AP-D183

GUIDELINES FOR CHANGES TO FORMULATION OF APPROVED PRODUCTS

1 SCOPE

a) This document provides guidelines for managing required changes to the formulation of products currently approved under the Australian Paint Approval Scheme (APAS).
b) This document has been prepared in a manner compliant with the requirements of AS/NZS ISO/IEC 17065.
c) These guidelines are for all types of paint and surface coating products, including, but not limited to, those under the groupings of decorative, architectural, pavement marking materials, specialty and protective coatings.
d) Clause 8 Appendix A of this document provides guidance on defining minor and significant formulation changes.
e) A process has been agreed to whereby the Clients Recognised Manufacturing Units (RMUs) retain the flexibility to make formulation changes in response to market and commercial needs without compromising product quality and performance.
f) APAS® is a trademark registered with IP Australia, owned by CSIRO, the Scheme Owner, and protected under applicable laws. Use of the trademark or the Certification Scheme is prohibited unless prior approval in writing is obtained from CSIRO via the APAS Secretariat.

2 AUTHORITY AND RESPONSIBILITY

a) The Executive Officer (EO) - APAS is responsible for the content of this document and for ensuring conformance to the noted VOC limits for product submission(s) and product re-submission(s) seeking certification to an APAS specification(s).

3 PRINCIPLES

a) Paint and surface coating material purchasers participate in APAS because it gives them confidence that what they are buying conforms in all respects to the requirements of the APAS Specification(s) and the Certification Scheme.
b) Changes to approved formulations must be approached with care so as not to compromise this level of confidence.
c) The Australian Paint Approval Scheme (APAS):
   i. Recognises the benefits to the consumer which can result from the introduction of improved formulations arising from innovations in raw materials, and
   ii. Acknowledges that wherever feasible and within these guidelines, APAS will facilitate the development of improved products by, allowing external supporting data from Recognised Raw Material Suppliers, for the continuing product approval application, and
   iii. Acknowledges that RMUs need to strike an optimum cost / performance balance with their formulations, and that commercial pressures will change this balance from time to time. Formulation changes to redress the balance are a necessary part of life but must be made with clause 3.1 in mind, and
   iv. Acknowledges that the uncertainties involved in continuing approval of reformulated products, when the results of full specification testing are not available, need to be minimised.

4 DEFINITIONS AND ACRONYMS

4.1 Definitions

The definition of terms used in this document and in the Certification Scheme can be found in APAS Document AP-D001. In addition, the following definitions shall apply:

a) **Certification Scheme:** The Certification system related to specified products (Paint and Non-Paint Products) to which the same specified requirements, specific rules and procedures apply. APAS is the applicable Certification Scheme.
b) **Client:** The organisation responsible to the Certification Body (APAS) for ensuring that certification requirements, including product requirements, are fulfilled. The Client nominates a person(s) directly responsible (APAS Signatory) within its organisation, and to communicate directly with the Certification Scheme (APAS).
c) **Recognised Manufacturing Unit:** A company voluntarily choosing to participate in the Certification Scheme (APAS) whereby its manufacturing facilities have been assessed in accordance with AP-D177 for supply of products certified to APAS Specifications. The RMU forms part of the Client. Historically referred to as the Supplier.
d) **Recognised Raw Material Supplier:** A supplier who makes available to APAS all relevant information necessary to consider new or modified raw materials, particularly that pertaining to the formulation and exposure results of trial formulations.

4.2 Acronyms

APAS	Australian Paint Approval Scheme
APMF	Australian Paint Manufacturers Federation
CSIRO	Commonwealth Scientific and Industrial Research Organisation
EO	Executive Officer – APAS
MCR	Manufacturer's Colour Range
RMU	Recognised Manufacturing Unit
VOC	Volatile Organic Compound

5 REFERENCED DOCUMENTS

a) The following standard is referenced in this document:

   i. **AS/NZS ISO/IEC 17065** - Conformity assessment: Requirements for bodies certifying products, processes and services

This document may be purchased through the Reference Standards Australia website: https://www.standards.org.au/

b) The following APAS documents are referenced in this document:

   i. AP-D001 Rules Governing How APAS® Operates
   ii. AP-D181 Volatile Organic Compounds (VOC) Limits
   iii. AP-D192 Rules Governing the APAS® Product Certification Scheme

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

6 MANAGING CHANGES TO FORMULATIONS

6.1 Process

a) The normal procedure undertaken by an RMU when a formula revision is contemplated is for competent technical staff in the laboratory to evaluate several possible variants and a **trial formulation** selected.
b) The trial formulation is then scaled up from the laboratory to a small factory batch which is normally filled into containers labelled with a standard label.
c) The trial batch is introduced into the market and its performance followed. Depending on the feedback obtained, variations on the original trial formulation may be made (after suitable laboratory evaluation) and again field tested. This process may take several months.
d) After successful field trialling, the formulation is adopted as the standard formula and all batches are made to the new formula.
e) The requirements below apply to Significant changes to formulations.

6.2 General

a) All applications for formulation changes, and supporting evidence, must come from the Client's RMU, unless the change is an industry wide request in which case a submission may be lodged through the Australian Paint Manufacturer's Federation (APMF) or other appropriate umbrella organisation.

6.3 Extent of the Change

a) Changes to formulations are classed either as **Minor** or **Significant**, according to clause 8 Appendix A.
b) Generally, minor changes are not required to be notified to APAS unless they have a significant impact on the properties of the coating.
c) Where such significant impacts are expected, the Client's RMU shall treat the minor change as **Significant** in terms of this document.
d) All significant changes shall be notified to APAS. Notification shall take the form a full product resubmission as defined in APAS document AP-D192 clause 9.

6.4 Evidence Requirements - RMU

a) Product resubmissions following significant formulation changes shall be accompanied by test results as set out in the specification to verify that product properties have not been compromised.

NOTE: For the purpose of providing evidence of performance, durability testing may be varied to increase stresses on the paint. Therefore, to demonstrate as rapidly as possible that the new product is, on balance, equal or better to the existing product, the coating system and thickness may be reduced. For example, a system of primer and two finishing coats might be reduced for durability trial to a primer and one finishing coat or even a one coat self-priming finish provided that the approved comparison is similarly modified.

6.5 Evidence Requirements – Raw Material Supplier

a) Where the provision of supporting evidence is not (wholly or in part) immediately feasible, for example long-term tests such as exterior durability, supporting evidence from raw material suppliers shall be allowed **provided that**:
   i. It includes performance testing which confirms the product's compliance to the specification, and
   ii. The current approved raw material is included in the series as a control, and
   iii. The Client RMU's proposed formulation does not differ significantly from that of the raw material supplier's which is used to provide the supporting data - specifically weight solids (NVM) and PVC shall be similar
b) Where the product is part of a Manufacturer's Colour Range (MCR) and the raw material supplier has provided performance testing on white only (i.e. not on tint bases), the RMU is required to provide supporting data on ready mix and tinted colours. This will need to show that:
   i. The durability and aesthetic performance of the new formulation shall not be inferior to the

approved products and shall have numerical ratings no greater than the ratings detailed in the relevant specification for exterior exposure at 45° North after 24 months, and

ii. The manufacturer has exposed each tint base and the same factory mixed colours in accordance with the relevant specification at the time of application for product approval and shall provide to APAS the results of exposure after two (2) and three (3) years as appropriate to verify performance

NOTE*:* Following approval of the white, interim approval of bases may be granted subject to the base meeting all other specification requirements with durability data being provided every twelve (12) months from the date of submission.

6.6 Evidence Requirements - Other

a) APAS will also accept examples of product performance, such as case histories and field service, from any source **provided that**:
   i. The data can be verified by APAS or a party acceptable to APAS and independent of the manufacturer
b) Other testing may be submitted for consideration by APAS providing there is good traceability.

6.7 Evidence Requirements – Accelerated Testing

a) Accelerated durability data which may be considered includes:
   i. Durability data from SSL, Allunga or equivalent, either local or overseas
   ii. Natural accelerated durability data, such as from Allunga
b) Further accelerated exposure test data may be considered as part of any appraisal, but such testing must reflect the diversity of the conditions the product is required to withstand and their influence on product deterioration.
c) For example, anticorrosive coatings appraisal would be expected to include comparative evaluation with the approved product with respect to performance to:
   i. UV radiation,
   ii. Moisture migration and osmotic blistering, corrosion of the substrate, such as demonstrated by resistance to undercutting of a scored panel in salt fog testing

7 NOTIFICATION OF CHANGES TO FORMULA

7.1 General

a) Notification is only required for a significant formulation change as defined below. Refer also to clause 6.3 d) above.

7.2 Initial Notification

a) Where trial batches have limited release, for example to selected master painters only, initial notification is not required.
b) Where trial batches are released into the normal market, initial notification shall be made no more than one (1) week after the first factory batch is made. Notification shall take the form of a hardcopy letter or an email to APAS containing the following information:
   i. Product name and reference number
   ii. APAS specification number
   iii. Batch number(s) of batch(es) being made to the new formulation
   iv. Brief description of the nature of, and reason for, the change
c) Notification shall include every batch made to any non-approved formula that is released into the general market up until a full resubmission is made.

7.3 Full Resubmission

a) Within four (4) months of the initial notification of a significant change in formulation, a full resubmission shall be made to APAS. Refer to is APAS document AP-D192 for further information.

8 APPENDIX A

a) In determining whether a formulation change is **Minor** or **Significant**, the following guidelines should be considered:

8.1 Binders

a) As the binder is the material which is fundamental to coating adhesion / cohesion and durability, **all changes in or to resin / binder and types are classed as *significant***.
b) Where the binder is substituted by the same type of binder, but from a different supplier, it is expected that RMU's would conduct short-term screening test such as adhesion, intercoat adhesion, viscosity etc to verify supplier data, prior to making the change.
c) The results of such short-term test should be communicated to APAS as evidence of the satisfactory nature of the change.

8.2 Pigments and Extenders

a) A change of source for the same chemical type of pigment or extender, for example calcium carbonate or titanium dioxide, where the change is on a weight for weight basis, is not considered a significant change.
b) Both changes in quantity of existing pigments and extenders **and** changes in chemical types of pigments and extenders, where there is either more than a 5% weight/weight change on total formulation, or 25% change to the original weight quantity of the pigment or extender (whichever is the lesser), is considered a **significant** change requiring the provision of testing details to confirm the satisfactory nature of the change.

8.3 Solvents

a) As volatiles normally do not form part of the dried paint film, changes in solvents are considered minor except for the following where:
   i. The product may be used in a water immersion situation
   ii. The change takes the VOC level outside that required by APAS document AP-D181
   iii. Any other key properties affecting the service life of the film are altered

8.4 Additives

a) Unless an additive is present at a level greater than 3% of the total formulation, any change is considered minor and does not require notification.

9 APPENDIX B

Document History

Status: Current
Version: 10
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Document Version No.:	Date Published:	Summary of Changes:
10	11-06-2021	• Updated APAS website details within document • Further defined clause 1 b) Scope • General formatting changes
9	22-10-2020	• Addition of Appendix B Document History and removal of the Editorial Note previously used in document versions • Document brought in line with requirements of AS/NZS ISO/IEC 17065 • Updated clauses 1, 4 and 5 in line with other APAS documents
8	18-09-2020	• Name change from *Guidelines for Changes to Formulations of Approved Architectural Products* to *Guidelines for Changes to Formulations of Approved Products* • Updated document to the current format • Incorporation of definitions and acronyms • Minor editorial changes • Addition of “People + Product = Protection” to Footer
7	30-05-2019	• New document format • New APAS logo inclusion • Editorial changes
6	29-11-2000	• Changes to clauses 3.1, 3.4, 3.7 • Deletion of clause 4.0 • Clarification of definition of Significant change has been made in Appendix A
5	13-01-2000	• New document format • Changes to the system of notification of formulation changes