

**REPORT DST090**

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**TESTS ON MONARFLEX T PLUS  
SCAFFOLD SHEETING**

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**IN CONFIDENCE TO  
Coverall Australia Pty Ltd**

**21 December 1990**



DIVISION OF BUILDING, CONSTRUCTION AND ENGINEERING

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AUSTRALIA

**TESTS ON MONARFLEX T PLUS  
SCAFFOLD SHEETING**

**Job No ND12ST0800**

**SPONSOR:** Coverall Australia Pty Ltd  
1 Canarvon Road  
West Gosford 2250

**TEST DATE:** 5 December 1990

**BACKGROUND:** CSIRO was commissioned by Coverall Australia to carry out tests demonstrating the resistance of Monarflex scaffold sheeting to penetration by objects dropped from a height. Scaffold sheeting is used for climatic and dust control purposes. It should also have the capability to deflect small falling objects and debris back to the inside of the scaffolding around a building.

The conditions of the tests were intended to simulate those likely to be found on a building site and therefore to assess the performance of Monarflex as a scaffold sheeting. There is no standard test for this performance. An impact test would seem to be the most suitable but no guidance could be obtained from the authorities about appropriate conditions or criteria of acceptance.

**SPECIMEN:** The specimen consisted of 2m x 3m sheets of Monarflex scaffold sheeting. The sheeting was described by the sponsor as a low density polyethylene laminate reinforced with 1500 denier multifilaments (see attached data sheet).

The sheet was attached to a horizontal scaffold frame using the specialised fixing straps. The straps were fitted into the fixed washers at 900mm centres both along and across the sheet.

The sheet and horizontal frame were suspended approximately 1200mm above the ground.

- ATTACHMENTS:**
- Monarflex T PLUS scaffold sheeting information data sheet.
  - British Aerospace Test Report Number HWT- N- MISC- 001856
  - Sample of Monarflex T PLUS scaffold sheeting with a fixed washer.

**PROCEDURE:** The test specimen was positioned at the foot of a tower. Various tools and items representing those likely to be in frequent use on a building site were dropped from the top of the tower, at a height of 10.7 metres, onto the sheeting. The objects ranged in weight from 258 grams to 4138 grams and some were chosen to have sharp points. Observations were made of the damage caused by impact of the various items.

Two specimens of sheeting were used and impact testing was carried out on three areas of each sheet (each covering approximately 1000mm x 900mm). Each area was tested until the damage caused made it difficult to carry out any further tests without the items landing on pre-tested areas.

## OBSERVATIONS:

ITEM	Weight (gms)	COMMENT
8 metre tape	459	no damage
30 metre tape	515	no damage
bolster	883	small puncture
pipe wrench 14 inch	1021	no damage
"G" clamp 200mm	2027	puncture, 2 holes 40mm and 90mm long, held
claw hammer	820	no damage
lump hammer	1519	no damage
sledge hammer	3635	no damage
screw driver 300mm	258	no damage (impact angle approximately 45° point first)
tyre lever	803	puncture, held (impact angle approximately 90°)
screw driver 300mm	280	puncture, held (impact angle approximately 90° point first)
adjustable clamp	1930	puncture, held
bricklayer's trowel	402	small puncture
pinch bar 600mm	996	puncture, held (impact angle approximately 90°)
electric drill 10mm	1731	no damage
power saw	4138	puncture, held
hand saw	655	no damage (impact angle approximately 90° blade first)
hand plane	1601	no damage
brick	2858	no damage
timber 95x45x1500	3407	puncture, held (impact angle approximately 90°)

**None of the objects dropped onto the sheeting passed through – damage was limited to small punctures and tears.**

**In use the sheeting is mounted vertically and would therefore be subjected to less severe impacts than those used in the tests. The drop height for the tests was approximately 3 storeys. Since an object dropped from a building would have to strike the scaffolding and bounce sideways before it could impact the sheeting directly it would not retain the full energy of the drop height. The test drop of 3 storeys could therefore be taken to represent an actual drop from at least 6 storeys followed by a deflection sideways from a hard object such as the edge of a scaffold plank.**

**Photograph 1 shows the various items dropped onto the sheeting.**

**Photograph 2 shows the sheeting pierced but not penetrated by the 300mm screwdriver.**

**CONCLUSIONS: The Monarflex scaffold sheeting is considered suitable for use as a scaffold sheeting providing a reasonable level of protection from dropped objects.**



**Photograph 1. Various items dropped onto the sheeting.**

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**Photograph 2. Sheeting pierced but not penetrated by a 300mm screwdriver of 280gm weight.**

**G Worthing**

***Project Officer***

**Dr SJ Lawrence**

***Project Leader***