpipe (Fig. 1) is supported horizontally from a steel frame. The support arms permit the branchpipe to be swivelled so that foam discharged from the nozzle can be directed either into the center of the tray or outside the tray.

8.1.3 Burnback Pot: The burnback pot (Fig. 4) is constructed of brass to the following dimensions:

Internal diameter	4.8 in.	(120 mm)
Internal height	4.4 in.	(110 mm)
Overall height	5.0 in.	(125 mm) (including four brass studs in base)
Pot thickness	0.05 in.	(1.25 mm)
Total rim thickness	0.10 in.	(2.5 mm)
Rim depth	0.32 in.	(8 mm)
Base thickness	0.13 in.	(3.25 mm)

- 8.1.3.1 A chain handle is fitted across the top of the pot and a hooked rod 2 ft (600 mm) long is provided so that the pot can be lowered into the tray center. A mark on the rod, which aligns with the tray edge, ensures that the pot is placed in the center of the tray. When 9 L of fuel is placed in the fire tray, the top edge of the burnback pot shall be $75 \text{ mm} \pm 5$ above the fuel level.
- 8.2 Dimensions and properties in inch/pound units and the Celsius temperatures are primary; dimensions and properties in SI units and the Fahrenheit temperatures are shown as the approximate equivalents of the primary units and are presented only for information.
- 8.3 For direct U.S. Military procurement, purchase documents should specify not less than the following:
- Title, number, and date of this specification
 - Type of foam desired (See 1.3)
 - Type and size of containers desired
 - Quantity of foam desired
 - Applicable level of packaging (See 5.1.4)
- 8.4 Foam meeting the requirements of this specification has been classified under Federal Supply Classification (FSC) 4210.