

## Measuring the Environmental Impacts of Textiles

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The world of textiles is a complicated place and the emergence of eco-textiles have made it even more confusing.

How can an industry that encourages rampant consumerism be environmentally sustainable?

Are 'environmentally friendly' fabrics going to save the planet from global warming?

What products are significantly better than 'normal' production and which are high profile gimmicks?



## What is EcoMetrics and who is it aimed at?

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EcoMetrics is a simple on-line calculator that enables you to compare the environmental impacts of different textile products and processes.

If you are pro-environment then EcoMetrics is for you. If you are massively cynical of the green movement then EcoMetrics is for you. And if you are simply confused and want to learn some facts then EcoMetrics is for you.

Information on the environmental impact of textiles is generally available in two forms – scientific studies and subjective marketing information.

There are many superb scientific studies on the environmental impacts of textiles but they generally only look at a small sub-section of the industry (maybe a single fibre, or a single process) and they tend to be written by real scientific experts and therefore only fully understood by fellow scientific experts. Also since they are almost always stand alone pieces of work it is almost impossible to compare one study with another.

Marketing information is rarely reliable. It presents a skewed view by using hype, exaggeration and often downright lies. A common problem with marketing is that it often only delivers the good news by presenting a distorted view of the good news whilst completely ignoring some of the negative aspects of a product or process.

There is also information from those with a cause (and a product to sell). This information is often hard hitting but sometimes over-exaggerates a problem and over-exaggerates the benefits of their proposed replacement.

Taking something 'bad' and making it 'less bad' is commendable but doesn't necessarily make it 'good'.

## What is the core concept of EcoMetrics?

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All textiles have a negative impact on the environment. Introducing new eco-brands only has a benefit if it replaces 'normal' products, so every additional item of textile makes the global situation WORSE. If you can replace normal products with lower impact products then the situation will improve.

Textile EcoMetrics has been developed by Colour Connections in order to make objective assessments of products and processes possible by everyone involved in textiles – the web-based interface and simple presentation of results makes it very accessible.

Its core concept is that there are four key environmental impacts associated with textiles

- Water
- Energy
- Pollution
- Use of non-renewable resources



.....and it considers the whole production process too – not just the most marketable bit!

## How does it work?

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We've developed clever units called Environmental Damage Units (EDU's) that allow you to calculate the total impact for a given product or process. We assign a high score to processes that have a massive impact (for example the water impact for cotton fibre or the use of non-renewable resources for polyester) and a low or zero score where there is low or no impact (such as use of water in yarn spinning).

How do you compare spinning with dyeing and fibre production with laundry?

For each stage of production we calculate the total EDU's using our database of information and then provide a total score.

Users simply select items from drop down menus to build a product or to assess an existing one (Garment type, fibre type, yarn type, fabric weight, dyeing method and finishing method) and press the 'calculate' button.

**Production**

T-shirt Cotton Medium Staple

Cotton | Jet Medium (150-300 gsm) Softener

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**Customer Care**

40 deg C 50 Washes Line Drying

2 Washes  
5 Washes  
10 Washes  
20 Washes  
30 Washes  
40 Washes  
50 Washes

RE-START CALCULATE

Results are displayed in a colour coded grid that shows the relative impacts of water, energy, use of non-renewables and pollution for a given process. It provides a visual snapshot of the product and highlights high impact areas that may require attention and allows for easy comparison between products and processes. (the one on the left is jet dyed Lyocell and the one on the right is jet dyed cotton)

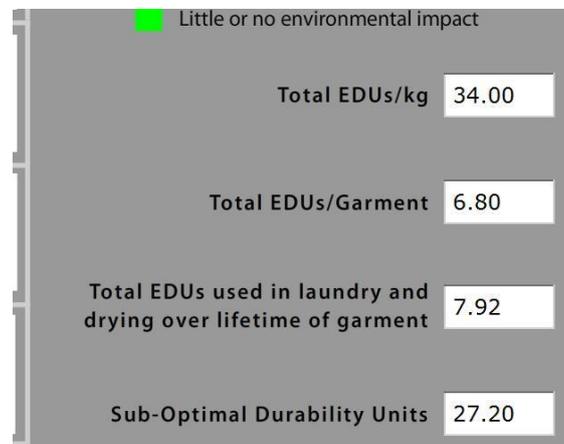
	Water	Energy	Non-renewables	Pollution
Fibre	Yellow	Yellow	Green	Green
Yarn	Green	Yellow	Green	Green
Fabric Weight	Green	Yellow	Green	Green
Dye Method	Yellow	Red	Yellow	Yellow
Finish	Green	Yellow	Green	Green

	Water	Energy	Non-renewables	Pollution
Fibre	Red	Green	Yellow	Red
Yarn	Green	Yellow	Green	Green
Fabric Weight	Green	Yellow	Green	Green
Dye Method	Red	Red	Yellow	Yellow
Finish	Green	Yellow	Green	Green

Behind each coloured box is a score calculated from the EcoMetrics database and we add these up and give you the overall score in EDU's.

These are presented as both EDU's per garment and EDU's per Kg to enable easy comparison between all products and processes.

We also include a comparison between production impacts and domestic laundry impacts to show how foolish it is to make sweeping statements about 'laundry having a much greater impact than production' – laundry impacts vary massively depending on the durability of the merchandise.....



## What's best, green manufacture or durable products?

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A durable polyester garment has much lower impact than a poor quality hemp, bamboo or organic cotton garment.

Why?

The longer it lasts, the less frequently it has to be replaced. A garment that is worn out after 2 washes has a 25<sup>th</sup> of the lifespan of one that lasts 50 washes meaning that 25 have to be manufactured in the same time frame.

However if you wash something 50 times there will be greater laundry impacts than if you wash it twice!

We salute the purveyors of low quality 'disposable fashion' by quantifying the massive impact of low durability merchandise with our SODU's (Sub-optimal durability units).

Of course if you can select durable eco-textiles then you get even greater benefits.

Overall EcoMetrics is a very powerful tool for buyers, producers, educators and commentators – it highlights the benefits of the many good eco-initiatives, but also ensures people think about the all-round impacts throughout the entire production process.

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## How do you get access to the EcoMetrics tool?

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Via [www.colour-connections.com/EcoMetrics](http://www.colour-connections.com/EcoMetrics)

We've partnered with Mowbray Communications limited to deliver the web-based interface so once you have subscribed you log on at [www.ecotextile.com](http://www.ecotextile.com) or [www.textiledyer.com](http://www.textiledyer.com)

## How do consumers buy-in to low impact textiles?

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There are two aspects to consider here, low impact textile items and low impact behaviour - and the most important is their long term behaviour.

The biggest benefits will be gained from changing long term behaviour and having an appreciation of the bigger picture rather than the purchase of the occasional low impact item.

We've developed a simpler module for consumers and the textile supply chain to assess the overall impact of textile production, consumption and after-care.

The EcoMetrics household calculator calculates the total annual impact (in EDU's) of a household's textile purchases, the impact of their laundry behaviour and also the impact of their disposal.

This is available free to air at [www.colour-connections.com/EcoMetrics](http://www.colour-connections.com/EcoMetrics)

We've based the module on the same idea as food consumption and people calculate their total EDU's per year – see if they are fashionably obese, fashionably over-weight, under-weight or fashionably unfashionable.

Throwing things in the bin when you've finished with them adds to environmental impacts (and you lose points), but if you give unwanted textile products to friends, family, charity shops or re-cycling initiatives then you get points back. Even using old clothes as rags and cleaning cloths makes sense – and you get points back for this too.

So even if you are a mad shopper you can get points back by emptying your wardrobe into a charity shop – a bit like a crash diet!

Consumers will see that they are responsible for greater environmental impacts if they buy more items, wash at high temperatures, tumble dry and then throw things in the bin.

Conversely they will see that buying fewer items of greater quality and durability will dramatically reduce their impacts over a long period of time, reducing the frequency of washing has greater benefits than reducing the temperature of washing and that non-iron textiles made with all those nasty (said with irony) chemicals are actually great for reducing impacts.

Lastly it will get them to think about how to dispose of textiles.

## What does EcoMetrics teach us?

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There will be some surprising results.

[www.colour-connections.com/EcoMetrics](http://www.colour-connections.com/EcoMetrics)

- Polyester, the Devils' creation in some people's eyes, is rather good
- Some natural products are not so good
- Lowering wash temperatures by 10° can have less effect than doing less ironing
- Cutting down trees to make textiles can make sense!

Both the production and household modules show that more benefits can be gained from improving mainstream textiles and mainstream behaviour than the introduction of niche eco-initiatives.

However these niche eco-initiatives are very important – they highlight the problems of mainstream production and highlight a lot of best practice that can be applied to mainstream.

The summary is to use facts, not hype and to apply the best practice learnt from eco-initiatives to the other 99% of the textile world.

## How accurate are the figures?

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Textile EcoMetrics is based on science and experience. It is easy to get concrete figures from the top end of the textiles industry, but impossible to get it from the foul, polluting, inefficient, irresponsible bottom end. We therefore combined hard facts with well founded estimates to populate our database with industry average results.

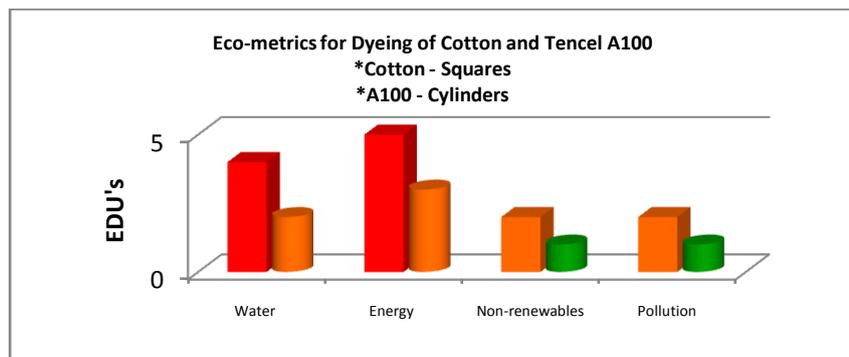
The figures it generates give very good indications of the relative impacts and allows you to highlight areas of concern - and it encourages all-round thinking.

## How do you use the approach to assess specific products and processes?

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If you want your ranges, products and processes assessing in more detail the consultancy based EcoMetrics Pro is for you.

This is not a web based tool but uses the same approach to enable clients to use their own data to compare their products and processes with the industry average - and generate results in a format that immediately demonstrate the benefits in a number of easy to understand formats



Simply send an e-mail to [enquiries@colour-connections.com](mailto:enquiries@colour-connections.com) to ask for further details.

## The benefits of using EcoMetrics to measure the impacts of textiles

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- Objective
- Looks at entire life-cycle
- Simple enough to be universally understood
- Sophisticated enough to be very powerful
- Compares the previously incomparable
- Rewards low impact products, processes and behaviour
- Dispels myths and punishes poor products and behaviour
- Simple user interface
- Standard presentation for everyone in the supply chain

EcoMetrics doesn't have a specific agenda other than to use facts to highlight areas for improvement.

EcoMetrics will evolve – that's why we have it on-line to ensure everyone has access to the up to date version – and we'll add more products and features on an ongoing basis.

If anyone has any comments, questions or constructive criticism we'd love to hear from you.

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