



## ARMY OLIVE DRAB ENAMEL (EQUIPMENT)

### 1 SCOPE

An enamel surface coating material in 3 different gloss levels of olive drab colour, to be used as finishing 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

- Apply over a previous coat of undercoat to APAS specification AP-S0009. Apply by brush, roller or spray. Air dry in four hours.
- For painting of Defence vehicles, reference should be made to APAS specifications AP-S0154 or AP-S0502.

#### 3.2 Sub-Classes

- This specification incorporates sub-classes:
  - 0006/1:** Flat enamel
  - 0006/2:** Low gloss enamel
  - 0006/3:** Full gloss enamel

#### 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.

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 website 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 Table 1 below.

#### 5.4 Colour Requirements

- The colour standard for Olive Drab shall be taken to be AMS-STD-595-34088 (formerly known as US FED-STD-595 Colour No. 34088).
- Colour standards may be purchased from either the General Service Administration of the US Federal Supply Bureau, or from APAS at CSIRO.

### 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.



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### 6.2 Technical Requirements

- a) The product shall comply with all the requirements of Table 1 below.

#### 6.2.1 Panel Preparation

- a) For panel tests, unless otherwise specified, the enamel shall be applied at the following dry film weights:

Density of the paint (kg/l)	Limits of weights of dry film g/m <sup>2</sup>
Up to 1.0	14 - 18.7
1.0 to 1.2	18.7 - 26
1.2 to 1.4	26 - 35

#### 6.2.2 Drying

- a) Air drying shall be to AS/NZS 1580.101.1.  
b) Films shall be air dried for 24 hours between coats with the final coat being allowed to dry for seven days before testing.  
c) For quality control purposes, testing may be carried out after 24 hours drying, provided a suitable correction factor is applied as necessary.

### 6.3 Health and Safety Requirements

- a) The product shall comply with all requirements of clause 6.3 of APAS Document D192.  
b) The manufacturer's Safety Data Sheet (SDS) must be studied closely prior to using the product and complied with during use of the product  
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	<b>0006/1:</b> Maximum 50 µm <b>0006/2:</b> Maximum 50 µm <b>0006/3:</b> Maximum 25 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 20% by volume of mineral turpentine to AS 1700.
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 <sup>2</sup> /L.
Surface Dry Condition	401.1	Maximum 30 minutes.
Hard Dry Condition (Mechanical Thumb Test)	401.6	Maximum 4 hours.
Colour - Visual Comparison	601.1 601.2	Close Match to AMS-STD-595-34088. Not more than 1.5 colour difference units.
Specular Gloss	602.2	Tested on plate glass applied by a 100 µm doctor blade: <b>0006/1:</b> ≤ 5 gloss units using an 85° head <b>0006/2:</b> 15-25 gloss units using an 60° head <b>0006/3:</b> ≥ 70 gloss units using an 20° head
Finish	603.1	Shall be free of coarse particles, wrinkling or orange peel and have a uniform colour and appearance.
Scratch Resistance	403.1	Not less than 800 gm.
Bend Test	402.1	After air drying for seven days, stoving for one hour at 100°C and allowing to cool for one hour, the film shall show no sign of cracking or loss of adhesion after bending round a 6 mm mandrel.



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7 TABLE 1: PERFORMANCE PROPERTIES (CONT..)

TEST	AS/NZS 1580 METHOD	REQUIREMENTS
Resistance to Water at Room Temperature	455.1	No sign of removal and only slight change in gloss or colour. Scratch resistance no less than 600 gm.
Resistance to Mineral Oil	454.1	No sign of removal and only slight change in gloss or colour. Scratch resistance no less than 600 gm.
Resistance to Petroleum Spirit	453.1	No sign of removal and only slight change in gloss or colour. Scratch resistance no less than 600 gm.
Infra-Red Reflectance		Between 34% and 50% at 800 nm when measured on any recording spectrophotometer using integrated sphere reflectance detector with spectral reflectance excluded.
Resistance to Natural Weathering	457.1  481.1.2 481.1.5 481.1.11 481.1.12	<p>After 24 months exposure on a 45° rack facing north at a temperate site, a system of primer to APAS Specification 0032 and enamel on a steel panel shall exhibit no integrity failure, that is, no erosion, cracking, flaking, blistering or rusting.</p> <p>The ratings for the following properties shall be:</p> <p>Discolouration &lt;2 Change in gloss &lt;3 Chalking &lt;1 Colour change &lt;2*</p> <p>* At three-monthly intervals, the top half of the exposed panel shall be polished with "DUCO® Cleaner and Polish (or equivalent except in cases of dispute when "DUCO® Cleaner and Polish shall be used). The gloss change of the polished section shall be &lt;1.</p>
Recoating Properties	404.1	After completion of the natural weathering test, the exposed panel shall be in a satisfactory condition for recoating.
Reincorporation after Storage	211.2	To comply with all the preceding requirements after 18 months storage at ambient temperature.
Degree of Settling	211.2	Not to fall below 6.
VOC Content		Refer to APAS document AP-D181 for method and limits.  If the APAS specification is not listed on AP-D181, a declaration of VOC content <b>is still required</b> .



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### 8 APPENDIX A

#### Document History

Status: Current  
Version: 11  
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Document Version No.:	Date Published:	Summary of Changes:
11	26-08-2021	<ul style="list-style-type: none"><li>• General format change to clause 1, 3.1 and 4 b)</li><li>• Updated background information in clause 2</li><li>• Updated SUSMP information</li><li>• Updated APAS website information</li></ul>
10	05-11-2020	<ul style="list-style-type: none"><li>• Addition of Appendix A Document History and removal of the Editorial Note previously used in specification versions</li><li>• Updated document references</li><li>• General format update</li><li>• Addition of "People + Product = Protection" to Footer</li></ul>
9	27-07-2020	<ul style="list-style-type: none"><li>• Updated document to the current format</li><li>• Document brought in line with requirements of AS/NZS ISO/IEC 17065</li><li>• Updated internal document references, acronyms and website details</li></ul>
8	24-11-2005	<ul style="list-style-type: none"><li>• Reinstated 0006 and removed vehicles from the title</li></ul>
7	04-03-2003	<ul style="list-style-type: none"><li>• General format update</li></ul>
6	11-01-2001	<ul style="list-style-type: none"><li>• Initiated the second stage of the move to new specification numbering with prominence given to the new number (previously GPC-E-6, 7 &amp; 8)</li></ul>