

HOLDING PRIMER - EPOXY TYPE (VEHICLES AND EQUIPMENT)

1 SCOPE

A two-pack epoxy primer for application to abrasive blast cleaned steel surfaces to prevent corrosion for short periods (up to three months) while completing the construction or re-blasting of complex structures, e.g., ships, before coating with a range of topcoats.

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

- A two-pack epoxy primer for application to abrasive blast cleaned steel surfaces to prevent corrosion for short periods (up to three months) while completing the construction or re-blasting of complex structures, e.g., ships, before coating with a range of topcoats.
- Products are used as anti-corrosive primers on abrasive blast cleaned steel to be overcoated with epoxy or other paints at a later date.
- Application by airless or conventional spray to a dry film thickness of 20-25µm (for sub-class AP-S0141/1) and 35-45µm (for sub-class AP-S0141/2).
- Minimum recoating time for sub-class AP-S0141/1 is 8 hours and for sub-class AP-S0141/2 is 16 hours. The maximum recoat time 3 months.
- The product shall be supplied in kit form i.e., in two containers, one being capable of holding both components after mixing. The mixing proportions shall be a simple ratio i.e., 1:1, 2:1, 3:1 or 4:1.
- The mixed material shall be ready for use by airless spraying without thinning.

3.2 Sub-Classes

- This specification incorporates the following sub-classes:
 - 0141/1:** Holding primer, epoxy type, thin film (ships)
 - 0141/2:** Holding primer, epoxy type, thick film (ships)

3.3 Basis of this Specification

- This specification is not based on any known specification or standard.

4 REFERENCED DOCUMENTS

- The following standards are referenced in this document:
 - AS/NZS 1580** – Paints and related materials: Methods of test.
 - AS 1627.4** – Metal finishing – Preparation and pre-treatment of surfaces – Abrasive blast cleaning of steel

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

- The binder shall typically consist of epoxy resin and a curing agent of polyamine, polyamide or amine adduct resins with or without accelerators.

5.2 Volatiles

- The volatile component shall typically consist of hydrocarbons.
- For VOC content restrictions, refer to APAS document AP-D181.

5.3 Pigmentation

- Products shall consist of appropriate colouring pigments chosen to impart the properties detailed in clause 7, Table 1 below.



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6 PRODUCT APPROVAL REQUIREMENTS

6.1 General Requirements

- a) 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

- a) The product shall comply with **all** the requirements of clause 7, Table 1 below.
- b) Test panels shall be mild steel or tinplate in accordance with AS/NZS 1580.104.1.
- c) The mild steel test panels shall be prepared by blast cleaning in accordance with AS 1627 Part 4, class 3.
- d) The tinplate panels shall be prepared in accordance with AS/NZS 1580.105.2.
- e) The dry film thickness per coat shall be 20-25 μ m (for sub-class AP-S0141/1) and 35-45 μ m (for sub-class AP-S0141/2).
- f) All panels shall be prepared according to the schedule in clause 9, Table 2.
- g) The manufacturers own quality control schedule of tests and limits shall be allowed subject to the approval of the Executive Officer (EO), APAS.
- h) On request, the EO may request the results of the tests for a batch and compare these with previous batches.
- i) Density and non-volatile content by weight (NVCW) figures for each production batch of the approved product shall be within $\pm 3\%$ of the actual (not theoretical) figures quoted in the original product approval submission (APAS document AP-D139).
- j) Subject to compliance with all the requirements of this specification, the level of Approval appropriate to the application shall be given to the system.

6.3 Health and Safety Requirements

- a) Shall not be a Schedule 1, Schedule 2 or Schedule 3 paint (SUSMP).
- 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 products covered by this specification contain hydrocarbon and chemical solvents, 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) Since the solvent vapours are heavier than air, bottom ventilation should be provided to the work area or solvent extraction should be affected from the floor area.
- f) Care should be taken to avoid contact with the skin by the use of protective clothing and barrier cream. All pumping equipment should be adequately earthed. A full-face air fed respirator should be used when spraying.

- g) Products intended for sale in Australia shall comply with all the requirements of the SUSMP. Products intended for sale in other countries shall comply with all local WHS and environmental requirements.
- h) The product shall comply with all requirements of clause 6.3 and 6.4 of APAS document AP-D192.



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7 TABLE 1: PERFORMANCE PROPERTIES

TEST	AS/NZS 1580 METHOD	REQUIREMENTS
Individual Component Testing – To be carried out on both Part A and Part B components		
Preliminary Examination	103.1	To be readily reincorporated. Shall be free of coarse particles, gel and foreign matter.
Flash Point	AS 2106	Minimum 15°C.
Keeping Qualities	103.1 211.1 211.2	After 12 months storage at ambient temperature, no gelation, the settling rating shall not fall below 4 and each component shall be readily reincorporated.
VOC Content	APAS AP-D181	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 is still required .
Mixed Product Testing		
Fineness of Grind	204.1	Maximum 75µm.
Thinning Compatibility	208.1	Using the manufacturers recommended maximum amount of thinners which shall not exceed 10% by volume, there shall be no signs of incompatibility. Six hours after mixing at 25°C the primer is to be miscible with cleaning solvent.
Non-volatile Content by Volume (Volume Solids)	301.2	To be within the following range: 0141/1: 18 – 25 %. 0141/2: 45 – 55 %.
Consistency – Flow Cup	214.2	Within the range 20-30 sec.
Application Properties - Spraying	205.2 or 205.4	Shall show satisfactory application properties and the dry film shall be free of defects.
Surface Dry Condition	401.1	Maximum 10 minutes.
Flexibility and Adhesion	402.1	6mm mandrel, shall show no cracking or adhesion failure.
Scratch Resistance	403.1	Not less than 2kg.
Recoating Properties – Primer / Epoxy Enamel	402.1 403.1 404.1	No lifting, cracking, wrinkling or other defects. After 48 hours, shall withstand the 2kg scratch test and show no delamination when bent around the 6mm mandrel.
Resistance to Humidity	452.1 481.3	After 4 weeks, to show no blistering nor loss of adhesion and visible rust rating not to exceed 1.
Colour - Visual Comparison	601.1	To be an approximate match.



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TEST	AS/NZS 1580 METHOD	REQUIREMENTS
Mixed Product Testing (Cont..)		
Specular Gloss	602.2	Maximum 30 units at 60°.
Finish	603.1	Shall be free of coarse particles, wrinkling, streaking, pin holing, cratering, floating or other defects and have a uniform colour and appearance.
Pot Life	205.4 208.1	After 6 hours at 25°C in a 4-litre full open top can, the primer shall have satisfactory application properties and thinner compatibility.

8 TABLE 2: PANEL PERFORMANCE TESTS

Test Name	AS/NZS 1580 Test Method	Test Panel	Minimum Size (mm)	First Coat Paint	Drying Period	Second Coat Paint	Drying Period
Surface Dry Condition	401.1	Tinplate	100x50	Primer	-	-	-
Flexibility and Adhesion	402.1	Tinplate	100x50	Primer	7 days	-	-
Resistance to Humidity	452.1	Steel	150x100	Primer	7 days	-	-
Recoating Properties - Bend Test - Scratch Resistance	404.1 402.1 403.1	Tinplate	100x50 100x50	Primer Primer	(i) 24 hrs (ii) 24 hrs	Enamel Enamel	(i) 24 hrs (ii) 24 hrs
Gloss	602.2	Glass	100x100	Primer	7 days	-	-
Finish	603.1	Tinplate	100x50	Primer	7 days	-	-



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9 APPENDIX A

Document History

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Document Version No.:	Date Published:	Summary of Changes:
9	27-08-2021	<ul style="list-style-type: none">• General format change to clause 1, 3.1 and 6.2• Updated background information in clause 2• Updated SUSMP information• Updated APAS website information
8	16-11-2020	<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• Inclusion of VOC Content requirement to Table 1 Performance Properties• Removal of references to APAS specification 0330 no longer in use• Addition of "People + Product = Protection" to Footer
7	14-05-2003	<ul style="list-style-type: none">• Deleted reference to GPC numbering and incorporated a general format update
6	02-02-2001	<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-P-141)