D.T.D. 426

Ministry of Defence
Defence Procurement Agency, ADRP2
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OBSOLESCENCE NOTICE

All DTD specifications were declared obsolescent from 1st April 1999. All DTD 900 series approvals also lapsed at that time. The standards will no longer be updated but will be retained as obsolescent documents to provide for the servicing of existing equipment.

Further Guidance

The aim in declaring the specifications obsolescent is to recognise that the documents are not being updated and thus should be used with care by both purchaser and supplier. For example, a specification could contain valid technical information but may also contain type approval clauses that contradict procurement policy and/or use materials that do not comply with environmental legislation. The obsolescent specification can still be used as a basis for a purchase provided that the supplier and purchaser agree suitable changes to the specification within the purchase order/contract.
For the DTD 900 system, each specification has provided an MoD approved material and process. For these items, the declaration of obsolescence will constitute the termination of both the extant MoD approval and the continuing MoD assessment that had underpinned those approvals. Again, the technical content of the document remains valid and can be used by both purchaser and supplier as a basis for a contract but an acceptable (to the parties) approval/assessment procedure would be required.

MINISTRY OF AVIATION

D.T.D. 426
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Aircraft Material Specification

ETHYL CELLULOSE

NOTE.-This specification is one of series issued by the Ministry of Aviation either to meet a limited requirement not covered by any existing British Standard or to serve as a basis for inspection of material the properties and uses of which are not sufficiently developed to warrant submission to the British Standards Institution for standardisation.

1. Description

The material shall be the product of ethylation of suitable cellulose, and shall be white in colour, in a fine state of sub-division and free from foreign matter.

2. Stability to heat

The stability of the material to heat, when determined by the method described in Appendix I, shall be such that the charring point is not below 185°C.

3. Water content

The water content of the material, when determined by the method described in Appendix II, shall not exceed 3 per cent by weight.

4. Ash

The amount of ash, left on complete ignition of the material, shall not exceed 0.6 per cent by weight.

5. Impurities

The aqueous extract of the material, prepared and tested as described in Appendix III, shall have a pH value not less than 6.0 or greater than 8.5, and the content of sulphate and chloride together shall not exceed 0.1 per cent calculated on the weight of the material.

6. Solubility and film test

The solubility of the material when determined by the method described in Appendix IV *(a)* shall be such that the volume of insoluble matter does not exceed 0.1 per cent of the volume taken for centrifuging.

The film obtained and tested by the method described in Appendix IV *(b)* shall be free from cracking and whiteness.

7. Viscosity

The viscosity at 25°C. (77°F.) of a solution of the composition given in Appendix IV *(a)* shall not be less than 100 nor more than 200 centistokes, using the No. 3 Viscometer described in Table 1 of the latest edition of B.S. No. 188, Determination of Viscosity in Absolute Units.

APPENDIX I

Method for the Determination of Stability to Heat

Sufficient of the material shall be placed in a test tube (about 7 in. by $\frac{1}{2}$ in.), so that after gently shaking down it shall fill the tube to a depth of 1 inch. The tube and its contents shall then be placed in a suitable bath maintained at a temperature of 185°C. (365°F.). The charring point shall be deemed to be below this temperature, if after 5 minutes a distinct coloration (i.e., more than a slight yellowing) of the material occurs.

APPENDIX II

Method for the Determination of Water Content

Approximately 2 g. of the material shall be accurately weighed and spead out in a thin layer in a suitable vessel and heated in a boiling water oven. After two hours' heating, the vessel and residue shall be cooled in a desiccator and reweighed, the loss in weight being taken as the water content of the material.

APPENDIX III

Method for the Determination of Impurities

10 g. of the material shall be introduced into a 100 ml. chemically resistant glass flask, previously cleaned with dilute acid, washed and steamed for 2 hours. 50 ml. of neutral distilled water shall then be added, taking care to wash down any particles of material from the upper portion of the flask, which shall then be fitted with a reflux condenser by means of a glass joint. The flask shall be immersed in boiling water for 5 hours, removed, and cooled. The contents shall be poured through a filter and the flask and filter washed with hot neutral distilled water until the total filtrate amounts to 250 ml. The filtrate in a chemically resistant glass flask, shall be boiled for 5 minutes and the flask stoppered and cooled. The pH value and the content of sulphate and chloride shall then be determined.

In case of dispute the pH value shall be determined by the glass electrode.

APPENDIX IV

Method for carrying out Solubility and Film Tests

(a) 7.5 gram. of the material shall be placed in a 200 ml. wide mouth stoppered bottle with 142.5 gram. of a mixture containing 80 per cent toluol and 20 per cent butyl alcohol by volume. The bottle and contents shall be shaken so that solution is completed within one hour of adding the solvent mixture.

Within 4 hours of adding the solvent mixture, the resultant liquid shall be shaken and then centrifuged in such a way that the product $D \times R^2 \times T$ is not less than 20,000 where:—

D = distance in cm. from the surface of the liquid to the centre of the centrifuge axle, when in motion.

R = number of revolutions per second (suitable limits for R are 30 to 100).

T = time in hours.

The volume of insoluble matter, collected at the bottom of the tube in which the liquid has been centrifuged shall be noted.

(b) Not less than 10 ml. of the liquid prepared as described in *(a)* above shall be poured on to a horizontal glass plate. The area occupied by the liquid shall be approximately 100 sq. cm. The plate shall be allowed to remain in still air at a temperature of 21°C. (70°F.) and 65 per cent relative humidity until a dry film is obtained. The film shall be removed from the plate, rapidly bent double and the crease pressed with the fingers.

Approved for issue,

N. J. L. MEGSON,

Director of Materials Research and Development (Air).

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