



# PROCEDURE



Title: **Ladders**

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### 1.0 PURPOSE

To establish standards for the type of construction, use and maintenance of portable and fixed ladders throughout QAL.

### 2.0 SCOPE

- 2.1 To eliminate the possibility of sub-standard ladders being utilised within the Plant
- 2.2 To ensure that only recognised and tested methods of ladder use are adopted by all personnel
- 2.3 To provide adequate preventative maintenance on ladders used by all personnel
- 2.4 To ensure that all portable ladders are maintained as per AS1892 Part 1, 2 & 3
- 2.5 To provide controls on the safe use of ladders

### 3.0 RESPONSIBILITIES

#### HSE Manager

The HSEC Manager shall review and approve the use of Aluminium ladders for specific tasks to be performed in Bayer Process areas. The HSEC Manager shall also review and authorise the use of single ladders exceeding 9m in length in confined spaces and other agreed works.

#### Area Superintendent

The Area Superintendent shall approve the purchase of Aluminium ladders and shall also ensure appropriate storage facilities are provided for the storage of the Aluminium ladders. The Area Superintendent shall also

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be responsible for ensuring all Aluminium ladders authorised for purchase by them are included in the routine NDT inspection program.

#### **Area Day Supervisor**

The Area Day Supervisor shall be responsible for review of NDT inspections of Aluminium ladders including removal from service of defective ladders and notification of removal and placement of orders for new ladders.

#### **Maintenance/Operations Personnel**

Personnel using Aluminium Ladders shall be responsible for the storage, inspection and clean-down of the ladders, and making the ladders available for inspection.

#### **NDT Technician**

NDT Technician shall be required to inspect the ladders on a routine basis for evidence of caustic or acidic damage to the ladders, including the examination of the swaged connection of the ladder rungs to the stiles. The NDT Technician shall also be responsible for the preparation of inspection reports detailing the examination of the Aluminium ladders.

#### **Procurement Personnel**

Procurement personnel purchasing Aluminium ladders shall be required to ensure the ladder complies with the requirements of this procedure, including welded fabrication and marking with unique identification prior to delivery to site.

### **4.0 REFERENCES**

P314.311 – Work at Height

PM316.001.33 – Safe Use - Ladders

W314.401.01 – Registration of an Aluminium Ladder

W314.401.02 – Inspection of Aluminium Ladders

***Workplace Health and Safety Regulation, Sections 190-192***

AS1892 – Portable Ladders – Part 1 – Metals

AS1892 – Portable Ladders – Part 2 – Timber

AS1892 – Portable Ladders – Part 3 – Reinforced Plastic

AS1892 – Portable Ladders – Part 5 – Selection, Safe use and care

### **5.0 DEFINITIONS**

#### **5.1 Portable Ladders**

##### **Double-sided Step Ladder**

A self-supporting portable ladder of fixed length with two pairs of stiles, which are hinges or fixed and each fitted with treads for ascent or descent.

##### **Dual Purpose Step Ladder**

A self-supporting step ladder of which the back section is fitted with rungs or treads, and which can be further adjusted to provide an extension of the front section as a non-self-supporting portable ladder.

##### **Extension Ladder**

A non-self-supporting portable ladder consisting of two or more sections travelling in guides, including interlocking stiles or brackets arranged in order to permit adjustment of working length.

##### **Aluminium Ladder**

A ladder that has stiles and rungs constructed of aluminium.

##### **Fibreglass Ladder**

A ladder that has stiles constructed of fibreglass, plastic or fibre-reinforced plastic. The rungs may also be of fibreglass, plastic or fibre-reinforced plastic, but shall also include those having rungs made of timber, steel and aluminium.

#### **5.2 Fixed Ladder**

A ladder that is permanently fixed in position

## 6.0 ACTIONS

### 6.1 General Provisions for Portable Ladders

Ladders used in QAL must be as follows:

- Have a load rating of at least 120kg; **AND**
- be manufactured for industrial use; **AND**
- be used only for the purpose for which it is designed; **AND**
- is not used to support a weight greater than that for which it is designed; **AND**
- is no longer than (except in confined space entries) –
  - for a single ladder of runged construction – 9m; or
  - for a single ladder of cleated/tread construction – 4.9m; or
  - for an extension ladder – 15m.

Timber ladders and steel ladders may be utilised in all areas of the plant. Single ladders longer than 9m may be used in confined spaces on site subject to risk assessment and the approval of the HSEC Manager.

### 6.2 Aluminium Ladders

Aluminium ladders generally shall not be permitted for use in Bayer process areas or where there is a risk of exposure to caustic or acidic solutions.

Aluminium based metal ladders MAY be used on site UNDER STRICT CONTROL in circumstances approved by the HSEC Manager. The ladders shall be utilised, maintained, stored and inspected in accordance with the requirements specified herein.

Each aluminium ladder used on site shall be purchased by QAL subject to the approval of the relevant Area Superintendent.

Aluminium ladder rungs are commonly swage fitted to the stiles. To prevent caustic ingress into this connection, the joint connection shall be seal-welded prior to arrival of the ladder on site.

The ladder shall be issued with a unique Equipment Identification Number as prescribed in W314.401.1 to enable tracking of the ladder's location on site, inspection and maintenance records. This unique Equipment Identification Number shall be permanently marked on both ladder stiles by either welding or stamping, and recorded in the Owner's computerised business management facility (SAP). This unique number SHALL NOT be re-used on replacement ladders in the event of a ladder being permanently removed from service.

Ladders shall be maintained in a good condition, and stored in an enclosed and secured environment, free from exposure to caustic or acid.

### 6.3 Fibreglass, Plastic or Fibre-Reinforced Plastic Ladders

Fibreglass, Plastic or Fibre-Reinforced ladders SHALL NOT be utilised in any area subject to caustic or acid working environments.

### 6.4 Electrical Hazards

Metal ladders, wire re-enforced timber ladders or any ladder containing electrically conductive material in the stiles shall not be used where any electrical hazard exists. Such ladders shall be marked "not suitable for electrical use".

### 6.5 Metal Ladders

Metal ladders shall be of "industrial duty" rating only. No domestic designs shall be permitted.

## 6.6 Inspection and Maintenance

### 6.6.1 Metal Ladders

- (a) Inspection Ladders shall be periodically inspected and shall be inspected before each use, particular attention being paid to internal corrosion. Should any defect be found, the ladder shall be taken out of service and repaired.
- (b) Maintenance – All pivoting or rotating surfaces should be lubricated with a light machine oil. Bolts and rivets shall be present and secure before a ladder is used. If a bolt or rivet is found to be loose, or missing, the ladder shall not be used until repairs are completed. If a ladder is fitted with feet, it shall not be used if the feet are excessively worn. Ropes showing signs of fraying or wear shall be replaced. Under no circumstances shall any temporary repairs be made to any ladder.

### 6.6.2 Timber Ladders

- (a) **Inspection** Ladders shall be periodically inspected, and shall be inspected before each use. Particular attention shall be paid to shakes in the timber, loose rungs or treads, twisting and racking, evidence of termites, borers and decay, and corrosion of metal parts.
- (b) **Hot Conditions** – A timber ladder shall not be placed where it may be subjected to prolonged exposure to temperatures greater than 66°C.
- (c) **Maintenance** Ladders shall be maintained in a good condition, clean and free from splinters. Fittings and rungs or treads shall be tight and securely attached. Pivoting and rotating components should be lightly oiled and all moving parts shall operate freely without bending or play. Ropes showing signs of fraying or wear shall be replaced. Under no circumstances shall any temporary repairs be made to any ladder.
- (d) **Coating of Stiles** regular application of oil, transparent varnish or other similar protective coating shall be made to the stiles of timber ladders especially where the ladder is to be used outdoors. Such coatings shall not be allowed to build up to the extent that they may obscure compression failure or other defects which may occur.

### 6.6.3 Aluminum Ladders

Ladders shall be subject to six (6) monthly non-destructive testing (NDT) inspection as prescribed in W314.410.2, and shall be visually inspected before each use. Particular attention shall be paid to dents, deformations or gouges in the aluminium, loose rungs or treads, twisting and racking and evidence of caustic or acid exposure. Aluminium ladders shall be stored, maintained and inspected as prescribed herein and shall be removed from service immediately and destroyed if found to be defective. Where an aluminium ladder is destroyed due to a defect or permanently removed from service for any reason, the Aluminium Ladder Register shall be revised to reflect its removal from service as prescribed in Work Instruction W314.401.01.

Fittings and rungs or treads shall be tight and securely attached. Pivoting and rotating components should be lightly oiled and all moving parts shall operate freely without bending or play. Under no circumstances shall any temporary repairs be made to any ladder.

Where aluminium ladders are to be used to access tanks or areas that have previously been exposed to caustic liquids or materials, the contact surfaces for the aluminium ladder shall be hosed clear of all caustic-containing materials.

The aluminium ladder shall be hosed down with fresh water a minimum of four (4) times per 12-hour shift, and upon completion of rest breaks, visually inspected prior to work re-commencing. Upon completion of the use of the aluminium ladder, the ladder shall be removed from the work area and hosed clean prior to storage at its designated storage area.

**6.6.4 Fixed Ladders**

Fixed ladders should be visually inspected before use, looking for damage that could potentially make the ladder unsafe. If an issue is identified, the ladder should have a barricade erected and tagged out of service to prevent an incident occurring. The unsafe ladder shall be reported immediately to the relevant area owner.

**6.7 Safe Working Practices**

PM316.001.33 and the following describe safe use of ladders in general.

- (a) Prior to using a ladder, inspect it for obvious damage, i.e. missing feet, bent rungs, missing rivets. If defective, tag as unserviceable and report the defect to the Supervisor in control the Workplace
- (b) Observe the manufacturer's instructions affixed to the side of the ladder at all times
- (c) Ladders must not be used to support a platform
- (d) Extension ladders must be placed so that the angle between the ladder and the horizontal is at least 70° but not more than 80° when in use, and extend 1 metre above the surface being accessed
- (e) When the only practical way to carry out a job over 1.8 metres in height is through the use of an extension ladder, the ladder should be securely tied at the top through the ladder stiles and at least one rung and the bottom of the stile shall rest upon a solid foundation giving support at the base which should prevent movement in any direction
- (f) The person using the ladder must ensure that the bottom of the ladder is on a stable surface; and the rungs of the ladder are approximately level
- (g) When erected, if the ladder is exposed to pedestrian or vehicle traffic, then it shall be barricaded and signposted to protect it from collision
- (h) Use slip resistant footwear when ascending and descending ladders
- (i) The person using a ladder must face the ladder and have their hands free at all times to grip the stiles when climbing or descending the ladder. Alternative systems must be used to bring items of equipment up or down the ladder, i.e. ropes or tool belts, etc.

**6.8 Using a ladder as a work platform**

Ladders are primarily designed as a means of access. **When the feet of the user are over 1.8 metres from the ground surface** ladders should only be used as a work platform if:

- (a) an assessment is carried out to identify the risk and appropriate controls are taken to minimise the risks associated with the work done from the ladder, and the risk assessment shall identify that other methods of working at the required height are not reasonably practicable
- (b) three points of contact are maintained and the body of the user is facing the ladder
- (c) the centre of gravity is kept over the ladder, do not lean out
- (d) when conducting work that increases the risk of a fall, e.g. welding or where a person's feet are 1.8 metres or more above the floor, or lesser height where a fall may result in serious injury or death, personal fall protection should be used
- (e) Personal fall protection systems are not to be attached to a portable ladder

**7.0 ATTACHMENTS**

Nil

**8.0 REVISION HISTORY**

Issue	Revision	Revision date	Change Reason
1	9	10/12/2016	Scheduled Review and update to new template