



## RESTRICTIONS ON INGREDIENTS IN PRODUCT FORMULATIONS

### 1 SCOPE

- This document specifies restrictions on ingredients (raw materials) that are used, or likely to be used in surface coating product formulations.
- This document is prepared in a manner compliant with the requirements of AS/NZS ISO/IEC 17065.
- The restrictions are applied on the grounds of Workplace Health and Safety (WHS) and environmental concerns raised either within Australasia or overseas.
- The document applies to all products approved, or seeking approval, by APAS against APAS specification(s) within the Certification Scheme.
- APAS® is a registered trademark 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

- The Executive Officer (EO) - APAS has full responsibility for ensuring compliance of certified products, and products seeking certification, to these requirements, and for the content of this document.

### 3 DEFINITIONS AND ACRONYMS

#### 3.1 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 within this document shall apply:

- 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.
- 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).
- Recognised Manufacturing Unit (RMU):** 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.
- Scheme Owner:** The organisation responsible for developing and maintaining the certification scheme. CSIRO is the APAS Scheme Owner.
- Secretariat:** The organisation that provides administrative support and other resources

necessary to keep the Certification Scheme functioning. The Secretariat is vested in CSIRO.

#### 3.2 Acronyms

<b>APAS</b>	Australian Paint Approval Scheme
<b>CSIRO</b>	Commonwealth Scientific and Industrial Research Organisation
<b>EO</b>	Executive Officer – APAS
<b>GC</b>	Gas Chromatography
<b>MS</b>	Mas Spectroscopy
<b>RMU</b>	Recognised Manufacturing Unit
<b>SDS</b>	Safety Data Sheet
<b>SUSMP</b>	Standard for the Uniform Scheduling of Medicines and Poisons
<b>TDS</b>	Technical Data Sheet
<b>WHS</b>	Workplace Health and Safety

### 4 REFERENCED DOCUMENTS

- The following standards are referenced in this document:
  - AS ISO/IEC 17025** – General requirements for the competence of testing and calibration laboratories
  - AS/NZS ISO/IEC 17065** - Conformity assessment: Requirements for bodies certifying products, processes and services
  - MIL MIL-PRF-24635F** – Performance Specification: Coating Systems, Weather-Resistant, Exterior Use

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-D139 Application Form for Product Certification (Manufacturer)
  - AP-D177 Rules Governing how Product Manufacturers Participate in APAS®

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

## RESTRICTIONS ON INGREDIENTS IN PRODUCT FORMULATIONS

### 5 BACKGROUND

- a) APAS document AP-D123 has traditionally referenced the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) for restrictions on certain ingredients in surface coating product formulations.
- b) Historically, the SUSMP did not restrict any ingredients. It was merely stating that if more than the nominated quantity of those ingredients is present in a surface coating product(s), certain additional labelling requirements will apply.
- c) Overseas, restrictions such as those adhered to in USA have contained many more substances that were not formally restricted or even listed in Australia or New Zealand. This version of the document updates those restrictions in line with available information.

### 6 RMU REQUIREMENTS

#### 6.1 General Requirements

- a) Clients applying for product approval(s) are required to sign a Declaration (refer to APAS document AP-D139, Section E) that the formula of the submitted product(s) complies with all requirements of this document.
- b) In addition to the requirements below, surface coating product(s) and/or tint(s) formulations **shall not contain:**
  - i. Any asbestos pigmentation or coal tar epoxy resins or derivatives.
  - ii. More than 0.1% Lead.
  - iii. Any Antimony, Barium, Cadmium, Chromium and Selenium *if the paint is to be applied to:*
    - Any surface used for the collection and/or storage of potable water
    - Furniture
    - Any fence, wall, post, gate or building (interior or exterior), other than those used for industrial purposes or mining or any oil terminal
    - Any premises used in the manufacture, processing, preparation, packaging or serving of products intended for human or animal consumption
- c) Means of demonstrating compliance are as per 6.2 below.

#### 6.2 Methodology

- a) Through inspection of raw material Technical Data Sheets (TDSs) and Safety Data Sheets (SDSs), an assessment shall be made as to the likelihood of any prohibited ingredient being present, either as an impurity or as an intentional or unintentional ingredient.

- b) Where these documents indicate the presence or likely presence of the prohibited ingredient, a determination as to the actual level shall be undertaken by calculating the appropriate level.
- c) Alternatively, the level may be determined using standard analytical methods, for example gas chromatography and mass spectroscopy (GC / MS). These shall be conducted by a laboratory that is accredited to undertake such tests under AS ISO/IEC 17025. A copy of the test report shall be provided to APAS along with the product approval documentation.
- d) Where restricted ingredients are present at levels that are close to the specified limits, the EO may request analytical determinations.

#### 6.3 Formulation Requirements

- a) Formulations submitted for approval must comply with each element in this section.
- b) See clause 6.1 b) above for additional content restrictions.
- c) Maximum levels quoted in Appendix A, Table 1 are calculated as percentages of the element or compound in upper case font present in the non-volatile portion of the paint.
- d) Maximum levels quoted in Appendix A, Table 2 are calculated as percentages of the compound in upper case font present in the total (wet) product formulation.

##### 6.3.1 Prohibited Total Metals

- a) The non-volatile content of the product formulation shall not contain more than the prescribed levels of the substances listed in Appendix A, Table 1.
- b) Up to 10% by weight calcined inorganic oxide with less than 0.1% solubility in 0.1 molar hydrochloric acid may be included in paint formulations as part of the overall pigment content.

##### 6.3.2 Hazardous Air Pollutants (HAPs)

- a) The total paint formulation shall not contain more than the prescribed levels of the substances listed in Appendix A, Table 2.

### 7 RECORDS

- a) The Clients evidence of compliance with the requirements of clause 6 above shall be the signed application form, APAS document AP-D139.

### 8 CHANGES

- a) When formulation changes are made that impact on the compliance of the product(s) to this document, the APAS Signatory shall provide to the EO a written notice of the nature of the change, its likely impact on certification compliance and what the Clients intention is with regard to certification.

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b) The EO shall assess the notice provided and determine the impact, if any, on certification and what needs to be done to retain certification.

### 9 APPENDIX A

**Table 1: Total Metal Content<sup>1</sup>**

Substance	Maximum Level (%w/w)
ANTIMONY and/or its compounds (other than antimony titanate pigments)	0.015 (<5%) <sup>2</sup>
ARSENIC and/or its compounds	0.001
BARIUM and/or its compounds (except barium sulphate or barium metaborate)	0.10 (<5%) <sup>2</sup>
BERYLLIUM and/or its compounds	0.0002
CADMIUM and/or its compounds	0.0005 (<0.1%) <sup>2</sup>
CHROMIUM (VI) compounds	0.0001
CHROMIUM and/or its chromium (III) compounds	0.56 (<5%) <sup>2, 3</sup>
COBALT and/or its compounds	0.005 <sup>5</sup>
COPPER and/or its compounds	0.01
FLUORIDE salts	0.18
LEAD and/or its compounds	0.005 (<0.1%) <sup>2</sup>
MERCURY and/or its compounds	0.0002
MOLYBDENUM and/or its compounds	0.035
NICKEL and/or its compounds	0.02 <sup>8</sup>
SELENIUM and/or its compounds	0.001 (<0.1%) <sup>2</sup>
SILVER and/or its compounds	0.001
TANTALUM and/or its compounds	0.1
THALLIUM and/or its compounds	0.007
TUNGSTEN and/or its compounds	0.1
VANADIUM and/or its compounds	0.01 <sup>9</sup>

**Table 2: Hazardous Air Pollutants (HAPs)<sup>1</sup>**

Substance	Maximum Level (%w/w)
BENZENE	0.1
CHLORINATED SOLVENTS <sup>4</sup> total	0.05 (<5%) <sup>2</sup>
METHYL, ETHYL, and BUTYL MONO-ETHERS of ethylene glycol or the acetates, total (Methyl, ethyl and Butyl Cellosolves and acetates)	0.05 (<10%) <sup>2, 6</sup>

**Table 3: Other Hazardous Ingredients<sup>1</sup>**

Substance	Maximum Level (%w/w)
4, 4-methylenedianiline (MDA)	0.1

**NOTE:**

<sup>1</sup> Tables 1, 2 & 3 were originally based on the US specification MIL-PRF-24635 and have been modified to reflect more realistic and current requirements, including the current version of this document noted in clause 4 a) iii.

<sup>2</sup> Figures in brackets are current SUSPM levels

<sup>3</sup> Chromium III and its compounds are exempt and excluded from this calculation

<sup>4</sup> Includes carbon tetrachloride, chloroform (trichloromethane), methylene chloride (dichloromethane), tetrachloroethylene (perchloroethylene), 1,1,1-tri chloroethylene (methyl chloroform).

<sup>5</sup> Total cobalt content may exceed 0.005% up to a maximum of 0.2%w/w only where a cobalt drier is used to effect proper drying.

<sup>6</sup> Ethylene glycol monobutyl ether is exempt.



## RESTRICTIONS ON INGREDIENTS IN PRODUCT FORMULATIONS

### 10 APPENDIX B

#### Document History

Status: Current  
Version: 9  
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Document Version No.:	Date Published:	Summary of Changes:
9	11-06-2021	<ul style="list-style-type: none"><li>Updated APAS website details within document</li><li>Updated SUSMP reference to latest version</li><li>Further defined clause 1 b) Scope</li><li>Replaced OH&amp;S reference with WHS in clauses 1 c), 3.2</li><li>General formatting changes</li></ul>
8	22-10-2020	<ul style="list-style-type: none"><li>Addition of Appendix B Document History and removal of the Editorial Note previously used in document versions</li><li>Updated clause 4 with new SUSMP version</li></ul>
7	25-09-2020	<ul style="list-style-type: none"><li>Name change from <i>Restrictions on Ingredients in Paint Formulations</i> to <i>Restrictions on Ingredients in Product Formulations</i></li><li>Document brought in line with requirements of AS/NZS ISO/IEC 17065</li><li>Updated document to the current format</li><li>Incorporation of definitions and acronyms</li><li>Expands on the list of prohibited substances in surface coating products</li><li>Updated limits to reflect currently available information</li><li>Minor editorial changes</li><li>Addition of "People + Product = Protection" to Footer</li></ul>
6	05-09-2015	<ul style="list-style-type: none"><li>New Document format</li><li>Expands the list of prohibited substances in paint and coating formulations</li></ul>
5	01-03.2000	<ul style="list-style-type: none"><li>New document format</li></ul>