Change your washing habits

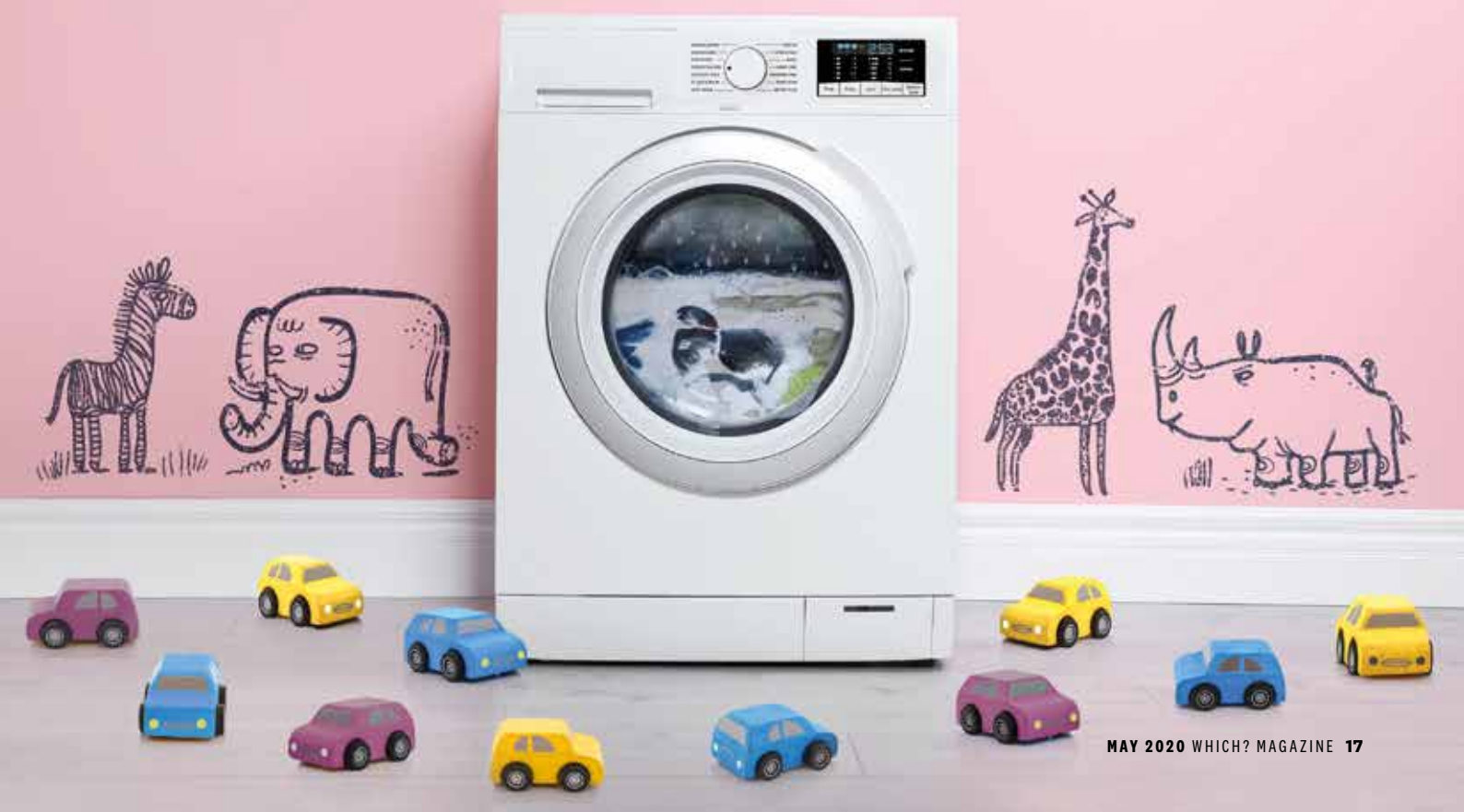
to help save the planet... and money

A UK-wide shift from washing at 40°C to 30°C would be like taking 400,000 cars off the road, and your clothes would still get clean for less, **Aaron West** discovers

The last few months have taught us that if we can support each other and work together, we can make a real difference. And you'd be surprised how much impact a seemingly small change can make.

While most of us are well aware of the dangers of ocean warming and endangered species being driven to extinction, there are other, relatively unreported threats that we might be contributing to without realising. One of these is pollution caused by microplastics – tiny particles invisible to the eye, caused by the breakdown of plastics, including from our clothes.

Fortunately, small changes to your daily laundry habits can make a difference to your eco impact. You might have considered eating less meat, curbing your air travel, and using reusable shopping bags and water bottles. Now you can be smarter with how you wash your clothes to reduce your CO2 footprint, minimise microplastic pollution and save money. ➳



The trouble with energy ratings

You'd think an A+++ rated machine would be the most efficient choice, but it's not quite that simple

The EU energy label was introduced in 1995 and has changed modern washing machines, making them more energy efficient (although they also take longer to wash).

The original rating scale was A+++ to G, but now almost all the washing machines we test have either an A++ or A+++ rating; nothing less than A+ is allowed on sale.

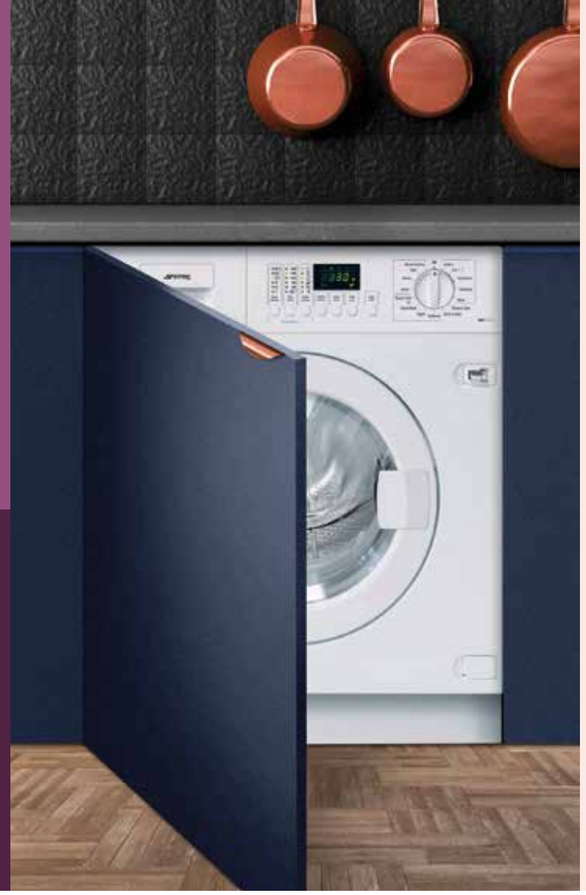
The current energy label is based mostly on 60°C cotton washes, with just a quarter based on 40°C washes. Our tests are based on two 40°C programs (cottons and synthetics), as that's what our surveys have found that real people use most of the time.

Our results have shown that the cost of running a washing machine, even A+++ models, varies widely. Larger machines tend to cost more to run, but it pays to check our test results, as you could add hundreds of pounds to your energy bills over the life of your washing machine.

For example, the **Sharp ES-HFB8143W3-EN** (right) has an A+++ rating, but our tests show that it would cost around £56 a year to run. That's £30 (or 45kg of CO_2) more than the A+ rated integrated **Smeg WMI14C7** (main image).

Average annual energy costs

Based on all 330 washing machines on which.co.uk in March 2020, including 5 A+ models, 28 A++ models and 297 A+++ models.



ENERGY-EFFICIENT WASHING MACHINES COMPARED

	BEST BUY	ENERGY SAVER	Price	Cottons capacity (kg)	Energy efficiency	Overall cleaning	Rinsing	Spin drying	Annual energy cost	TEST SCORE
Blomberg LWF411452AW	●	●	£450	11	★★★★	★★★★	★★★★	★★★★	£39	**72%**
Sharp ES-HFB8143W3-EN	●		£269	8	★	★★★★★	★★★	★★★★★	£56	**72%**
Beko WTB1041R4W		●	£239	10	★★★	★★★★	★★★	★★★★★	£34	**66%**
Zanussi ZWF71443W		●	£300	7	★★★	★★★★	★★★	★★★★	£26	**66%**
Candy CBWM814DC-80		●	£340	8	★★★★	★★★★	★★★	★★★★	£28	**65%**
Samsung WW10M86DQOO/EU		●	£1,349	10	★★★★	★★★★	★★	★★★★★	£36	**65%**
Beko WR860441W		●	£269	8	★★★	★★★★	★★	★★★★★	£27	**63%**
Candy CBWM816D-80		●	£350	8	★★★★	★★★★	★★★	★★★★★	£28	**63%**
Gorenje WE743			£252	7	★★	★★★★	★★★	★★★★	£45	**63%**
Candy RO14116DWHC7		●	£349	11	★★★★	★★★	★★★	★★★★★	£38	**61%**
Hoover DXP412AIW3/1-80		●	£419	12	★★★★	★★★	★★★	★★★★	£41	**61%**
Hoover Extreme DWFT410AH8B		●	£499	10	★★★★	★★★	★★★	★★★★★	£34	**61%**
Beko WX840430W		●	£249	8	★★★	★★★★	★★	★★★★★	£27	**60%**
Hoover DWOA411AHC8 Dynamic Next		●	£379	11	★★★★	★★★	★★★	★★★★	£38	**60%**
Hoover DXOA 67LW3/1-80		●	£300	7	★★★★	★★★★	★★	★★★★★	£24	**60%**
Hoover DXOA 68LW3/1-80		●	£280	8	★★★★	★★★★	★★★	★★★★	£27	**60%**
Sharp ES-HFH9148W3		●	£469	9	★★★★	★★★★	★	★★★★	£29	**60%**
Hotpoint WMAQF621P	●		£219	6	★★	★★	★★★	★★★★	£38	**37%**

USING THE TABLE **Energy cost** Annual energy cost calculated by multiplying average energy cost per single use based on four washes a week. **Energy Savers** based on being in the top 20% for annual energy costs per kg of cotton capacity, and having a total test score of at least 60%. **TEST SCORE** Ignores price. Based on: cleaning 50%, rinse 15%, spin 15%, energy use 10%, ease of use 5%, program length 5%.

Wash at 30°C or 20°C

The good news is that washing machines are more efficient than ever. This is mainly down to the EU energy label, which has driven up energy efficiency for a number of appliances since it was introduced in 1995. It's not perfect (see above), but it's done a wealth of good.

Washing machines are still pretty energy-hungry, though. Our testing shows that the average costs almost £38 a year to run, based on using the 40°C cotton wash four times a week – emitting the same CO_2 as driving 230 miles. The most efficient models cost just £15 (but don't tend to be good at cleaning), while the most gluttonous eat up £63 a year.

Considering that there are around 40m washing machines in the UK, this adds up to 2.26m tonnes of CO_2 emitted each year, according to European Environment Agency data and our washing-machine testing. That's more than all of Manchester's annual CO_2 emissions.

To find out how much washing at a lower temperature would reduce our eco footprint, we tested a range of six washing machines, from an expensive Miele to an affordable Beko. We ran them all at 40°C, 30°C and 20°C, once with powder detergent and again with a liquid made for lower temperatures, to compare energy use and cleaning.

We found that switching from 40°C to 30°C saved 38% energy, and going down to 20°C saved 62%.

If all of us in the UK made the switch to 30°C, it could save 858,000 tonnes of CO_2 being emitted each year. As the average car on the UK's roads emits 2.2 tonnes of CO_2 per year, this small shift would be the same as taking roughly 400,000 cars off the road – or more than 600,000 cars if we switched to 20°C.*

What's more, lowering the temperature doesn't mean you need to compromise on cleaning power. Our snapshot test revealed that, unless you're washing really soiled clothes, modern machines (particularly our Best Buys) will still do a good job most of the time. The only things to watch out for are:

- tough protein stains, such as blood, won't be cleaned as well at 30°C
- although fats will be removed from cottons easily at these temperatures, synthetic fibres need more heat for a thorough clean.

Switching to a liquid will help, too. We found that tough stains lifted more easily with a liquid than a powder at 30°C and 20°C.

Whether you make the switch or not, upgrading to a washing machine we've labelled as an Energy Saver will also help the planet and your pocket – see our table, above right.

To remove coronavirus, the good news is that, according to NHS advice, the normal washing of clothes will reduce the risk of germs spreading. Some specific items will require a higher 60°C wash with a bleach-based product. These include sports clothes and shared towels, as well as items with vomit or faeces, such as baby clothes. Avoid shaking dirty laundry, too, as this can disperse the virus through the air.

*Based on our car emission tests and figures from our annual car survey of more than 44,000 members of the general public between December and February 2019.

SWITCHING FROM A 40°C TO A 20°C WASH WOULD SAVE THE SAME CO_2 AS TAKING OVER 400,000 CARS OFF THE ROAD

Wash less often

You can save even more money and energy by doing fewer washes. Buying a machine with the right capacity for your needs will mean you can wash less often, as you'll get more done in one go. If you don't have enough laundry to fill the drum, go for a quick program, which will often have a lower recommended-fill level.

You can also stop over-washing clothes. Not only is this a waste, but it could be causing fading, shrinkage and misshaping. The CEO of denim brand Levi's famously said that you never need to wash its jeans, although we advise you to wash them every six to 10 wears.

Buying a Best Buy washing machine will also help. As they're good at removing stains, you're unlikely to have to wash as frequently.

Wise up on microplastics

Clothing labelled 100% polyester, acrylic, nylon or polyamide is really just 100% plastic. Every time you wash that favourite polyester fleece or running top, you release thousands of tiny plastic fibres.

A 2016 paper from the University of California estimated that 100,000 people produce approximately 1.02kg each day from laundry. That means the UK pumps out almost 250,000kg of microplastics from laundry each year – the equivalent of around 49 million plastic bags.

Some of these fibres get caught by the washing machine's filter or in water-treatment plants, but the smallest end up in the ocean. So why aren't microplastics as hot a topic as plastic bags or straws? Perhaps because they're an invisible pollution, and don't lead to front-page images of turtles suffocating on a plastic bag.

But from the Arctic to the Antarctic, microplastics have been found on beaches, in waters, in the seabed and even inside animals, ranging from fish to marine mammals. Just think, your Friday night chippy tea could have thousands of plastic particles in it, thanks to your weekly wash. ➤➤

The key to understanding harm from microplastics is remembering that 'the dose makes the poison'. According to the Center for International Environment Law, most of us will be fine, but with high exposure and under specific circumstances, microplastics can become more of a problem.

When they're small enough, microplastics can penetrate cell membranes and cause inflammation and damage. They also act as mini Trojan horses, carrying additive chemicals or contaminants into you and animals around the world. It's only going to get worse if we don't act.

Stop shedding

To play our part, we should all avoid synthetic fashion. But you can also reduce the microplastic footprint of your existing wardrobe. The key to this is through understanding that microplastic shedding is caused by three things: abrasion, heat and chemicals (from the detergent).

The main culprit is abrasion, where synthetic fibres rub against hard fibres (such as denim), the washing machine drum and each other, and shed into small bits. You can minimise this by keeping synthetics separate from tougher items such as jeans. You could also wash them in a laundry bag specially designed to catch any shedding – see p21.

According to researchers at Newcastle University, the amount of water used per wash also makes a difference. They found that a delicate wash paradoxically released more microplastics, because it used more water. So an eco wash, which uses less water and energy, could be your best bet. The water use for different programs should be listed in your washing machine's manual.

What the future holds

We can all do our part to be more responsible, so do share our research into lower washing temperatures with your friends and family. But there is clearly a need for better practice on the part of clothing and appliance manufacturers, and also global governments.

Several manufacturers, including Beko, Bosch and Miele, are promoting new washing-machine features that protect fibres, rotate clothes gently and cause minimal friction. Beko is also working on a microplastic filtering system that could go into washing machines.

WITH HIGH EXPOSURE AND IN SPECIFIC CIRCUMSTANCES, MICROPLASTICS CAN INDUCE TOXICITY AND CAUSE INJURY

We spoke to the Department for Environment, Food and Rural Affairs (Defra), which told us: 'Through powers in our landmark Environment Bill [announced in 2019], we're planning to introduce new laws to encourage the clothing industry to make more sustainable choices and work with the water industry to find new methods to detect, measure and remove microplastics from wastewater.'

Defra said it had 'commissioned a report from the University of Plymouth to investigate the sources and pathways of microplastics from tyres and textiles into the marine environment. The report will be published in due course and the evidence will help us develop policies to effectively tackle the problem.'

Which? supports measures to help reduce and eliminate the threat of microplastics, and we'll be offering our expertise where we can. We will be exploring with the UK government how to make the new UK energy label, coming in 2021, more relevant to you, so it's based on the programs you really use.

Our reviews will continue to tell you how energy efficient each washing machine is, so you can be confident that when you buy an Energy Saver, you're making the right choice for both your bills and the planet. ●

Testing at the University of Plymouth to investigate microplastics from textiles

Get more for less with a Best Buy detergent

Better cleaning means they're better for the environment, too

The detergent we put into our washing machines plays a big part in our laundry's carbon footprint. If you're trying to make better buying choices, brands that make eco-friendly claims might seem like the best option.

But all detergents, from the 'green' ones to budget brands such as Aldi and Lidl, have to meet the same EU laws. These set the bar high for how environmentally friendly detergents have to be, meaning all detergents are more or less the same in terms of what goes down your drain.

Phosphates in detergents used to be a worry. The phosphorus causes the population of algae in a river or lake to 'bloom', creating that green scummy surface that can severely lower oxygen levels in natural waters and kill marine life. But thanks to regulations introduced in 2015, detergents don't contain phosphates.

Surfactants, which help with cleaning, also have to meet the criteria for ultimate biodegradation – or, in English, be broken down into carbon dioxide, water and mineral salts. This is so that each can be absorbed into the environment; 60% must be absorbed within just 28 days.

These standards mean that any detergent you buy will be pretty kind to the planet. They're not tested on animals, either, so the differences are limited to whether the box or bottle is recycled or recyclable, and how the ingredients are sourced. This is where Ecover comes up trumps. Most detergents use petroleum in their production, while Ecover is all plant-based. It also uses old plastic and cardboard to make its packaging.

Choose a Best Buy laundry detergent, though, and it will clean better. This means you don't need to use as much, so you buy it less often, reducing your carbon footprint and saving you money.

ECOVER BIO WASHING POWDER 58% £3.99 for 750g (40p a wash)

Ecover's powder is a decent all-round stain remover, but it struggles with tough stains such as make-up or grease, and it doesn't keep your whites as bright as others. It's also expensive. It's all plant-based, though, and the packaging is made from recycled cardboard.

BEST BUY GREAT VALUE

ALDI ALMAT BIO SUPER CONCENTRATED LAUNDRY LIQUID 72% £1.79 for 875ml (7p a wash)

This budget liquid is big on cleaning power. It's incredible value, and the best we've tested. As it's a liquid, it will be better at 30°C and 20°C, too. The surfactants used are made using petroleum, though, so aren't sustainable.

CAN THIS BAG CATCH MICROPLASTICS?

AARON WEST, WHICH? SENIOR RESEARCHER AND WRITER

The Guppyfriend laundry bag looks, at first glance, just like a plastic net bag, and that's more or less what it is. But can this £30 plastic net really save us from microplastics?

You squeeze your synthetics into it (about 4kg will fit), and it apparently prevents microplastics being released by reducing the stress on clothes, limiting how much they shed fibres. It then captures any microplastics in the bag. The bag itself doesn't shed microplastics because of the type of plastic it's made from, Polyamide 6.6.

At the end of my trial wash there was a peanut-sized lump of black fluff in the corner of the bag. The instructions tell you to collect this fluff after each wash and dispose of it in the bin. In the ground, rather than the ocean, the fibres are less likely to end up ingested by animals.

One downside I found was that sometimes the bag got itself tangled up and twisted, making the spin less effective. To fix this, I had to redistribute the clothing inside and run a spin cycle again.

Next, I tried washing the same clothes in a zip-up pillowcase. But the zip came undone in the wash, and all the clothes escaped. The Guppyfriend bag didn't have this problem because the zip is not at the hem of the bag, so it doesn't bear the brunt of your heavy, tumbling clothes. With that said, you could tie a pillowcase up at one end, although it won't hold as many items inside.

While the Guppyfriend is an investment, it clearly keeps shedding fibres away from the drain better than my homemade version, but you might need to use more energy on an extra spin.