



UNDERCOAT FOR ARMY OLIVE DRAB ENAMEL (EQUIPMENT)

1 SCOPE

An undercoat, typically grey in colour, to be used over primed metal or wood and under olive drab enamel, on equipment used by the Australian Defence forces.

2 BACKGROUND

- To obtain a broad overview of the Australian Paint Approval Scheme (APAS), refer to APAS document AP-D001.
- To obtain an overview of restricted ingredients in APAS certified products, refer to APAS document AP-D123.
- To obtain the current list of APAS participating manufacturers (and suppliers) and resellers, refer to APAS document AP-D152.
- To obtain an overview of how to participate in the APAS, refer to APAS document AP-D177.
- APAS approval to this specification may be gained by compliance with the requirements detailed in this specification and those in APAS document AP-D192.

3 DESCRIPTION AND GUIDE FOR USERS

3.1 General Requirements

- An undercoat, colour grey to be used over primed metal or wood and under olive drab enamel, on equipment used by the Australian Defence forces.
- Apply to primed wood or metal surface and overcoat with olive drab enamel. Apply by brush, roller or spray to a dry film thickness of 25 to 40 μm . Handling time six hours.

3.2 Sub-Classes

- This specification does not incorporate any sub-class.

3.3 Basis of this Specification

- This specification is not based on any known standard or specification.
- Paints approved under this specification are not referenced in AS/NZS 2312.

4 REFERENCED DOCUMENTS

- The following standards are referenced in this document:
 - AS/NZS 1580** – Paints and related materials: Methods of test.
 - AS/NZS 2312** – Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings.
 - AS 2700** – Colour standards for general purposes

These documents may be purchased through the Reference Standards Australia website:
<https://www.standards.org.au/>

- The Poisons Standard June 2021:** Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) No. 33, Part 2: Control on Medicines and Poisons, Section Seven / Appendix I Paint or Tinters

This document is available from the Australian Government Federal Register of Legislation web site at:
<https://www.legislation.gov.au/Details/F2021L00650>

- The following APAS documents are referenced in this document:
 - AP-D001 Rules Governing How APAS® Operates
 - AP-D123 Restrictions on Ingredients in Product Formulations
 - AP-D152 APAS® Participating Manufacturers and Resellers
 - AP-D177 Rules Governing How Product Manufacturers participate in APAS®
 - AP-D181 Volatile Organic Compounds (VOC) Limits
 - AP-D192 Rules Governing APAS® Product Certification Scheme

All APAS documents are available for download from the APAS website: <https://vs.csiro.au/apas/documents/>

5 COMPOSITIONAL REQUIREMENTS

5.1 Binder

- Typically, the binder will be an alkyd resin.

5.2 Volatiles

- The volatile portion shall principally be comprised of hydrocarbons.
- For VOC content restrictions refer to APAS document AP-D181.

5.3 Pigmentation

- The pigmentation shall be chosen to impart the properties detailed in clause 7, Table 1 below.

6 PRODUCT APPROVAL REQUIREMENTS

6.1 General Requirements

- The product and its application for approval shall comply with the relevant requirements of APAS document AP-D192 during the life of the approval.

6.2 Technical Requirements

- The product shall comply with all the requirements of clause 7, Table 1 below.

6.3 Health and Safety Requirements

- Shall not be a Schedule 1 or Schedule 2 paint (SUSMP).
- The manufacturer's Safety Data Sheet (SDS) must be studied closely prior to using the product and complied with during use of the product.



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- c) Since the paint contains a hydrocarbon solvent, the paint is flammable and should be stored away from all sources of heat or ignition.
- d) Containers should be resealed immediately after use and good ventilation provided during use to minimise the risk of fire or explosion and the long-term toxic effects of absorption of the vapour into the lungs.
- e) Care should be taken to avoid contact with the skin using protective clothing and barrier cream.



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7 TABLE 1: PERFORMANCE PROPERTIES

TEST	AS/NZS 1580 METHOD	REQUIREMENTS
Preliminary Examination	103.1	To be readily reincorporated. Shall be free of coarse particles, gel and foreign matter.
Fineness of Grind	204.1	Maximum 50 µm.
Skin Formation	203.1, Method B	No skin.
Viscosity	214.3	0.1 - 0.4 Pas.
Thinner Compatibility	208.1	To show no precipitation or other defects when thinned with the appropriate volume of the designated thinner.
Application Properties: - Brushing - Rolling - Spraying	205.1 205.3 205.2	Shall show satisfactory application properties and the dry film shall be free of defects.
Relative Dry Hiding Power	213.1	To completely obliterate the substrate with one coat at 16 m ² /L.
Surface Dry Condition	401.1	Maximum 3 hours.
Hard Dry Condition (Mechanical Thumb Test)	401.6	Maximum 6 hours.
Colour - Visual Comparison	601.1	Close Match to Green Grey (N32) AS 2700.
Specular Gloss	602.2	The 85° specular gloss of the undercoat shall not exceed 25 using a 100 µm doctor blade. Alternatively, for batch testing - the 60° gloss shall not exceed 10. (In case of dispute, the 85° gloss shall be determined).
Finish	603.1	Shall be free of coarse particles, wrinkling or orange peel and have a uniform colour and appearance.
Bend Test	402.1	After air drying for seven days, a film of the undercoat shall show no sign of cracking or loss of adhesion when submitted to the bend test using a 12 mm mandrel.
Resistance to Water at Room Temperature	455.1	A film of the undercoat shall show no sign of removal, no blistering and no other defects. It shall withstand a scratch test load of 800g.



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7 TABLE 1: PERFORMANCE PROPERTIES (CONT.,)

TEST	AS/NZS 1580 METHOD	REQUIREMENTS
Properties of Primer - Undercoat System		<p>A coat of undercoat applied to a coat of APAS Specification 0032 primer and allowed to dry for 24 hours, shall:</p> <ul style="list-style-type: none"> • Show no signs of cracking, wrinkling or lifting • Show no cracking and be firmly adherent after being submitted to a bend test using a 12 mm mandrel • Withstand a scratch test load of 800 g without penetration to the metal
Properties of Undercoat - Enamel System		<p>A coat of APAS Specification 0006/3 enamel applied to a coat of test undercoat which has been dried for 6 hours, wet sanded and dried for a further 3 hours, after drying for 24 hours, shall:</p> <ul style="list-style-type: none"> • Show no signs of cracking, wrinkling or lifting • Withstand a scratch test load of 800 g without penetration to the metal • Show no cracking and be firmly adherent after being submitted to a bend test using a 12 mm mandrel <p>When a film of test undercoat (applied) by 75 µm doctor blade to a plate glass panel and dried 24 hours is overcoated with a film of full gloss olive drab enamel to APAS Specification 0006/3 (using a 100 µm doctor blade and dried seven days), the specular gloss of the film of undercoat-enamel system shall not:</p> <ul style="list-style-type: none"> • Be less than 90% of that of the enamel only (applied using a 100 µm doctor blade to a plate glass panel and dried seven days) when measured according to AS/NZS 1580.602.2 using a 20° head
Wet Rubbing Properties		A film of undercoat allowed to dry for 6 hours and then wet-rubbed with No.320 "wet and dry" paper shall show satisfactory sanding properties, and 3 hours after sanding shall be in a satisfactory condition for receiving a coat of enamel.
Resistance to Natural Weathering	457.1	After 24 months exposure on a 45° rack facing north at a temperate site, a system of primer to APAS Specification 0032, test undercoat and enamel to APAS Specification 0006/3 on a steel panel shall exhibit no integrity failure - no erosion, cracking, flaking, blistering or rusting.
Reincorporation after Storage	211.2	To comply with all the preceding requirements after 18 months storage at ambient temperature.
Degree of Settling	211.1	Settling shall not fall below 6.
VOC Content		<p>Refer to APAS document AP-D181 for method and limits.</p> <p>If the APAS specification is not listed on AP-D181, a declaration of VOC content is still required.</p>



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8 APPENDIX A

Document History

Status: Current
Version: 10
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Document Version No.:	Date Published:	Summary of Changes:
10	26-08-2021	<ul style="list-style-type: none">• Inclusion of clause 1 Scope• Updated background information in clause 2• General format change to clause 4 b)• Updated SUSMP information• Updated APAS website information
9	05-11-2020	<ul style="list-style-type: none">• Addition of Appendix A Document History and removal of the Editorial Note previously used in specification versions• Updated document to the current format• Updated internal and external document references and website details• Inclusion of VOC Content requirement to Table 1 Performance Properties• Addition of "People + Product = Protection" to Footer
8	24-11-2005	<ul style="list-style-type: none">• Reinstated 0009 and removed Vehicles from the title and scope
7	04-03-2003	<ul style="list-style-type: none">• Deleted reference to GPC numbering and incorporated a general format update
6	11-01-2001	<ul style="list-style-type: none">• Initiated the second stage of the move to new specification numbering with prominence given to the new number (previously GPC-U-9)