AEROSPACE MATERIAL SPECIFICATION

AMS3091	REV. C

Issued 1971-11
Revised 1993-10
Reaffirmed 2000-12

Superseding AMS3091B

Mold Release Agent

RATIONALE

AMS3091C has been reaffirmed to comply with the SAE five year review policy.

1. SCOPE:

1.1 Form:

This specification covers a mold release agent in the form of a liquid.

1.2 Application:

This product has been used typically for application to molds used in the fabrication of plastic and elastomeric components, but usage is not limited to such applications. Mold release agent will function up to 480 °C (896 °F) without deterioration or transferring to the part surface.

1.3 Safety - Harzardous Materials:

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS 2825 Material Safety Data Sheets

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

SAE values your input. To provide feedback on this Technical Report, please visit
http://www.sae.org/technical/standards/AMS3091C

2.2 U.S. Government Publications:

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-STD-2073-1 DOD Materiel, Procedures for Development and Application of Packaging Requirements

3. TECHNICAL REQUIREMENTS:

3.1 Material:

Shall be a homogeneous mixture of a consistency that can be readily applied to applicable surfaces by brush, dip, or spray. It shall be free of silicone oil, waxes, grease, and fluorocarbons.

3.2 Properties:

The mold release agent shall conform to the following requirements:

3.2.1 Wetting and Adherence: The product shall wet and adhere to both metallic and nonmetallic surfaces when applied directly to clean, dry surfaces in accordance with manufacturer's recommendations.

3.2.2 Nontransference: An applied film of the product shall be nontransferring and thermally stable up to 480 °C (896 °F), determined as in 3.2.2.1:

3.2.2.1 A smooth, continuous film shall be applied to a mold by spraying a thin coating, which is wet but not sagging or dripping, of the product by brushing with a clean brush or by wiping on with a clean cloth. The applied film shall be air dried for not less than 30 minutes at room temperature or oven dried at 95 °C ± 5 (203 °F ± 9) for not less than 30 minutes. A properly applied coating will be colorless and uniform in thickness. Quality control samples of the identical surface finish and surface preparation which have been processed on molds coated with the product shall exhibit the same adhesion of paint, adhesives, and sealants, without additional cleaning, as components or samples which have not been in contact with the product.

3.2.3 Toxicity: The product shall contain no materials of known toxicity. The vapor shall not cause discomfort or injury to personnel engaged in application of the product.

3.2.4 Effect on Metals: The product shall not cause corrosion of metals, determined as in 3.2.4.1.

3.2.4.1 Panels of aluminum, magnesium, copper alloys, steel, and cadmium plated steel, or couples thereof coated with the product shall show no evidence of corrosion, as indicated by rusting or pitting, after being suspended vertically in a convection-current air oven at 100 °C ± 1 (212 °F ± 2) for 70 hours ± 0.5. Slight darkening on comparison with freshly polished panels of the same materials is acceptable.

3.2.5 Effect on Nonmetals: The product shall not react destructively with nonmetallic materials such as phenol-formaldehyde resins, urea formaldehyde resins, rubber, synthetic rubber, epoxies, polyethylene, polyesters, urethane, or polyimides, determined as in 3.2.5.1.

3.2.5.1 Both coated and uncoated samples of the nonmetallic materials listed in 3.2.5 shall be suspended vertically in a convection-current air oven at 100 °C ± 1 (212 °F ± 2) for 70 hours ± 0.5. After testing, coated samples shall have the same physical condition as the uncoated samples within ±5%.

3.3 Quality:

The product, as received by purchaser, shall be a smooth, homogenous mixture, free from lumps, cakes, skins, and foreign material detrimental to usage of the product.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

The manufacturer of the product shall supply all samples for required tests and shall be responsible for performing all required tests. 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::

Tests for all technical requirements are acceptance tests and preproduction tests and shall be performed prior to or on the initial shipment of the product by the manufacturer, on each lot, when a change in ingredients and/or processing requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.

4.2.1 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, contracting officer, or request for procurement.

4.3 Sampling and Testing:

Sufficient product shall be taken at random from each lot to perform all required tests. The number of determinations for each requirement shall be as specified in the applicable test procedure or, if not specified therein, not less than three. A lot shall be all product produced in a single production run from the same batch of raw materials and presented for manufacturer's inspection at one time.

4.3.1 When a statistical sampling plan has been agreed upon by purchaser and supplier, sampling shall be in accordance with such plan in lieu of sampling as in 4.3 and the report of 4.5 shall state that such plan was used.

4.4 Approval:

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

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

4.5 Reports:

The supplier of mold release agent shall furnish with each shipment a report showing the results of tests to determine conformance to the technical requirements. This report shall include the purchase order number, lot number, AMS 3091C, manufacturer's identification, and quantity.

4.5.1 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 mold release agent for production use. Each request for modification of mold release agent formulation shall be accompanied by a revised data sheet for the proposed formulation.

4.6 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. Results of all tests shall be reported.

5. PREPARATION FOR DELIVERY:

5.1 Packaging and Identification:

5.1.1 A lot of product may be packaged in small quantities and delivered under the basic lot approval provided lot identification is maintained.

5.1.2 The product shall be supplied in 16-ounce (475-mL) aerosol cans, 1-gallon (4-L) cans, 5-gallon (19-L) cans, or 55-gallon (208-L) drums, as ordered.

5.1.3 Each container shall be legibly marked with not less than AMS 3091C, manufacturer's identification, lot number, date of manufacture, and quantity.