

Debate Pack  
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By Louise Smith,  
Nikki Sutherland

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# The environmental impact of disposable vapes

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# 1 Background

A debate on the environmental impact of disposable vapes will be held in Westminster Hall on Tuesday 29 November 2022 at 4.30pm. The debate will be opened by Kirsten Oswald MP (SNP).

## 1.1 What are disposable vapes?

Unlike conventional cigarettes, e-cigarettes (also called vapes) do not contain tobacco, do not involve burning and thus do not produce carbon monoxide, tar or smoke. They work by heating a solution of water, flavouring, propylene glycol, and, typically, nicotine to create a vapour that the user inhales. Using an e-cigarette is often described as ‘vaping’ rather than smoking.

Disposable vape pens are non-rechargeable devices that typically come ready-filled with 2ml of e-liquid (approximately 600 ‘puffs’) and a maximum of 2% nicotine. A typical disposable vape pen, designed for single-use, contains plastic, copper and a lithium battery.<sup>1</sup> An article from the IEMA (the association of environment and sustainability professions) highlights how disposable vapes are a relatively new product:

Before 2021, the only widely available disposable vapes were ‘cigarette-like’ e-cigarettes which had generally been produced by the big tobacco companies and were more targeted at the over 35 age range. These newer disposable vape brands and their lookalikes are designed in a far more aesthetically appealing way, making them look more ‘trendy’ and therefore more attractive to the 18-30 age range.<sup>2</sup>

A Commons Library briefing, [The regulation of e-cigarettes](#), provides further information on the health and product safety aspects of vapes.

## 1.2 How many vapes are used and discarded?

The latest figures published by the [Office for National Statistics](#) (ONS) in 2020, based on 2019 data from its Annual Population Survey, show that 5.7% of over 16s in England currently use an e-cigarette (approximately 3 million people). This compares with 3.7% in 2014 when data collection on this topic began.<sup>3</sup>

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<sup>1</sup> BBC News, [Should disposable vapes be banned?](#) 24 October 2022

<sup>2</sup> IEMA, [Disposable vapes – a challenge to the recycling sector](#), 9 May 2022

<sup>3</sup> Office for National Statistics, [Adult smoking habits in the UK: 2019](#), July 2021

Material Focus, (a not-for-profit organisation focussed on recycling of electronic products and funded by producers of electrical appliances), commissioned research in 2022 on the number of vapes purchased and discarded in the UK.<sup>4</sup> An accompanying press release lists its “key” findings in respect of single use vapes:

#### Single use vapes

- 14 million single-use vapes bought each month
- Over 50% of single-use vapes get thrown away
- 1.3 million single-use vapes thrown away every week or 5.4 million per month
- 10 tonnes of lithium a year, equivalent to the batteries inside 1,200 electric vehicles.<sup>5</sup>

An article from the charity Keep Scotland Beautiful stated that there was a “significant upsurge” in the use of disposable e-cigarettes in 2021 in Scotland, and between January 2021 and January 2022, “there was a 14-fold increase in use of disposable e-cigarettes among vapers, rising from 1.2% to 16.7%, being particularly significant among younger adults.”<sup>6</sup>

## 1.3

## Environmental impact

Vaping materials are made up of many different components including batteries metallic parts, rubber seals, and a glass sleeve. There may also be some e-liquid left over, which may contain nicotine. Some parts, like the battery, can be widely recycled, whereas others, such as any rubber parts, may not be. This is set out in a blog piece from the UK supply company, [My e-liquid supplies website](#). Most disposable vapes are not designed to be taken apart easily.<sup>7</sup>

Vapes are classed as waste electrical and electronic equipment (WEEE).<sup>8</sup> This means that consumers should dispose of them at a household recycling centre or at the shop where they bought the device. A BBC News article, however, highlighted many consumers were unaware that disposable vapes

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<sup>4</sup> Material Focus, [One million single use vapes thrown away every week contributing to the growing e-waste challenge in the UK](#), 15 July 2022

<sup>5</sup> Material Focus, [One million single use vapes thrown away every week contributing to the growing e-waste challenge in the UK](#), 15 July 2022

<sup>6</sup> Keep Scotland Beautiful, ['Disposable' vapes and the damage they cause](#), 14 October 2022

<sup>7</sup> IEMA, [Disposable vapes – a challenge to the recycling sector](#), 9 May 2022

<sup>8</sup> Environment Agency, [Electrical and electronic equipment \(EEE\) covered by the WEEE Regulations](#), updated 18 January 2021

could or should be recycled. It also set out that their lower cost made them more attractive over reusable devices:

Before Kate Matteson gave up vaping, she exclusively used single-use vapes. "The disposable ones are just so readily available at the counter of every corner shop, right next to the chewing gum. It's hard to make the jump from a £5 ready-to-go vape, to a £20+ reusable contraption that might leak and is more hassle," she told BBC News.

She said she had no idea they were recyclable and that the "messaging could definitely be improved".<sup>9</sup>

An article from the medical Journal, *The Lancet*, summarised some of the environmental impacts from vaping, [From smoking to vaping: a new environmental threat?](#), 23 May 2022. It highlighted concern that incorrect disposal of disposable vapes could release, plastic, electrical and hazardous chemical waste into the environment, calling it "highly concerning on an ecological level."<sup>10</sup>

An IEMA article explained how many disposable vapes are discarded into public litter bins, which in turn can cause health and safety and fire risks for those dealing with this waste:

The obvious place to put a used disposable vape if you're out and about is into a public bin. This presents a multitude of risks to workers who come into contact with it through the waste and recycling stream. The biggest risk is arguably from the lithium battery in the vape. "If a lithium battery is compromised in transit and is pierced, it may spontaneously ignite like a firework," as Stuart Hayward-Higham, Technical Development Director at SUEZ recycling and recovery UK, a leading recycling firm in the UK and an IEMA corporate partner, put it. If you search on YouTube, you can find lots of instances of lithium batteries looking like they explode on conveyor belts in recycling facilities. According to a spokesperson from the Health and Safety Executive - the government body responsible for safety in the workplace - regarding monitoring of the frequency of these incidents, "HSE doesn't collect this information".<sup>11</sup>

An article from the Bureau of Investigative Journalism set out that the lithium content in the batteries of vaping materials was also an environmental concern:

While each vape contains just 0.15g of lithium, the scale of the waste means about 10 tonnes of the metal is ending up in landfills.

"We can't be throwing these materials away. It really is madness in a climate emergency – lithium is one of the things that is going to fuel the green economy," Mark Miodownik, professor of materials and society at University College London, said. "It's in your laptop, it's in your mobile phone, it's in

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<sup>9</sup> BBC News, [Should disposable vapes be banned?](#) 24 October 2022

<sup>10</sup> The Lancet, [From smoking to vaping: a new environmental threat?](#), 23 May 2022

<sup>11</sup> IEMA, [Disposable vapes – a challenge to the recycling sector](#), 9 May 2022

electric cars. This is the material that we are absolutely relying on to shift away from fossil fuels. We need to take care of every bit of lithium.”

Lithium demand for batteries is forecast to increase fivefold by 2030, according to one industry consultant. Producing the metal is a complex process that uses huge amounts of energy and water.<sup>12</sup>

While there are differing definitions of what is a critical or rare material, in July 2022 the UK Government published, [Resilience for the Future: The UK's critical minerals strategy](#), which assessed lithium, (among other minerals), as being of high criticality for the UK. The Government's strategy refers to a British Geological Survey (BGS) list of UK critical materials, which placed lithium on its UK critical materials list 2021.<sup>13</sup>

In a [PQ response in July 2022](#), the UK Government said that it had not made an assessment of the environmental impact of vaping materials.<sup>14</sup>

There is currently a Scottish Parliament written question tabled, due for answer on 1 December 2022, which asks the Scottish Government, “what assessment it has made of the environmental impacts of single-use disposable vapes.”<sup>15</sup> [An answer, when published, will be available online.](#)

## 1.4

### Environmental regulation

Environmental policy and waste management are generally devolved areas to the devolved nation Governments.<sup>16</sup> However, many areas of waste regulation originate from requirements to implement EU directives and so historically, there has generally been a common approach taken across the UK, particularly in relation to producer responsibility requirements.

#### Waste Electrical and Electronic Equipment Regulations

The UK Government confirmed, in a PQ, that the electronic elements of a vaping materials fall under the Waste Electrical and Electronic Equipment (WEEE) Regulations:

The Department has not undertaken an assessment of the environmental impact of disposable vapes in the UK.

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<sup>12</sup> Bureau of Investigative Journalism, [Rise of single-use vapes sending tonnes of lithium to landfill](#), 15 July 2022

<sup>13</sup> BGS, [UK criticality assessment of technology critical minerals and metals](#), 2021

<sup>14</sup> Electronic Cigarettes: Waste, [UIN 38774](#), tabled on 18 July 2022

<sup>15</sup> [Question reference: S6W-12279](#), Asked by: Maurice Golden, MSP for North East Scotland, Scottish Conservative and Unionist Party, 17 November 2022

<sup>16</sup> Scottish Parliament, [Devolved and reserved powers](#) [downloaded on 22 November 2022]

The Waste Electrical and Electronic Equipment (WEEE) regulations place obligations on producers of electrical products to finance the collection and treatment of those products when they become waste. This would include disposable vapes.

At present, consumers are able to dispose of their electrical waste at a local household recycling centre or via retailer take back channels, where these are available.<sup>17</sup>

The [Waste Electrical and Electronic Equipment Regulations 2013](#) (SI 2013/3113), as amended, aim to encourage the reuse and recycling of these items by placing financial responsibilities on producers and distributors of electrical and electronic equipment (EEE) to pay for collection and disposal schemes for WEEE. The regulations encourage the separate collection of WEEE (i.e. *separate* from the municipal waste stream), and its subsequent treatment, reuse, recovery, recycling and environmentally sound disposal.

All producers who place EEE on the UK market in a particular (calendar year) compliance period are responsible for financing the costs of the collection, treatment, recovery and environmentally-sound disposal of WEEE from private households in that compliance period that is:

- Deposited at a designated collection facility (DCF). A DCF is a collection facility approved for the collection of WEEE under regulation 70.
- Returned by a distributor, but not deposited at a DCF.<sup>18</sup>

The WEEE regulations are GB-wide and Northern Ireland has its own Regulations that are broadly the same as the rest of the UK.<sup>19</sup>

For further information see Environment Agency, [Electrical and electronic equipment \(EEE\) covered by the WEEE Regulations](#), updated 18 January 2021.

## Battery regulations

The [Waste Batteries and Accumulators Regulations 2009](#) (SI 2009/890), as amended, aim to reduce the impact on the environment of the manufacture, distribution, use, disposal and recovery of batteries. They are UK-wide regulations, although the position in Northern Ireland is now subject to the Northern Ireland Protocol.<sup>20</sup> The regulations set requirements for waste

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<sup>17</sup> Electronic Cigarettes: Waste, [UIN 38774](#), tabled on 18 July 2022

<sup>18</sup> Practical Law, [WEEE regime: Waste Electrical and Electronic Equipment](#), maintained resource [downloaded on 22 November 2022]

<sup>19</sup> Northern Ireland Department of Agriculture, Environment and Rural Affairs, [Waste Electrical and Electronic Equipment \(WEEE\) treatment facilities](#) [downloaded 22 November 2022]

<sup>20</sup> Practical Law, [GB Batteries Regime](#), maintained resource [downloaded 22 November 2022]

battery collection, treatment, recycling and disposal for all waste industrial, automotive and portable battery types.<sup>21</sup>

In addition to this, in the UK, the [Batteries and Accumulators \(Placing on the Market\) Regulations 2008](#) (SI 2008/2164) contain provisions:

- making it compulsory to collect and recycle batteries and accumulators
- preventing batteries and accumulators from being incinerated or dumped in landfills
- restricting the substances used in batteries and accumulators<sup>22</sup>

Under the regulations battery producers (depending on battery type and supply size) must:

- register with the appropriate [environmental regulator](#)
- accurately record the tonnage and chemistry of batteries placed on the market<sup>23</sup>

An IEMA article highlighted the uncertainty about which regulations apply to disposable vapes and a lack of UK recycling facilities for these products:

Under existing battery regulations, many retailers selling batteries are required to provide for 'free take back' of waste portable batteries at their premises. Producers are then responsible for ensuring these batteries are appropriately treated and recycled. It is unclear whether this extends to products which contain batteries, like disposable vapes. Some vape companies have already asked consumers to give back their used disposable vapes. An issue with this is the lack of widely available recyclers in the UK who are able to take them from vape shops to recycling facilities.<sup>24</sup>

For further information about the requirements, see:

- GOV.UK, [Regulations: batteries and accumulators](#), updated 1 January 2021
- GOV.UK, [Waste batteries: producer responsibility](#), updated 25 September 2018

## Future changes

Provisions in the [Environment Act 2021](#) (section 53 and schedule 7) will allow the Government to introduce mandatory labelling on packaging which may relate to the ways in which the product can be disposed of at the end of its

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<sup>21</sup> Scottish Environment Protection Agency (SEPA), [Batteries](#) [downloaded 22 November 2022]

<sup>22</sup> GOV.UK, [Regulations: batteries and accumulators](#), updated 1 January 2021

<sup>23</sup> GOV.UK, [Waste batteries: producer responsibility](#), updated 25 September 2018

<sup>24</sup> IEMA, [Disposable vapes – a challenge to the recycling sector](#), 9 May 2022

life (including whether and to what extent it can be recycled, and whether materials used in it can be extracted and reused or recycled). The Government has proposed that mandatory recyclability labelling should be introduced on packaging “as soon as is feasible” and “by end of 2026/27 at the latest”.<sup>25</sup>

An [article in The Grocer](#) set out concern from a vape retailer that overseas manufacturers of vapes do not have to take responsibility for discarded products, “The challenge for disposable vape manufacturers is that direct reduction of waste is not their responsibility if they are not based in the UK, and it is difficult to see improving matters as being within their gift”.<sup>26</sup> Later in the article a vape retailer and manufacturer speculated about increased regulation:

“It is impossible to say for certain what will happen to the sector if there isn’t an improvement in sustainability,” says Tanvir, “but it doesn’t feel too wild to suggest that additional regulation will be introduced, or possibly even a ban on disposable vape products. This would be a huge step backwards.”<sup>27</sup>

In an open letter to the Secretary of State for Environment, Food and Rural Affairs and Secretary of State for Health, 18 environment and health groups, including Green Alliance, Marine Conservation Society and RSPCA, called for the government ban the sale of single-use e-cigarettes to stem, due to a number of concerns, including to the environment.<sup>28</sup>

The not-for-profit organisation, Material Focus, called for an end to vapes being marketed as disposable products and wanted greater emphasis on, and support for, recycling:

“Throwing away vapes means that we are throwing away some of the most precious materials on our planet. A key part of the problem is that vapes are advertised as disposable. Producers and retailers need to work together to ensure that they should make people aware that vapes should never be binned and instead be recycled. Recycling needs to be made easier and manufacturers and retailers can become part of the solution by adding collection points in-store.”<sup>29</sup>

A [BBC News article](#) cited comment from the director general of the UK Vape Industry Association who called environmental regulations “unclear” and called on the Government to provide clarity:

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<sup>25</sup> HM Government, [Extended Producer Responsibility for Packaging Consultation Document](#), 24 March 2021, p10

<sup>26</sup> The Grocer, [Do booming disposable vape sales spell disaster for the environment?](#), 11 August 2022

<sup>27</sup> The Grocer, [Do booming disposable vape sales spell disaster for the environment?](#), 11 August 2022

<sup>28</sup> Green Alliance, [Leading environmental and health groups demand ban on disposable vapes](#), 24 November 2022

<sup>29</sup> Material Focus, [One million single use vapes thrown away every week contributing to the growing e-waste challenge in the UK](#), 15 July 2022



When asked by BBC News about the environmental problem of disposable vapes, the director general of the UK Vape Industry Association suggested the regulations are unclear.

"You have to dig deep into the regulations to find any mention of e-cigarettes which could be down to the fact that when they were introduced at the beginning of 2014, disposable vapes were very much in their infancy," said John Dunne.

He wants the Department for Environment, Food and Rural Affairs (Defra) to provide clarification on the "rules, regulations and obligations of the industry." Defra says the government will set out plans for reform of the existing WEEE regulations "in due course".<sup>30</sup>

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<sup>30</sup> BBC News, [Should disposable vapes be banned?](#) 24 October 2022

## 2 Parliamentary material

### 2.1 PQs

#### Electronic Cigarettes: Environment Protection

**Asked by: Oswald, Kirsten**

To ask the Secretary of State for Environment, Food and Rural Affairs, what assessment he has made of the environmental impact of vaping products.

**Answering member: Trudy Harrison | Department: Department for Environment, Food and Rural Affairs**

The Department has not undertaken an assessment of the environmental impact of disposable vapes in the UK.

**HC Deb 31 October 2022 | PQ 71114**

#### Electronic Cigarettes: Environment Protection

**Asked by: Stafford, Alexander**

To ask the Secretary of State for Health and Social Care, what steps the Medicines and Healthcare products Regulatory Agency is taking to assess the environmental sustainability of disposable e-cigarettes when reviewing product notifications.

**Answering member: Maggie Throup | Department: Department of Health and Social Care**

The Medicines and Healthcare products Regulatory Agency (MHRA) do not assess the environmental sustainability of vapes or e-cigarettes when reviewing product notifications. However, producers of vapes placing more than five tonnes of such equipment on the United Kingdom market each year are obliged to register with the waste electrical and electronic equipment (WEEE) producer compliance scheme.

If producers do not register with this scheme, the Environment Agency can take enforcement action. We are working with the Environment Agency to remind vape suppliers of the regulations related to the WEEE scheme and encourage registration.

While the MHRA is responsible for assessing data submitted by suppliers through the notification of products, this does not include testing products.

Prior to submitting a notification, data must meet the minimum mandatory requirements, including declarations requiring the producer to take full responsibility for the product. Once these automated mandatory checks have been confirmed, the submission can be assessed by the MHRA for compliance with the regulations.

**HC Deb 05 September 2022 | PQ 42306**

## 2.2

## Early Day Motion

### Electronic cigarettes and e-waste

#### **EDM (Early Day Motion)296: tabled on 14 July 2022**

That this House notes that the use of e-cigarettes, commonly known as vaping devices, in the UK is rising, especially amongst young people, with single-use non-rechargeable devices commonly sold by retailers; is concerned that many single-use vaping devices cannot be disposed of in household waste and, although their batteries and other constituent parts can be recycled, it is often the case that these devices end up in landfill; notes that ITV reports that batteries in normal household rubbish counted for over 260 fires last year; recalls how a fire that broke out in a Pilsforth landfill took a week before services managed to bring it under control; further notes that li-ion batteries used in these devices contain acids and toxic heavy metals like mercury and lead which leach into the soil and water sources when they are buried in landfill sites endangering humans, natural wildlife and the rural environment; and calls on e-cigarette liquid companies and the Government to take greater steps to increase awareness of the need to recycle these devices and ensure more recycling points are provided for them.

## 3

### News and blogs

Green Alliance press release

24 November 2022

[Leading environmental and health groups demand ban on disposable vapes](#)

The electronic cigarette company (online store)

21 November 2022

[Vaping And The Environment - What are the environmental impacts of vaping?](#)

ITV News Online

14 November 2022

[Over 1.3 million disposable vapes a week are ending up in landfill or incineration](#)

The Face

28 October 2022

[We are throwing away two disposable vapes a second in the UK](#)

BBC News Online

24 October 2022

[Should disposable vapes be banned?](#)

Keep Scotland Beautiful

14 October 2022

['Disposable' vapes and the damage they cause](#)

Convenience Store magazine

26 September 2022

**Why I introduced a disposable vape recycling point in my store**

vapeuk.co.uk (online store)

12 September 2022

**Disposing of your disposables: How to responsibly recycle your single use vape bars**

The Grocer

11 August 2022

**Do booming disposable vape sales spell disaster for the environment?**

disposavapes.co.uk (online store)

25 July 2022

**How To Recycle Your Disposable Vape And Help The Environment!**

thevapecig.co.uk (vape store company)

26 May 2022

**The effects of disposable vapes on the planet**

The Lancet Respiratory Medicine

23 May 2022

**From smoking to vaping: a new environmental threat?**

vapoholic.co.uk (online store)

21 May 2022

**[How to Dispose of Disposable Vapes UK](#)**

recycleyourelectricals.org.uk

**[Recycling vapes](#)**

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