

STANDARD FOR THERMAL PROTECTIVE AIDS

TP 7326

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STANDARD FOR THERMAL PROTECTIVE AIDS

1 **SCOPE**

- 1.1 This standard applies to Thermal Protective Aids (TPAs) designed to minimize hypothermia, which shall cover the entire body except for the mouth, nose and eyes.
- 1.2 A TPA shall be so designed that a standard life-jacket can be worn inside. The life-jacket must not damage the TPA, and the TPA not adversely affect the performance of the life-jacket.
- 1.3 If a TPA is fitted with a glove it may be removable only if it is attached to the arm, so that when not in use, it is secured to the sleeve or stowed in a pocket on the sleeve. A TPA shall allow the wearer sufficient dexterity to operate the TPA closure, also to open and eat survival rations.
- 1.4 The exterior colour of a TPA shall approximate Orange 508-107, Red 509-101 or yellow 505-110 of CGSB 1-GP-12C.
- 1.5 A TPA shall be provided with a protective storage bag.

2 **INSTRUCTIONS**

- 2.1 Instructions for donning and use shall be provided in both English and French, they shall not exceed 50 words and be complemented by illustrations.
- 2.2 Instructions shall indicate if the TPA can be worn for swimming, or if it should be discarded before entering water.
- 2.3 Instructions shall be printed;
- (a) on the exterior of the storage bag or
 - (b) on a waterproof card attached to the bag or
 - (c) on the TPA and visible through a transparent bag
- 2.4 Instructions shall be suitable for insertion in the ship's training manual.

3 TESTING

3.1 The mobility and swimming capabilities of a TPA shall be tested as follows.

3.1.1 The subjects used in the tests shall be at least six subjects of different ages, both male and female in the large, medium and small size ranges.

3.1.2 The clothing worn by the test subjects shall consist of;

- a) underwear (short sleeve, short legged);
- b) shirt (long sleeve);
- c) trousers (not woollen);
- d) two woollen pullovers;
- e) standard life jacket.

3.1.3 Following a demonstration, the test subjects should be able to unpack and don the TPA over a life-jacket when seated in a survival craft.

3.1.4 The TPA should be capable of being unpacked and donned at an ambient temperature of -30 deg C. Before the donning test the TPA shall be kept in a refrigerated chamber at a temperature of -30 deg C for 24 hours.

3.1.5 If the TPA impairs the ability of the wearer to swim, it shall be demonstrated that it can be discarded by the test subjects in water, in less than two minutes.

3.2.1 Two samples of the TPA shall be alternately subjected to surrounding temperatures of -30 deg C and +65 deg C. These alternating cycles need not follow immediately after each other and the following procedure, repeated for a total of 10 cycles, is acceptable:

- a) an 8 hour cycle at +65 deg C to be completed in one day; and
- b) the specimens removed from the warm chamber that same day and left exposed under ordinary room conditions until the next day;
- c) an 8 hour cycle at -30 deg C to be completed the same day; and

- d) the specimens removed from the cold chamber that same day and left exposed under ordinary room conditions until the next day.

3.2.2 On the completion of the final cold cycle the TPAs shall not show any sign of damage, shrinking or cracking.

3.3 A sample of the fabric from which the TPA is constructed shall be able to withstand for one hour the pressure created by a column of water 2 metres in height.

3.4 The material from which the TPA is constructed shall be tested in accordance with the procedures specified in ASTM C-177 or ASTM C-518, and shall have a thermal conductivity of not more than 0.25 W/(m deg K).

3.5 One TPA shall, after its apertures have been sealed, retain the thermal conductivity as per 3.4 after being immersed under 100 mm of diesel oil, grade No.2-D as defined in ASTM D-975 for 24 hours.

4 MARKING

4.1 Each TPA shall be clearly marked in both English and French with;

- a) "Thermal Protective Aid"
- b) The name of the manufacturer
- c) The model and date of manufacture
- d) The Transport Canada Approval Number
- e) The lot number.

4.2 The words "Thermal Protective Aid" in both English and French shall be marked on each TPA storage bag, or on the TPA so as to be visible through a transparent storage bag.

5 APPROVAL PROCEDURE

5.1 Following testing two copies of the test reports, assembly drawings, quality control procedures and instructions as per section 2 shall be forwarded to The Approval Authority.

5.2 The Board shall approve a TPA when it is satisfied that all applicable tests have been completed, and that provisions have been made for the inspection and testing of production line TPAs.

5.3 The applicant shall make arrangements for the approval tests directly with an Independent Laboratory.

6 RECORDS

6.1 Manufacturers are required to maintain records of the quality control and production tests carried out in accordance with this standard as follows;

- a) details of material purchases and usage;
- b) date when production commenced and terminated;
- c) test records of all components used in the production process;
- d) records of all prototype tests; and,
- e) detailed descriptions of any failures.

6.2 Manufacturers shall retain the records for a period of at least 60 months, unless otherwise required by the Board.

6.3 The records shall be available for inspection by, or submission to, the Approval Authority upon request.

7 PRODUCTION TESTING

7.1 One out of every 1000 TPAs produced shall be given a complete visual examination, the sample shall be selected at random and examined by or under the supervision of an Independent Laboratory or a Canadian Coast Guard Marine Surveyor.

- 7.2 The random sample fails to pass this visual examination if it does not conform to the approved prototype. If a defect is found in the random sample, one hundred samples from the same lot shall be selected at random and examined, and if ten fail the examination each TPA in that lot shall be examined. Only TPAs that are free from defects may be sold as Canadian Coast Guard Approved.
- 7.3 The manufacturer shall ensure that the production inspections described in this section are performed to the satisfaction of the Approval Authority.
- 7.4 The manufacturer shall report the results of each production inspection performed under 7.1 and 7.2 to the Superintendent, Equipment and Operational Safety, Ship Safety Branch, Canadian Coast Guard. The report must be countersigned by a Canadian Coast Guard marine surveyor or by the representative of the Independent Laboratory.