

## Environmental Properties Data Sheet (EPDS)

This is a compilation of independent test results performed on Integrated Recycling's Envire range of products and collated for ease of use.

Please see our website or contact us for more technical data and analysis.

Date: 18th of October 2010

### Environmental data results relate to five specific areas:

#### 1. TEST RESULTS FOR ENVIRONMENTAL PROPERTIES OF IR PRODUCTS

Please refer to the Integrated Recycling website to view ALS Group's Certificate of Analysis.

#### 2. EXPLANATION OF TESTS

##### **General comments:**

The tests were conducted by independent NATA certified laboratories Bureau Veritas (Amdel limited), ALS Laboratory Group and the fire tests were conducted by Australian Wool Testing Authority Ltd t/a AWTA Product Testing. The tests were conducted to the ASTM (American Society for Testing and Materials) methodology and the relevant Australian Standard, where applicable.

##### **Specific comments:**

#### 1. EPA SCREEN ANALYSIS

The result of the testing described below shows minimal leaching from IR's products into the surrounding environment. A comprehensive analysis of whether IR's products leach contaminants into the surrounding environment has been conducted by ALS laboratory Group Environmental Division Melbourne.

The analysis was conducted under NEPM (National Environment Protection Measure) 1999 Schedule B(3) for the assessment of site contamination. This analysis is known as an EPA Screen of potential contaminants.

The analysis was conducted on soil samples taken from two different sites in Mildura where bollards and posts have been installed for up to three years.

The first site is at the Etiwanda Wetland and the other is adjacent to the Murray River as shown in the pictures:



Etiwanda Wetland, Mildura Victoria



Bollards along Murray River, Mildura Victoria

## 2. WATER ABSORPTION TEST

The hydroscopic process is very limited as shown by the following test results: consequently very little water can be absorbed by the wood fibre encapsulated in the polymer.

The products are ideally suited for areas of high humidity or submerged in marine environments as their mechanical properties will not be adversely affected.

### Water Absorption

#### ASTM D 570: 1998 (2005) - 24 hour immersion

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	Average Water Absorption
<b>Product Type</b>	
<b>Bollards - Round</b>	<b>1.70%</b>
<b>Bollards - Square</b>	<b>1.70%</b>
<b>Round Posts or Poles</b>	<b>1.70%</b>
<b>Square Profiles</b>	<b>1.70%</b>
<b>Rectangular Profiles</b>	<b>1.70%</b>
<b>Garden &amp; Tree Stakes</b>	<b>1.70%</b>
<b>Planks / Decking</b>	<b>0.30%</b>

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## 3. FIRE TEST RESULTS

Fire testing analysis has been carried out on a sample of thin board (11mm) made from IR's standard mix providing the following key information:

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<b>BCA Classification</b>	<b>Group 4</b>
<b>Critical Heat Flux</b>	<b>2</b>
<b>Critical Radiant Flux</b>	<b>3</b>

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According to specification A2.4 of the Building Code of Australia

IR's products are not currently designed for internal residential use, but for external use, including external decking.

The fire tests were conducted by Australian Wool Testing Authority Ltd t/a AWTA Product Testing.

#### 4. EFFECT OF NATURAL LIGHT

##### **(a) UV spectrum**

The UV spectrum affects the surface of the polymer by breaking down its molecular structure. UV inhibitors delay or prevent such breakdown, but in any event the deleterious effect of the UV spectrum on IR's products is minimal.

International data indicates that UV exposure will degrade light coloured products by approximately 76 microns or 3mm of their total volume over 40 years.

##### **(b) Infrared light**

Infrared light has no effect on the mechanical properties of IR's products, but in intense thermal conditions the polymer will exhibit dimensional change. In unsupported products, the "hot face" will elongate in comparison to the "cold face".

The effect of such thermal expansion is very minimal and the product will contract to its normal dimension when the thermal conditions cool.

#### 5. PEST ATTACK

The most common and destructive form of pest attack is by termites on cellulose based products, such as timber and paper, although they have been known to attack soft plastics, such as silicon as well as rubber.

The polymer in IR's recycled plastic products is a polyethylene and does not contain cellulose and is therefore unattractive to termites.

The small amount of cellulose in the composite mix from which IR's products are made is encapsulated in the polymer and it is our experience in high termite infested areas that termites do not attack products made from IR's composite mix.