



## Plastic promises from the PVC-u industry exposed

*#woodyoubelieveit*

### Environmental impact – consumption of fossil fuels

#### Fake Fact #1

**‘The energy cost of producing one tonne of PVC is lower than for other materials’.**

Not true. PVC (a plastic) is a major user of fossil fuels – a non-renewable resource. According to the British Plastics Federation, plastics production uses 4% of global oil production annually<sup>1</sup>.

Chlorine, a major constituent of PVC, is energy and emissions-intensive. 8.06 million tonnes of chlorine – roughly a third of Europe’s total chlorine production – was used to manufacture PVC in Europe alone in 2013<sup>2</sup>. The UK’s main chlorine plant in Runcorn has an overall energy consumption of over 250MW, which is roughly equivalent to the energy used by the city of Liverpool<sup>3</sup>.

### Environmental impact – human toxicity

#### Fake Fact #2

**‘PVC-u windows are eco-friendly’.**

Not true. PVC is made from Vinyl Chloride Monomer (VCM), a Class 1 human carcinogen<sup>4</sup>.

Many companies and organisations have placed PVC on a banned or precautionary list, including for example, the Cradle-to-Cradle Product Innovation Institute, the US Green Building Council, Perkins+Will architects, Google, Nike, Volvo and Apple<sup>5</sup>.

#### Fake Fact #3

**‘PVC-u windows are resistant to fire’.**

Misleading. In a fire it melts and gives off dioxins and hydrogen chloride that can cause permanent respiratory disease.

#### Fake Fact #4

**‘PVC-u windows are 100% lead-free’.**

Misleading. Either the windows are made from virgin PVC-u with no recycled content, or they may contain hazardous legacy materials such as lead, cadmium and mercury from old recycled PVC-u windows.

### Environmental impact – the toxic legacy of recycling

#### Fake fact #5

**‘PVC-u windows are fully recyclable’.**

Misleading. According to Waste Management World, in 2013 only some 15% of old PVC-u windows were recycled in the UK<sup>6</sup>. But recycled PVC-u is a major pathway for hazardous legacy materials, such as mercury, cadmium and lead, into new PVC-u products.



## **Fake fact #6**

### **‘Recycling PVC-u means the original material will last 350 years’.**

Misleading. PVC-u is typically down-cycled, not recycled. And, sadly, relatively little is recovered - according to Waste Management World, in 2013 only some 15% of old PVC-u windows were recycled in the UK<sup>6</sup>. But recycled PVC-u is a major pathway for hazardous legacy materials, such as mercury, cadmium and lead, into new PVC-u products.

## **Environmental impact – sustainability**

### **Fake fact #7**

#### **‘PVC-u windows leave trees standing’.**

Misleading. The more wood that’s used from sustainably managed forests, the more trees are planted and the bigger the forests grow<sup>7</sup>. Using more timber windows increases the number of trees in the forest. All WWA members use timber from sustainably-managed forests and have FSC or PEFC Chain of Custody certification.

The only sustainable material for window frames is wood from sustainably managed forests. Wood is recyclable and naturally renewable from our growing temperate forests.

## **Maintenance and durability**

### **Fake fact #8**

#### **‘Timber is expensive to maintain’.**

Not true. A study by Heriot Watt University<sup>8</sup> shows factory-finished timber windows are actually better long-term value than PVC-u alternatives, even taking maintenance into account.

Why? Because today’s factory-finished wood frames can be expected to last around 60 years – roughly twice as long PVC-u, and only need re-coating about every 8 years or so.

### **Fake fact #9**

#### **‘PVC-u windows won’t fade or discolour over time’.**

Not true. All window surfaces tend to fade or discolour over time, thanks to dirt in the atmosphere and UV from the sun. This is true of PVC-u windows and wood windows alike. Real timber windows are easy to repaint after 8-10 years, when they’re looking tired or when you simply want to change your colour-scheme.

### **Fake fact #10**

#### **‘Wood windows will need sanding and re-painting every five years’.**

Misleading and not true. Factory-finished wood windows, such as those supplied by Wood Window Alliance members, need a minimum of maintenance. A light rub-down and re-coat with one or two top coats every 8 years or so.<sup>9</sup> Opaque coatings on WWA windows are typically guaranteed for 8 or even 10 years.



## Fake fact #11

**‘With PVC-u timber lookalike windows no painting is required’.**

Misleading. We don’t know what fake wood windows will look like in 10 years’ time, as none has been in-situ that long. But we do know PVC-u windows tend to discolour and fade with age. Real timber windows are easy to repaint after 8-10 years, when they’re looking tired or when you simply want to change your colour-scheme.

## Fake Fact #12

**‘PVC-u windows have a long life’.**

Misleading. Not compared with factory-finished timber windows. Timber window frames made to WWA standards have a service life around twice as long as PVC-u. A study by Heriot Watt University shows WWA timber frames have a service life of 56-65 years, against a service life of 25-35 years for PVC-u.<sup>8</sup>

## Performance

### Fake Fact #13

**‘PVC-u windows are more energy-efficient’.**

Not true. Energy-efficiency depends primarily on the glazing unit, not the frame. In fact, wood is a slightly better insulator than PVC-u, and it takes less energy to produce a wood window with lower Global Warming Potential. Every wood window you choose instead of PVC-u saves around 160kgs CO<sub>2</sub>e.<sup>8</sup>

### Fake Fact #14

**‘PVC-u windows are more weather resistant’.**

Not true. All Wood Window Alliance member windows are tested to meet BS 6375 parts 1 & 2 to ensure weather tightness against air and water leakage, and compliance is third-party certified.

## Looks

### Fake Fact #15

**‘PVC-u timber lookalike windows have all the beauty of traditional timber with none of the pitfalls’.**

Not true. However closely they mimic wooden frames, they won’t feel right, last as long or be as easily repaired or redecorated as WWA timber frames. Timber frames will last twice as long and only need redecorating every 8-10 years. What will PVC-u windows look like in 10 years’ time? What about their very real toxic environmental impact? What about the challenges of PVC-u recycling and landfill?



## Fake Fact #16

**‘PVC-u timber lookalike windows are designed to the key principles from the Article 4 Conservation Area guidelines.’**

Misleading. There is no doubt that the design of PVC-u timber lookalike windows means they can look more appropriate than most PVC-u replacement windows.

But, of course they are fake. Many conservation officers rightly insist on the authentic detailing and materials and simplicity of redecoration and repair that only wood windows can provide.

Historic England, in their publication ‘Conservation Principles, Policies and Guidance’ advise that if windows need replacing they should be sympathetic to the building’s heritage by using original materials and designs that accurately match existing detailing and physical properties.<sup>10</sup>

### Useful links:

<sup>1</sup> [British Plastics Federation](#)

<sup>2</sup> [The Alliance for Sustainable Building Products, February 2017, uPVC windows through the lifecycle](#)

<sup>3</sup> <http://www.its-ltd.co.uk/projects/ineos-chlor-improves-energy-efficiency-36.aspx>

<sup>4</sup> [Janet Kielhorn et al, “Vinyl Chloride: Still a Cause for Concern,” Environmental Health Perspectives 108, no. 7 \(2000\): 580](#)

<sup>5</sup> [http://www.chej.org/pvcfactsheets/PVC\\_Policies\\_Around\\_The\\_World.html](http://www.chej.org/pvcfactsheets/PVC_Policies_Around_The_World.html) and <http://www.c2ccertified.org/resources/detail/cradle-to-cradle-certified-banned-list-ofchemicals>

<sup>6</sup> Waste Management World, 31 January 2013

<sup>7</sup> <http://foresteurope.org/state-europes-forests-2015-report/>

<sup>8</sup> [Dr Gillian F. Menzies, Institute for Building and Urban Design, Heriot Watt University, June 2013, Whole Life Analysis of timber, modified timber and aluminium-clad timber windows: Service Life Planning, Whole Life Costing and Life Cycle Assessment](#)

<sup>9</sup> [Wood Window Alliance, 2016, Maintenance Guidelines for Timber Windows](#)

<sup>10</sup> <https://content.historicengland.org.uk/images-books/publications/conservation-principles-sustainable-management-historic-environment/conservationprinciplespoliciesguidanceapr08web.pdf/>