

**ALK 2 PAINT SPECIFICATION FOR STRUCTURAL STEEL .**  
**UNITED PAINTS REF: UNIEPOXY POLYAMIDE PRIMER**



System Ref: ALK 2 – AS/NZS 2312.1:2014

**PAINT SYSTEMS FOR STEEL**

| Coating system details |                     |                         |     |            |          |     |            |          |     |            | Durability - Years to first maintenance |                                  |        |        |         |                           |                       |                   |
|------------------------|---------------------|-------------------------|-----|------------|----------|-----|------------|----------|-----|------------|---|----------------------------------|--------|--------|---------|---------------------------|-----------------------|-------------------|
| System designation     | Surface preparation | 1st Coat                |     |            | 2nd Coat |     |            | 3rd Coat |     |            | Total nom DFT µm                        | Atmospheric corrosivity category |        |        |         |                           |                       |                   |
|                        |                     | Type                    | PRN | Nom DFT µm | Type     | PRN | Nom DFT µm | Type     | PRN | Nom DFT µm |   | C1 Very Low                      | C2 Low | C3 Med | C4 High | C5-I Very high industrial | C5-M Very high marine | T Inland Tropical |
| <b>ALKYD</b>           |                     |                         |     |            |          |     |            |          |     |            |   |                                  |        |        |         |                           |                       |                   |
| ALK2                   | Sa 2½               | High build Alkyd Primer | C04 | 75         |          |     |            |          |     |            | 75                                      | 15+                              | 5-15   | 2-5    | -       | -                         | -                     | 2-5               |

**United Paints Product Specification: ALK2**

**Surface Preparation: All Steel will need to be prepped to an Sa 2½ standard as per As/NZS2312.1:2014 Specification**

| System                                    | Data Sheet                | Application Method | Theoretical Cover m <sup>2</sup> /lit | D.F.T. microns | M.F.T. microns | Pack Type | Pot Life Hrs | Reducer       | Recoat min (hr) |
|---|---------------------------|--------------------|---------------------------------------|----------------|----------------|-----------|--------------|---------------|-----------------|
| <u>ALK2:</u><br>Uniepoxy Polyamide Primer | Uniepoxy Polyamide Primer | Airless Spray      | 6.7 m <sup>2</sup> / lit              | 75 micron min  | 150 micron min | Two       | 6            | Epoxy Thinner | 4-6             |

*this specification is subject to*

*NZS/ AS 1627  
 NZS/ AS 2312.1:2014  
 AS 3894 – 3*

*Metal finishing , Preparation and Pretreatment of surfaces .  
 Guide to protection of Iron and Steel .  
 Determination of Dry film thickness .*

**Notes :**

- MSD Sheets are available on request or via Website [www.unitedpaints.co.nz](http://www.unitedpaints.co.nz)
- Confirm correct colours with project supervisor before application .
- Practical coverage is project and applicator dependant .
- This specification must be read in conjunction with the relevant data sheets and **supporting documentation** attached.

## Amendment to

### AS/NZS 2312: Part 1 2014

Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings  
Part 1: Paint Coatings

Pages 51 to 54

Table 6.3

\*Reinstate systems ALK2 and ALK4 from 2002 edition.

*Justification: We have been hasty deleting these systems, as they appear to be widely used for the more benign environments and do not require the application or QC skills that most other systems require. ALK2 was a low cost primer/finish for benign conditions and widely used. ALK4 was essentially a low cost decorative system where there were colour/gloss requirements and some degree of resistance to wear and tear needed. While we have always said there are many acceptable systems not in the standard, it appears that those who specify these would be uncomfortable specifying systems that do not have Standards approval. These two systems do require blasting to Sa2½ unlike the three ALK systems still in, and we should be encouraging the much better standard of preparation for better durability and finish.*

|      |   |       |                         |     |    |             |     |    |   |   |     |     |      |     |   |   |   |     |
|------|---|-------|-------------------------|-----|----|-------------|-----|----|---|---|-----|-----|------|-----|---|---|---|-----|
| ALK2 | — | Sa 2½ | High build alkyd primer | C04 | 75 | —           | —   | —  | — | — | 75  | 15+ | 5-15 | 2-5 | — | — | — | 2-5 |
| ALK4 | — | Sa 2½ | High build alkyd primer | C04 | 75 | Alkyd gloss | C20 | 40 | — | — | 115 | 25+ | 5-25 | 2-5 | — | — | — | 2-5 |

\* System ACL4: Column 4, 5 (Type, PRN): Replace "HB Epoxy C13" with "VHB Epoxy C13a"

Systems ACC2, ACC4: Column 5 (PRN): Delete "C02"

Systems ACL1, ALK1, ALK2, ALK3 Column 3 (Surface prep): Delete "St3/Sa2." Replace with "St3/Sa1/Sa2"

*Justification: There is confusion that "St3/Sa2" does not include a simple brush blast (Sa1). This change makes it clear it is acceptable.*

System EVH2: Column 6 (Nom DFT): Delete "400". Replace with "400 or 2x200"

\* System EVH3: Column 9 (Nom DFT): Delete "400". Replace with "400 or 2x200"

*Justification: There are some products and situations where two thinner coats would be more desirable than a single coat of 400 microns.*

System IZS4: Column 17 (C4): Delete "5-25". Replace with "15-25"

\* System MCU1: Column 15 (C2): Delete "10-15". Replace with "15-25"

*Justification: This system has got to be more durable than ACC2 which has all its other cells with identical ranges as MCU1.*

System PSL2: Column 18, 19 (C5-I, C5-M): Delete "15-15". Replace with "15-25"

\* Also for consistency, in PSL2 and PSL3, replace "HB epoxy" with "High build epoxy"

System PUR2a: Column 8 (PRN): Delete "C26". Replace with "C15".

System PUR6, 7: Column 7, 8 (Type, PRN): Delete "High-build epoxy" "C13". Replace with "Epoxy mastic" "C32".

*Justification: It is unlikely that HBE would be specified as a tie-coat between Epoxy mastic or ZRE primers and PU.*

System PES3, VES2: Column 13 (Remarks): Delete “See Notes 4, 5, and 6”. Replace with “See Notes 5 and 6”.

System EPN1 (two places): Column 13 (Remarks): Add “See Notes 4 and 5”.

\* All EVH2: Column 5 (Nom DFT): Delete “400”. Replace with “400 or 2x200”. Delete all references to EVH3. Replace EVH4 (in “Alkaline Splash”) with EVH3 from Table 6.3 which now includes 2x200 microns as alternate.

*Justification: The EVH systems in Table C1 do not correlate to the EVH systems in Table 6.3. The current EVH3 in Table C1 is now covered by the amended definition to EVH2 which includes 2x200 microns as alternate.*

\* Table D1: PRN13a. Column 3, change thickness to ">200um".

Reinstate Paint C20 (used in ALK3):

|     |                   |   |  |    |                        |  |
|-----|-------------------|---|--|----|------------------------|--|
| C20 | Gloss alkyd paint | Consists of alkyd resin binder and hydrocarbon solvent, with white or coloured pigments to suit | As a finishing paint over primed and undercoated steel<br><br>For interior or exterior weather exposures on tanks, roofing, pipelines and structural steel generally exposed to mild chemical and industrial fumes<br><br>Not suited to an environment having extreme chemical or corrosive conditions | 45 | Brush, roller or spray | AS 4025.1<br>APAS 0015/1 or<br>APAS 0024/1 |
|-----|-------------------|---|--|----|------------------------|--|

## **PAINT COATING SELECTION AND SPECIFICATION: CHANGES TO AS/NZS 2312**

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### **Key Words**

AS/NZS 2312, Coatings, Paint

### **Introduction**

Australian/ New Zealand Standard AS/NZS 2312 *Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings* provides guidelines for selection and specification of coating systems for corrosion protection of structural steelwork. The designer can choose from a selection of systems based on exposed service life to first maintenance for various environments. AS/NZS 2312 has recently undergone a major update. Galvanizing and metal spraying have now become separate standards. A short summary of the major changes to AS/NZS 2312 and use of the standard is provided.

### **Major Changes to AS/NZS 2312**

A good summary of changes to AS/NZS 2312 and reasons are provided by the chairman of the revision process in (Francis, 2014). AS/NZS 2312 has been revised into three Parts.

The three parts are:

- AS/NZS 2312.1 Part 1: Paint Coatings
- AS/NZS 2312.2 Part 2: Hot Dip Galvanizing
- AS/NZS 2312.3 Part 3: Thermally Sprayed Metallic Coatings (in preparation)

All three parts are aligned with the relevant Australian and New Zealand corrosivity standards, i.e. AS 4312-2008 and Section 5 of NZS 3404.1:2009. Part 1 covers only liquid-applied paints whose main purpose is corrosion mitigation. It contains much of the information that was included in AS/NZS 2312:2002 with the following main changes.

Section 5 which covered metallic coatings has been deleted, Section 7 on coating selection has been moved to Section 5, Section 8 which covered powder coatings and tapes has been edited and moved to Appendix H, and Section 13 which covered health and safety has been deleted.

Part 1 has updated recommended coating systems and deleted some rarely used and problematic ones. Additional information is provided on contentious issues such as fabrication defects and warranties.

Part 2 completely replaces and updates the previous Section 5 on hot dip galvanizing (HDG) and is closely aligned to the ISO 14713 series of guides for zinc coatings. Also covered in Part 2 are mechanically plated and electrodeposited coatings, and 'duplex systems' where organic paint is applied to HDG.

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Part 3 (which will replace Section 5.2 Metal Spray Coatings in AS/NZS 2312:2002) has yet to be finalised, in part due to the delay in completing the revision of ISO 2063.

### **Use of the Standard**

The main purpose of the standard has not changed in that it is designed, as noted in the preface, to:

*"Provide guidance for architects, engineers, builders, the surface coating industry and users of protective services in general, on paint coating systems for the protection of steel work against corrosion."*

It is important to note that the standard is only a guide. There are many useful and economic coating systems not included. The intention of the standard is to give specifiers a general direction in specifying coatings to compliment specialist advice from corrosion and coating experts. Some paint systems removed from the latest version of AS/NZS 2312 may still be a suitable system for a particular environment. For example the alkyd, ALK2, paint system has been removed as it was considered to be rarely specified by the standards committee. The ALK2 paint system could still be specified by reference to the 2002/2004 edition of AS/NZS 2312 as there was no technical reason for removal.

### **References**

AS/NZS 2312:2002/2004, Guide to the Protection of Structural Steel against Atmospheric Corrosion by the Use of Protective Coatings, incorporating Amendment No 1:2004. Standards New Zealand, Wellington.

AS/NZS 2312.1: 2014 Guide To The Protection Of Structural Steel Against Atmospheric Corrosion By The Use Of Protective Coatings - Paint Coatings, Standards New Zealand, Wellington, 2014

AS/NZS 2312.2: 2014 Guide To The Protection Of Structural Steel Against Atmospheric Corrosion By The Use Of Protective Coatings - Hot Dip Galvanizing, Standards New Zealand, Wellington, 2014

Francis, R. A., 'Paint Coating Selection and Specification: Changes to AS/NZS 2312', Corrosion and Prevention 2014, Australia, Paper 017.