



Presentation by

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## Victorian EPA:

- [www.epa.vic.gov.au](http://www.epa.vic.gov.au)

## Dr Mathis Wackernagel sites:

- [www.rprogress.org](http://www.rprogress.org)
- [www.ecofoot.net](http://www.ecofoot.net)
- [www.redefiningprogress.org/footprint](http://www.redefiningprogress.org/footprint)
- [www.footprintnetwork.org](http://www.footprintnetwork.org)

Two institutions that can assist you with calculating your ecological footprint

## “Coloured Formula Optimisation”

manufacturing tool used in production scheduling, leading to:

- savings from water reduction
  - reduced labour
  - minimising overheads
  - increasing our respect for the environment
- whilst maintaining a healthy bottom line.

Developments by Sandmar in pursuit of reducing its ecological footprint

- Aquepoxy<sup>®</sup> Sealers & Floorcare products
- Acoustic & Fire rated construction sealants
- Acrylic Joint Sealants for tilt up construction
- Coloured Caulks
- Coloured Gap Fillers
- Construction Adhesives

Sandmar product range

# Clean and Green Manufacturing



Sandmar Aquepoxy® Concrete Sealers



# Clean and Green Manufacturing



## Sandmar Aquepoxy® Colour Range



- Our Ecological Footprint
  - Reducing Human Impact On Earth
  - Sharing Nature's Interest
  - World Wildlife Fund (WWF)
- International Living Planet Report

Dr Mathis Wackernagel metrics for sustainability



- Raw materials used
- Deliveries of raw materials
- Labour and overheads
- Filling and packaging
- Storage for completed goods
- Batch manufacturing time
- Destination of sale of goods

Melbourne University calculations based on Sandmar Aquepoxy information

- Lower number of raw materials per batch
- Less manufacturing time
- Less labour and reduced overheads
- Cost effective packaging in 25 lt versus 4 lt
- Less raw materials means:
  - Less ordering and deliveries
  - Reduction in labour to organise supplier raw materials
  - Reduction in total impact on the demand of goods and services

Main reasons for achieving a lower footprint with 25 lt Aquepoxy versus 4lt can of paint

- Ordering raw materials on a monthly basis
- Purchasing and sourcing locally produced raw materials
- Minimising overheads:
  - Turning off lights and equipment not in use
  - Recycling damaged goods (accidents or in transit)

Reasons for reduction in footprint over 2 years from 24 gha to 17 gha

1. A full water treatment where the sludge and liquid are removed off site by an Authorised Liquid Waste Remover at a cost of “approx” \$5 per kg
2. A full water treatment where the liquid portion is collected for reuse with a high pressure cleaner or reworked into products such as fence paints
3. The remaining sludge from 2. can either be taken away by an Authorised Remover or further treated and solidified in house using Sandmar’s method

3 main outcomes of water treatments



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## Method 1:

Hydrochloric Acid to reduce pH and control stability  
Limil (Calcium Oxide) to begin phasing stage and neutralise odour  
Aluminium Sulphate for flocculation and settling process  
- very labour intensive and requires extreme care

## Method 2:

Poly Aluminium Chloride if the pH is between 7 – 9 to maintain a neutral pH while phasing and settling the pigment component - very efficient but expensive.

## Method 3:

Aluminium Sulphate to treat water especially if your intention is only to reuse the treated water after the settling has occurred - most economical method

**3 methods to treat 10,000 to 15,000 litres wash water**



- Wash Tank
- Holding Tank
- Sieve Tank
- Final Drain Tank

4 IBCs for treatment cycle stages



## Sandmar Wash Water System



## Water Filtering From Sludge Through Crushed Rock





Drop In Sludge Level - Water Filtering Through Crushed Rock



## Liquid Phase Over Sludge





Sludge Sediment After Drying

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Clarity Of Water Collected From Sludge After Passage Through Crushed Rock





Water Collected from Sludge through Crushed Rock



Siphoned Water After Treatment



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Wash Tank With Water From Sludge - Ready For Next Wash Water Collection



## 400 – 500 lt of water saved per batch

Other benefits include:

- Eliminates labour by a minimum of 4 hours
- Increases productivity by 4 hours
- Reduces consumption of forklift and gas (\$10)
- Eliminates requirement for extra electricity (\$15)
- Water savings by not drawing on this resource (\$75)
- Labour savings by not washing up or going into overtime (\$200)

Coloured Formula Optimisation - Cost effectiveness and the bottom line 1

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Based on an average of 15 batches per month:

## Annual Savings:

- Water:  $15 \times 12 \times 450 \text{ lt} = 81,000 \text{ lt}$
- Financial:  $15 \times 12 \times \$300 = \$54,000$

## Annual Expenditure:

- \$580 pa for chemicals and labour

## Bottom Line:

- Over \$50,000 improvement
- Knowing that we have saved 81,000 lt of precious resource called “water”

## Quite a handsome return!

Coloured Formula Optimisation - Cost effectiveness and the bottom line 2

REDUCE  
REUSE  
RECYCLE

Victorian EPA's motto on the Three R's

“That Humanity’s ecological footprint is currently 20% greater than the carrying capacity of the Earth, this represents far more than that which can be regenerated by nature.

In short, we are running an ecological deficit; we must learn to balance our books”.

Dr Mathis Wackernagel quote



- Saving water
- Water reclamation
- Retain reclamation
- Coloured Formula Optimisation
- Product promotion via free samples
- Eco Footprint of 17 gha and decreasing

Sandmar business initiatives



Thank you for sharing our Clean and  
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# Any Questions ?