

**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.

Aerospace Process Specification
SURFACE SEALING OF MAGNESIUM RICH ALLOYS

NOTE: This process is intended to be used as a preservative foundation treatment on magnesium-rich alloy parts, in conjunction with the processes described in specification D.T.D. 911 and must be followed by painting with a paint scheme approved as appropriate (except where excluded by the provisions of Av.P.970).

1. Description

The sealing process consists in treating chromate coatings to D.T.D. 911 on magnesium-rich alloy components with a solution of a stoving resin by dipping, draining and baking. In certain circumstances spraying may replace dipping. Three successive applications of the resin are made with the component held each time in a different attitude to facilitate even coating. When it can be demonstrated (see para. 6b) that two coats applied at the standard viscosity by dipping give a film of thickness at least 0.001 inch, two coat sealing may be permitted at the discretion of the inspector.

2. Resin

The resin used in the process shall comply with the requirements of Specification D.T.D. 5562.

The resin solution shall be prepared for use in accordance with the manufacturer's instructions, e.g. by mixing with a hardener if necessary and by the addition of thinner. Thereafter the concentration of the resin shall be maintained at this viscosity and solid content by appropriate additions of the thinner to compensate for loss by evaporation.

3. Pre-treatment

Before the resin is applied, the surface of the components shall be cleaned and chromated by one of the methods described in D.T.D. 911. The surface sealing shall be carried out without delay after chromating.

4. Preheating

Before the resin is applied the chromated component shall be heated to 180°–200°C for the shortest time necessary to ensure that a temperature of 180°–200°C is maintained throughout the interior of the component for at least 10 minutes. To facilitate heating and subsequent coating, the component may be hung or supported on suitable handling rods or bars.

5. Application of the resin

The heated component shall be allowed to cool to 60° ± 10°C and shall be immediately dipped in the resin solution contained in a suitable vessel. The component shall be turned about as necessary to avoid air traps and to ensure that all parts come into contact with the solution. The component shall then be withdrawn slowly, being turned as necessary to ensure drainage of the resin solution from recesses. It shall then be allowed to drain for between 15 to 30 minutes in a dust free atmosphere. During and at the end of this period it shall be reversed as necessary to enable resin which has collected into recesses to drain away. Tears and drips shall be removed from low points with a suitable palette knife or brush.

After 15-30 minutes, the components shall be replaced in the oven and baked for a period that will ensure its being at the temperature approved for curing the resin, and not less than 180°C in any case, for 15 minutes.

After the baking of the first coat, the component shall be cooled again to 60° ± 10°C and dipped a second time, and after draining for 15 to 30 minutes as described above, it shall be inverted from its former position of baking, and shall again be baked at the approved temperature (not less than 180°C) for 15 minutes.

After the baking of the second coat, the component shall be cooled again to 60° ± 10°C and dipped a third time. After draining for 15 to 30 minutes as described above, it shall be returned to the oven and baked for a period which ensures that it is held at the curing temperature of the resin, and not in any case less than 180°C for not less than 45 minutes. During the third baking, it should preferably be held at a different angle from the first and second baking. All three coats should be applied with the minimum delay between dippings.

Just prior to hardening, the resin passes through a labile phase. It is for this reason that the component should be turned to a different attitude at each baking operation to assist uniform coverage.

If, despite due care, objectionable tears or drips form on a component, they shall be removed carefully with a sharp knife, a fine file, or glass paper. Care shall be taken not to cut through the resin film to the metal. For convenience in this operation, the component covered by the first coat of resin may be allowed to cool down to room temperature. It shall then be gently warmed again to 60°C before the second coat is applied.

Very large components or those which for some reason it is not possible to coat by dipping, may be coated by spraying. A full wet coat should be applied to the components, followed by heating and cooling as described in the dipping process. The process should be repeated so that at least three coats are applied.

Spraying should not be employed where dipping is possible.

NOTES: (a) Intermediate coats may, by agreement with the inspector, be stoved for longer times at lower temperatures. The final coat however, must be stoved for the approved time and temperature.

(b) Any surface not requiring to be surface sealed shall be suitably masked before preheating. Care must be taken to exclude resin from tapped holes etc.

6. Inspection requirements

6.1 The component shall be uniformly and completely coated with resin on all surfaces where such coating is required. It shall be substantially free from tears and drips at all points where such tears or drips would prove objectionable in service. The surface shall be uniformly glossy and shall be free from bubbles, pinholes, or cissing. When the resin is untinted the development of a golden yellow to dark brown colour may assist in checking that adequate cure has been attained. A bright metal panel coated and baked at the same time as the component may be used as an indicator where the component is dark chromated metal and colour changes cannot be readily observed.

6.2 Where it is impossible to measure the film thickness directly, a test panel consisting of magnesium sheet to B.S. L504 shall be partly masked, and dipped at the operating viscosity laid down by the manufacturer and under the conditions laid down in the specification for the requisite number of coats. After draining the panel for the specified time on the last coat, the mask shall be removed, and the panel fully stoved. The paint thickness shall be measured by comparing micrometer reading with those of the masked area. For two coats sealing to be permitted repeat determinations shall show a film thickness of not less than 0.001 inch.

Approved for issue

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