mpa
essential materials
sustainable solutions

The Contribution of Recycled and Secondary Materials to Total Aggregates Supply in Great Britain - Estimates for 2021

Extracting Minerals . . . Manufacturing Products . . . Supplying Markets

Overview of the aggregates market

Construction aggregates are essential for housing, infrastructure including transport and energy networks, commercial and industrial buildings, utilities, schools and hospitals, and are the largest material flow in the economy.

The main components of aggregates supply are primary aggregates, meaning quarried crushed rock and both land-won and marine-dredged sand and gravel. A total of 183.3 million tonnes of primary aggregates were produced in the Great Britain in 2021 (***Figure 1, Figure 2***), and an estimated 26.8 million tonnes were produced in Northern Ireland. Primary aggregates are largely recovered from indigenous sources and imports remain limited.

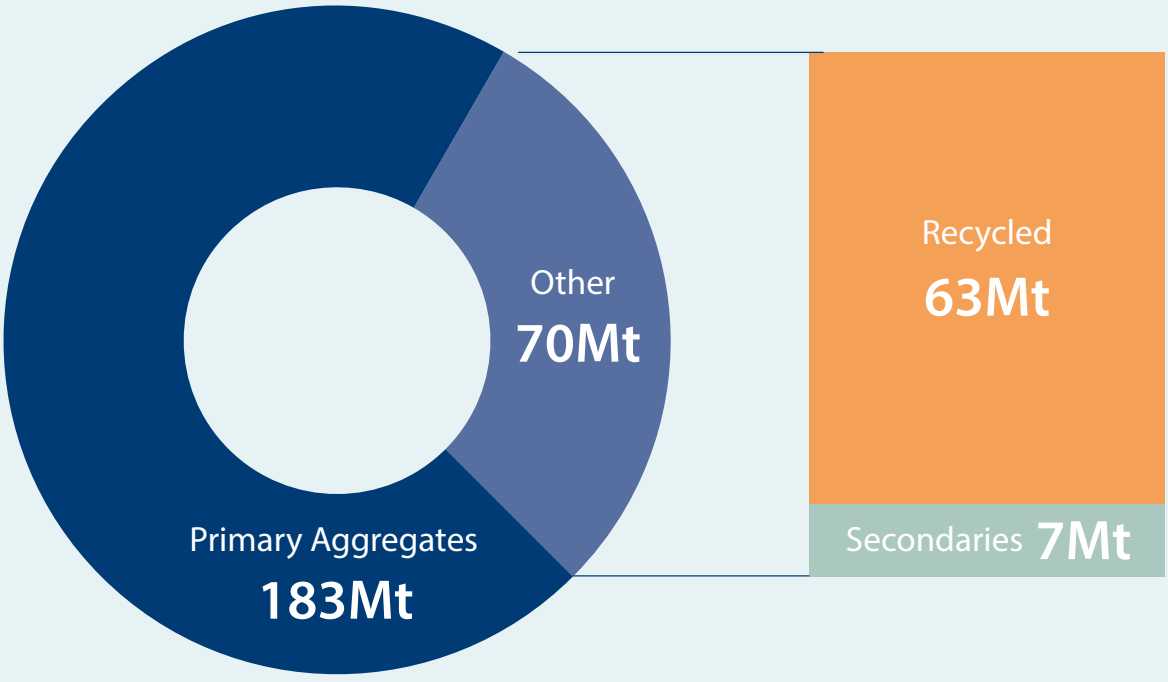
In addition to the extraction of primary aggregates, materials can also be obtained from the recycling of inert Construction, Demolition and Excavation Wastes (CDEW), or derived from other industrial, production or extractive processes, referred to as secondary aggregates. This can include waste materials derived from the extraction of china clay, ball clay and slate. It also includes furnace ash and slag from iron and steel production, which are referenced as 'manufactured aggregates' in line with the BS EN aggregate product standards. Collectively, recycled and secondary aggregates contribute significantly to the total aggregates supply.

Despite this strong performance, the absence of regularly collected and compiled national statistics for recycled and secondary aggregate use at all scales can make it challenging to track the industry's continuing progress to support and enable the delivery of resource efficiency and circular economy policy ambitions. In response, the Mineral Products Association (MPA) has developed a methodology to track their contribution to overall aggregates supply in Great Britain with the aim of addressing this data gap. The methodology used is based on published statistics from third parties whenever possible, combined with a number of tried and tested material-specific assumptions.

Whilst MPA is addressing this data gap with the best information available, there is a clear need for more industry data to be made available through official government sources, particularly given the challenges ahead with regards to circularity, sustainability and decarbonising all sectors of the economy to meet our Net Zero target by 2050 and the need to set out more compelling evidence-based policy instruments.

In 2021, total recycled and secondary sources of aggregates are estimated to have accounted for 28% (69.6 million tonnes) of total aggregates supply in Great Britain, maintaining a leading position internationally in the use of recycled and secondary aggregates (Figure 3 , Figure 4).

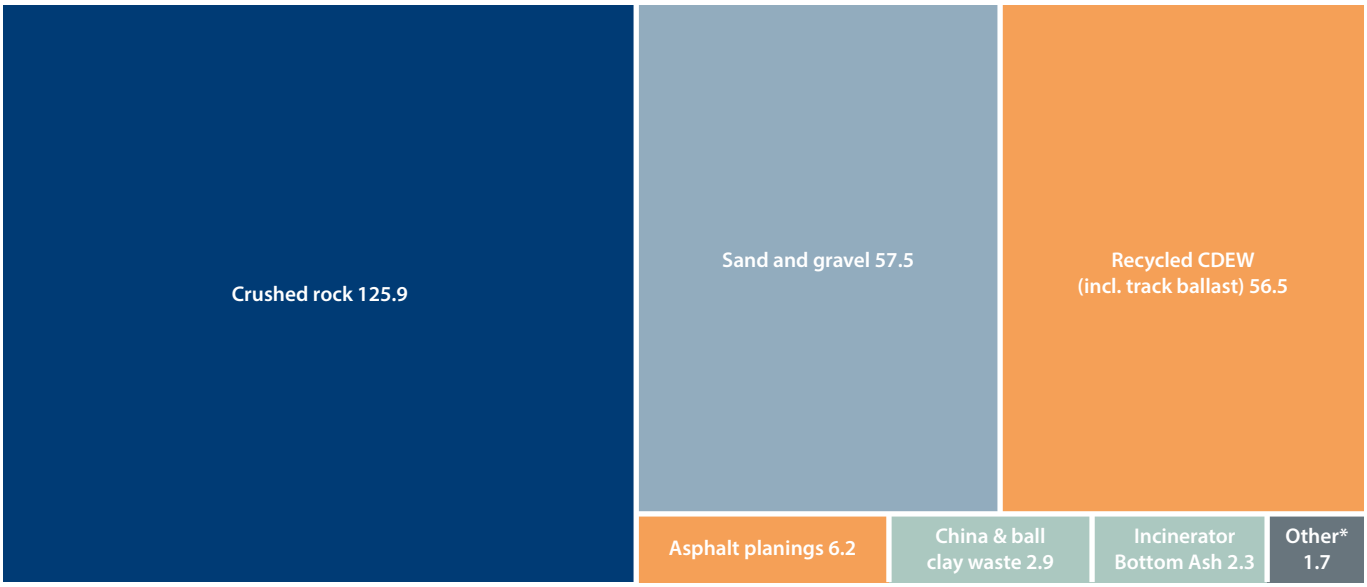
Figure 1 . Estimates of total aggregates supply (Million tonnes) in Great Britain, 2021 (MPA calculations)



Cover photo: GRS Group, Secondary aggregates transported from Cornwall to London by sea and processed by GRS at the Port of Tilbury.

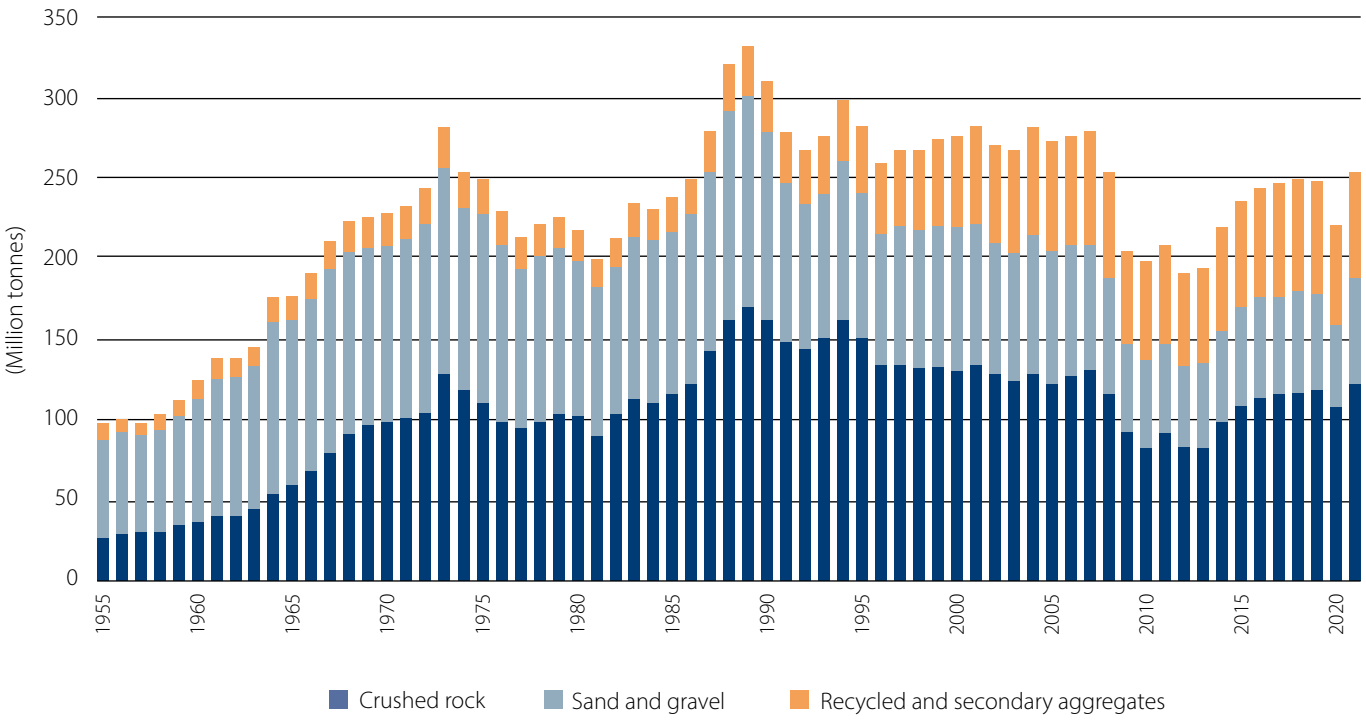
Overview of the aggregates market

Figure 2. Constituents of aggregates supply (Million tonnes) in Great Britain, 2021 (MPA calculations)



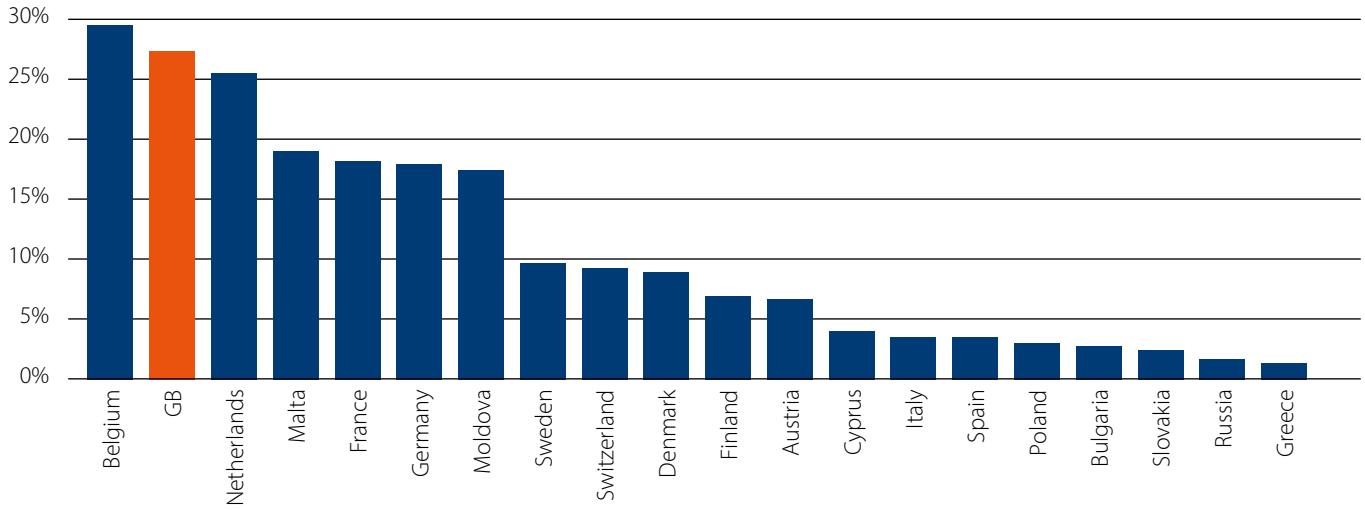
* Includes iron and steel slag, clay and shale, slate waste, chalk, fly ash, furnace bottom ash and colliery spoils.

Figure 3. Total aggregates supply in Great Britain, 1955-2021 (ONS, BGS, MPA calculations)



Overview of the aggregates market

Figure 4. Share of recycled and secondary sources in total aggregates supply, 2021 (UEPG, MPA calculations)



Definitions and methodology

Primary aggregates are minerals that are extracted for aggregates use (BS EN Aggregate product standards "Natural"). Minerals can only be dug where they lie. In 2021, crushed rock represented 69% of the total volume of primary aggregates produced, with sand and gravel quarries and marine dredged sand and gravel making up the remainder of total primary aggregates supply. Whilst local and regional markets may be highly dependent on a particular type or source of aggregates as a consequence of the geological availability or the need for specific construction products, the total market is mostly supplied from domestic sources. Aggregates imports account for less than 5% of the domestic market in volume terms.

Recycled aggregates are materials derived from construction, demolition and excavation wastes (CDEW) which are reprocessed and/or re-used as aggregates for construction purposes whenever possible. This includes the hard inert materials, which would generally be suitable for recycling into aggregates. This definition includes railway ballast but excludes asphalt planings, which are accounted for separately. The soft non-hazardous CDEW recovered as recycled soils are entirely excluded, but in many cases these materials will be re-used to support the restoration of land (MPA, 2019) .

Secondary aggregates are by-products of other industrial, production or extractive processes, which can be used as aggregates for construction purposes. These include blast furnace iron and steel slags, incinerator bottom ash (IBA), fly ash, furnace bottom ash (FBA), china clay, ball clay, slate and chalk waste, as well as colliery spoils. Collectively, these materials make an important contribution to total aggregates supply and depending on their quality and composition can be used as replacement construction aggregates, in the manufacture of concrete and concrete products and in a range of other construction applications. It should be noted that certain secondary aggregates are defined as manufactured aggregates within the BS EN aggregate product standards.

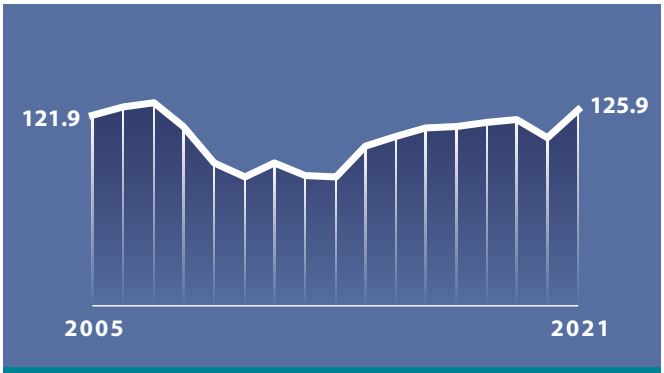
Methodology and assumptions. All estimates for CDEW and secondary aggregates are based on historical statistics from detailed research commissioned by a predecessor to the current Department for Levelling Up, Housing and Communities, the former Department for Communities and Local Government, which provided data for the years 2005 and 2008 (DCLG, 2007a; DCLG, 2007b; WRAP, 2010) .

It is assumed that all CDEW which can be recycled as aggregates is being used, with limited opportunity for a significantly higher share of CDEW in aggregates markets. Research by the Department for Communities and Local Government into CDEW markets suggests that this was already the case in 2005, indicating that very little evidence was found of hard construction and demolition waste which could be recycled into aggregate being landfilled as waste (DCLG, 2007a). This situation is unsurprising given such resources are widely valued in the construction market and given the drive towards circularity and green construction. Furthermore, disposing of such materials to landfill comes at a significant cost, which incentivises their re-use wherever possible.

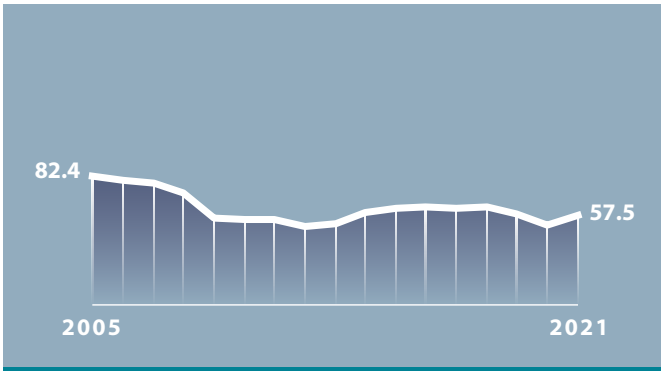
Using the information available, MPA estimates the contribution of recycled and secondary aggregates to total aggregates supply from 2009 onwards using a range of material specific assumptions, which are detailed in the following sections. It should be noted that the devolved administrations may publish recycling data based on activities in their own jurisdictions. As a consequence, locally reported recycling rates may differ from the estimates for Great Britain presented in this document.

Constituents of Supply

Primary Aggregates (Crushed Rock, Land-won and Marine Sand and Gravel)



Crushed rock
125.9 million tonnes



Sand and gravel
57.5 million tonnes

Historical statistics on non-energy mineral production in Great Britain are available from the Annual Mineral Raised Inquiry (AMRI) surveys, previously carried out by the Office for National Statistics (ONS, Multiple years) . This includes data on extracted sales of chalk, clays, crushed rock, dolomite, granite, limestone, peat, ore minerals, salt, sandstone, sand and gravel, slate and other minerals, together with employment for each quarry type. The last annual survey available covers data for the year 2014, after which government withdrew funding for the survey.

Statistics on primary aggregates sales are also available from the Aggregate Mineral (AM) survey, which covers England and Wales (BGS, 2014, 2019) . The latest surveys available provide national and regional sales patterns, inter-regional flows, transportation, consumption and permitted reserves for primary aggregates in England and Wales. Whilst this survey is typically carried out on a 4-yearly basis, it can sometimes be delayed through lack of funding. The latest survey available to data covers data for the year 2019.

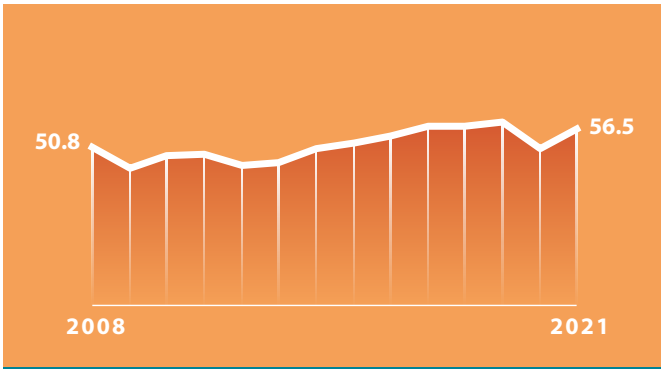
There are no other official sources of statistics for primary aggregates production at national scale. Thanks to its wide industry representation, MPA is nonetheless able to use information collected from its producer members to fill the gaps in the data. MPA collects sales volumes statistics for a range of mineral products, including primary aggregates sales in Great Britain, based on a consistent sample of producer members. This survey represented 74% of total sand and gravel sales and 79% of total crushed rock sales in Great Britain in 2014 when compared to the AMRI surveys. Given this significant representation, it is possible to use the MPA market trends as a reasonable proxy for annual changes in total primary aggregate sales in Great Britain for more recent years.

MPA estimates that 183.3 million tonnes of aggregates were produced in 2021 in Great Britain, comprising of 125.9 million tonnes of crushed rock and 57.5 million tonnes of sand and gravel **(Annex 1)**.

The methodology followed uses the total primary aggregates sales as published in the AMRI surveys up to the year 2013, and a combination of the AM survey data (for 2014 and 2019) and the trends in MPA members' sales to estimate the total primary aggregates market in Great Britain over 2014-21. These estimates are also provided to the British Geological Survey for the annual publication of the UK Minerals Yearbooks (BGS, Multiple years).

Constituents of Supply

Construction, Demolition and Excavation Wastes (CDEW incl. Railway Ballasts)



Inert CDEW
56.5 million tonnes

Historical data for England for the years 2005 and 2008 are available from the former Department for Communities and Local Government and WRAP. According to these two reports, the total production of recycled aggregates in England reached 42.1 million tonnes in 2005 and 43.5 million tonnes in 2008 (DCLG, 2007a; WRAP, 2010) . These tonnages include hard inert CDEW, that is, materials which would generally be suitable for processing into aggregates. This definition includes railway ballast but excludes asphalt planings which are accounted for separately. Recycled soils are also excluded.

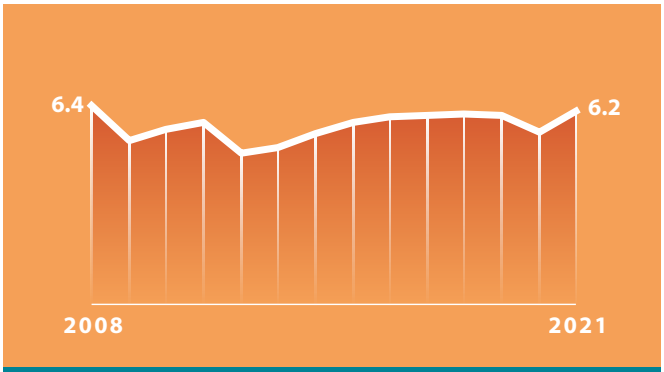
Based on the England estimates, MPA assumed a further 4 million tonnes of recycled aggregates produced in Scotland and 3 million tonnes in Wales, resulting in a total of 49.1 million tonnes of recycled aggregates in 2005 in Great Britain. The estimate for Great Britain 2008 is obtained using the England trend recorded over 2005-08, leading to a total production of recycled aggregates of 50.8 million tonnes in 2008.

There has been no further information published on recycled aggregates at national level since the WRAP report. Remarkably, given the growing focus on the importance of the circular economy and the need to ensure waste is recovered back into the value chain, robust data on arisings of CDEW is difficult to obtain and a standard methodology has not been adopted nationally. This is despite construction waste being identified by government as the largest waste flow in the national economy (DEFRA, 2018) .

Projections from 2009 onwards are based on the assumption that the trends in general construction activity should be a good indicator for the trend in the amount of demolition work taking place, and therefore of the generation of CDEW. On that basis, MPA estimates that 56.5 million tonnes of inert CDEW waste were produced in 2021, up 13% compared with the previous year **(Annex 1).**

Table 1. European waste codes for hard inert CDEW include:	
EWC code	**Description**
17.01.01	Concrete
17.01.02	Bricks
17.01.03	Tiles and ceramics
17.01.07	Mixture of concrete, bricks, tiles and ceramics
17.05.08	Track ballast
17.02.02	Glass waste
19.12.09	Minerals (incl. sand, stones from waste treatment)

Asphalt planings



Asphalt planings
6.2 million tonnes

According to the European Asphalt Pavement Association, asphalt materials are almost unique among construction products in that they can be 100% recycled, and in many cases re-used directly back into the application and even the site from which they have been extracted (EAPA, 2014) . The availability of asphalt planings is therefore closely linked to general road maintenance.

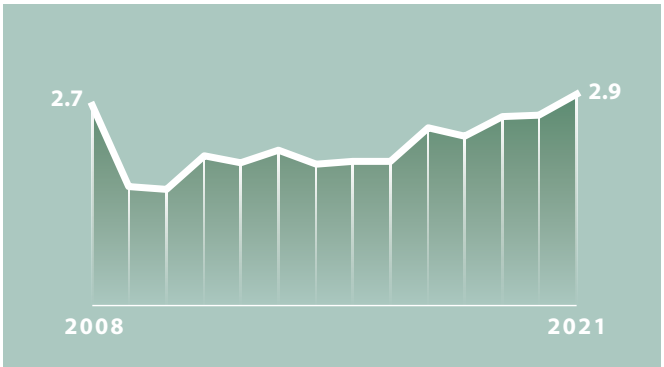
A total of 8 million tonnes of asphalt arisings were available in the UK in 2005 (DCLG, 2007b) , 5.6 million tonnes (70%) of which occurred in England. To obtain a Great Britain estimate, MPA assumed an equal split of the difference between the UK and England to represent Scotland, Wales and Northern Ireland (0.8 million tonnes each), meaning total arisings of 7.2 million tonnes in 2005.

No further direct sources of information on the size of the asphalt planings market at national level could be identified. As a result, from 2008 onward, MPA assumed total asphalt planings to follow the trend in MPA asphalt sales, a proxy for general road maintenance activity.

MPA estimates that 6.2 million tonnes of asphalt planings were recycled as construction aggregates in 2021, up 12.5% compared to 2020 **(Annex 1)**.

Constituents of Supply

China and Ball Clay Waste



China and Ball clay waste
2.9 million tonnes

A major source of secondary aggregates are the by-products derived from the extraction and processing of china and ball clay. To obtain one tonne of saleable china clay, up to nine tonnes of other materials are generated. Most of this waste can be used as general fill material for both engineering purposes and site restoration, or as other aggregates uses after crushing and screening, such as in concrete or as building sand.

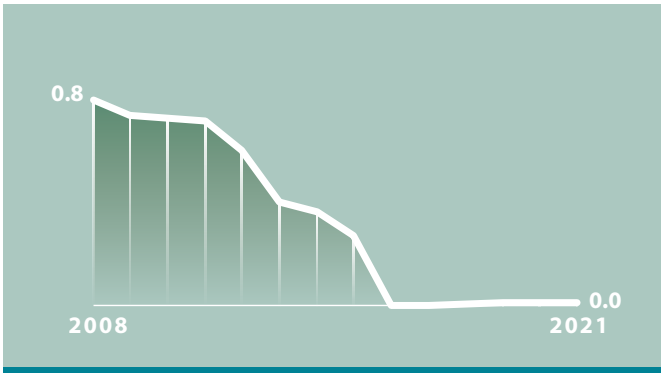
In 2005, china clay quarries in Devon and Cornwall produced 19.6 million tonnes of waste arisings, 2.6 million tonnes (13.4%) of which were re-used as aggregates (DCLG, 2007b) . After 2005, data availability is limited.

There are nonetheless annual statistics on sales volumes of china and ball clay sales in Great Britain[1] , which show a total of 1.3 million tonnes in 2020 (BGS, Multiple years) . As this data is for total sales, not just for waste materials, an estimation of china and ball clay waste production is therefore needed.

According to the Kaolin and Ball Clay Association, each tonne of china clay typically produces up to 9 tonnes of waste arisings (KABCA, 2023) , whilst the ratio of waste to production for ball clay is variable but generally in the order of 1 to 1.5 (KABCA, 2023). Whilst using these ratios should in theory make it possible to estimate the size of china and ball clay waste produced each year, in practice this is complicated by the fact that the production of secondary aggregates from clay waste also involves the processing of significant historic stockpiles. Consequently, a direct relationship between the rates of primary clay production at any one time and the production of secondary aggregates cannot be assumed. Furthermore, not all of the waste will necessarily be suitable for use as aggregates.

Nearly all clay arisings in Great Britain occur in only two counties in South-West England, Devon and Cornwall. The annual Local Aggregate Assessment reports for these two counties include published sales volumes for secondary aggregates produced from china and ball clay waste each year. For instance, in Devon, an estimated 0.7 million tonnes of secondary aggregates were sold in 2021, 79% of which originated from china and ball clay workings (Devon County Council, Multiple years) . In Cornwall, a total of 2.4 million tonnes of secondary aggregates were sold in 2021, nearly all of which were derived from china clay waste (Cornwall Council, Multiple years) . Overall, this indicates that, in 2021, approximately 2.9 million tonnes of clay waste were used as aggregates in Great Britain, up from 2.6 million tonnes in 2020 **(Annex 1)**.

Colliery Spoil



Colliery spoils
0.01 million tonnes

Colliery spoil has historically been used as a source of secondary aggregates, mostly as fill material for engineering purposes or to reclaim land. It is generally obtained from deep coal mining.

There were an estimated 1 million tonnes of colliery spoil used as aggregates in England in 2005 (DCLG, 2007b) . There is no other data sources available from which to form an estimate of the size of the market post-2005. A conservative baseline has nonetheless been derived by projecting the volumes forward to 2021 based on the trend in deep mined coal production, as published by Department for Business, Energy and Industrial Strategy (BEIS, 2022a) . Production of deep mining coal ceased in 2015 when the last deep coal mine in the UK, Kellingley Colliery in North Yorkshire, closed.

This methodology would indicate less than 0.01 million tonnes of colliery spoils were used as aggregates in 2021, down 12.1% compared with 2020 **(Annex 1)**.

[1] BGS estimate for the UK. There are no china or ball clay workings in Northern Ireland

Constituents of Supply

Furnace Bottom Ash (FBA)

Furnace Bottom Ash
0.03 million tonnes

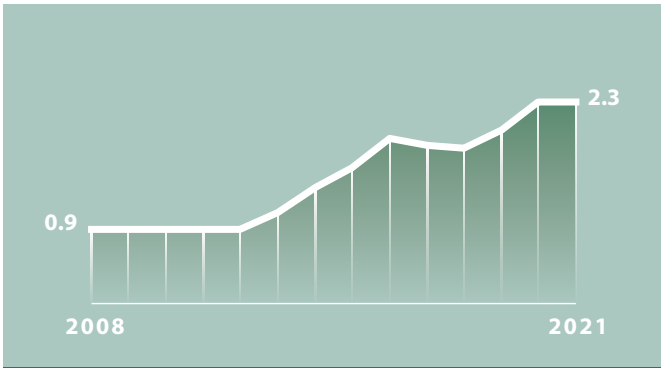
FBA originates from the combustion process at coal-fired power stations. It can be used as a lightweight aggregate in the manufacture of building blocks and structural lightweight fill material.

There were approximately 1.2 million tonnes of total FBA arisings in Great Britain in 2005, 90% (1.1 million tonnes) of which were used as aggregates (DCLG, 2007b) . More recent data for total sales of FBA in Great Britain[2] is provided by the UK Quality Ash Association (UKQAA, Multiple years) , to which we apply the same 90% ratio for aggregates use. Where annual volumes are missing, MPA provided an estimate based on the general trend in construction activity.

It should be noted that the continual decline in the production of FBA in Great Britain in recent years reflects coal power station closures, with low output offset by some imports. For the year 2020, the latest data available, the UKQAA shows that just 33,000 tonnes of FBA were sold in Great Britain, down from over 900,000 tonnes in 2013. Assuming 90% was reused as aggregates, and the volume following construction trends would indicate just under 34,000 tonnes of FBA reused as aggregates in 2021 **(Annex 1)**.

[2] Whilst this data is for the UK rather than Great Britain, the survey does not identify any operational coal-fired power stations based in Northern Ireland.

Incinerator Bottom Ash (IBA)



Incinerator Bottom Ash
2.3 million tonnes

IBA is the output of municipal solid waste incineration. It may contain glass, ceramics, bricks, concrete, grit and stone in addition to ash and metals. It is generally recycled in a number of construction applications to replace primary aggregates, including as fill material or for road paving, concrete or construction blocks.

The Environmental Services Association indicates that approximately 1.0 million tonnes of IBA are produced in England and Wales each year. In 2011, about 86% of IBA was reused as aggregates, with the remainder including the recovery of metals and hazardous materials (ESA, 2016). With no further information available, this volume is carried over for the years 2005-12.

From 2013, it is possible to use information on wastes transferred off-site for disposal or recovery, as published by the Environment Agency. Consolidating the data available for inert bottom ash and slag results in 1.2 million tonnes of IBA produced in 2013 (Environment Agency, Multiple years) , 86% of which is assumed to have been reused as aggregates. This methodology is applied over 2013-21 and indicate a total of 2.3 million tonnes of IBA reused as aggregates in 2021, 0.5% higher than in 2020 **(Annex 1)**.

Constituents of Supply

Fly Ash

Fly Ash
0.3 million tonnes

Fly ash is the output from the combustion process at coal-fired power stations. As a fine material, fly ash can be used in the manufacture of cement and concrete, as well as an unbound secondary fill material, such as for the construction of embankments.

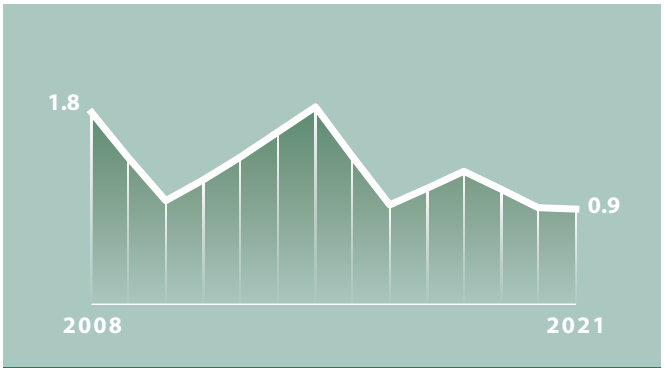
The production of fly ash is linked to the UK's energy mix, increasing when more coal is burnt, and levelling off or decreasing when other energy sources take primacy, such as gas. Survey data for sales and utilisation in Great Britain is produced by the UKQAA.

Between 4 and 7 million tonnes of fly ash were produced in the UK each year between 1999 and 2014, and there are significant deposits of this material located adjacent to coal-fired power station sites (UKQAA, Multiple years) . Whilst the data is presented on a UK basis, there are no operational coal power stations based in Northern Ireland.

The latest information available on fly ash end-use shows that in 2014, out of a total 4.6 million tonnes of fly ash sold, 1 million tonnes (21.2%) was used as secondary aggregates in the manufacture of concrete blocks, AAC blocks and as engineering fill. More recent information show that just under 1.1 million tonnes of fly ash were sold in the Great Britain in 2020. Assuming the same end-use share as in 2014 would indicate a total of 0.2 million tonnes of fly ash used as secondary aggregates in 2020.

With no further information available, MPA assumes that total tonnage followed construction trends to 0.3 million tonnes in 2021 **(Annex 1)**.

Iron and Steel Slag



Iron and Steel Slag
0.9 million tonnes

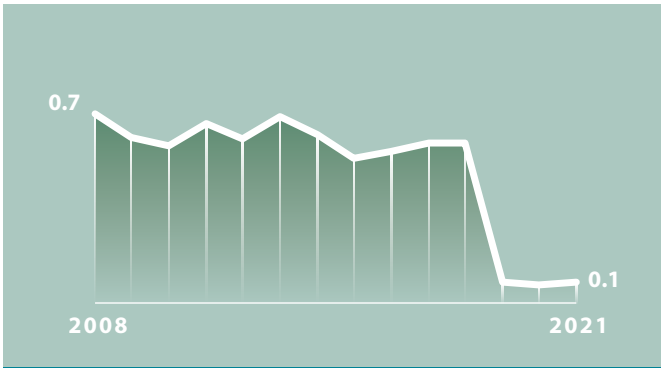
In 2005, 1 million tonnes of iron and steel slag were used as aggregates in England, which represented two thirds of total UK production (DCLG, 2007b) .

More recent data is available as part of an industry survey carried out by Euroslag, for which the MPA collects UK numbers from its members. The survey provides information on the total production of iron and steel slag as well as on end uses, including slag used as aggregates for road construction and other end uses such as cement production, hydraulic engineering, fertilisers, uses in metallurgy and other uses such as for glass making. All numbers provided are for the UK rather than GB, but there are no significant steel making works in Northern Ireland.

Data for 2021 indicates that 0.9 million tonnes of iron and steel slag were reused as aggregates, down 0.8% from 2020 **(Annex 1)**.

Constituents of Supply

Slate Waste

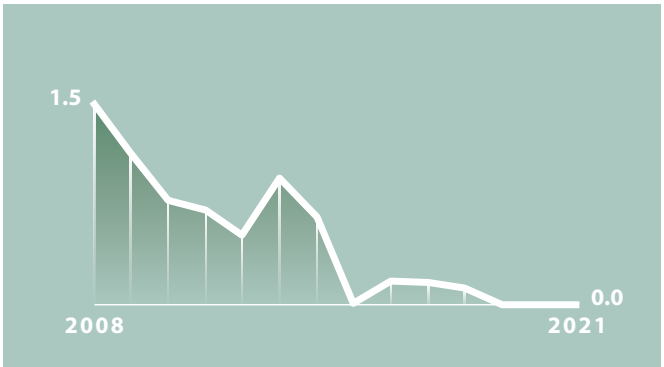


Slate Waste
0.1 million tonnes

Information is available on slate deliveries for fill and other construction uses in Great Britain as published by the Department for Business, Energy and Industrial Strategy (BEIS, 2022b) . The data indicates a sharp fall in deliveries in 2019, which was confirmed by BEIS as genuine. The data for the year 2020 and 2021 is unavailable due to lower-than-normal response rates as sites and/or site offices closed due to Covid-19 restrictions.

Using construction trends as proxy for these two missing years would indicate a total of 0.1 million tonnes of slate waste reused as aggregates in 2021 **(Annex 1)**.

Clay and Shale

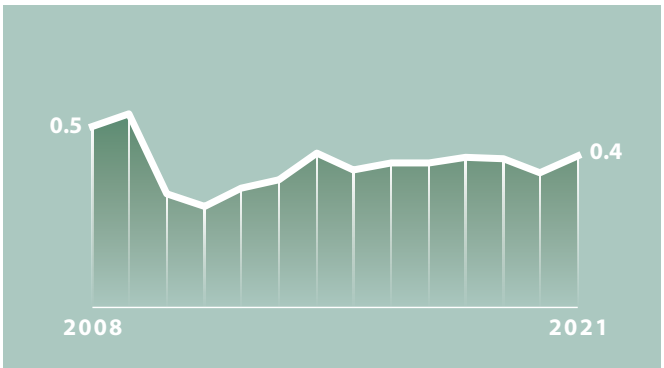


Clay and Shale
Nil

Information on clay and shale production by end use is available from the British Geological Survey (BGS, Multiple years). A total of 10.9 million tonnes of clay and shale were produced in Great Britain in 2005, the majority of which (9.7 million tonnes) for the production of bricks, pipes and tiles and the manufacture of cement. The remainder (1.2 million tonnes) was used for construction and other uses.

The tonnage of clay and shale for construction and other uses peaked at 1.5 million tonnes in 2008, before falling to 0.6 million tonnes in 2014. From 2015, a change in data source appears to have resulted in a further large drop off in tonnages to just 116,000 tonnes of clay and shale used as construction aggregates in 2018, before reaching nil production in 2019 and 2020. **(Annex 1)**.

Chalk



Chalk
0.4 million tonnes

The AMRI surveys included data on the annual volumes of chalk for construction use excluding cement in Great Britain, after which funding was withdrawn. The last survey available shows that a total of 3.3 million tonnes of chalk were produced in 2014, 423,000 tonnes of which were used for construction purposes other than cement (ONS, Multiple years) . Historically, the share of chalk for construction use excluding cement has been relatively stable, ranging from 7% to 13% over 2002-14 (average: 10%).

As no other information is available from 2015 onwards, estimates have been derived from alternative sector data produced by the British Geological Survey. In 2020, a total of 117.1 million tonnes of "chalk, igneous rock, limestone, dolomite and sandstone" were produced in the UK (BGS, Multiple years) . Within this, chalk production has represented 3.2% of the total on average between 2008-14. Based on this share, the total chalk production in the UK is estimated at 3.7 million tonnes

in 2020. In addition, the production of chalk from Northern Ireland is thought to be relatively small, with England accounting for 46 of the 50 mineral workings identified across the UK (BGS, Multiple years) .

Of these 3.7 million tonnes, a long-term average of 10% for construction use excluding cement points to a total of 370,000 tonnes of chalk that have been used as secondary aggregates in 2020. As the data for 2021 was not yet available at the time of writing, it is assumed to have followed the trend in construction activity **(Annex 1)**.

Annex 1. Estimates of total aggregates supply in Great Britain, 2005-21																	
(Million tonnes)	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017***	**2018***	**2019***	**2020***	**2021**
TOTAL PRIMARY AGGREGATES	**204.3**	**207.1**	**208.1**	**187.2**	**146.8**	**136.6**	**145.9**	**132.9**	**134.4**	**161.9**	**170.0**	**176.9**	**176.3**	**179.9**	**177.2**	**158.6**	**183.3**
Crushed rock (a)	121.9	126.9	129.6	115.1	91.1	82.3	90.9	82.9	82.4	102.3	108.2	113.9	114.5	117.3	119.3	107.8	125.9
Sand & gravel (b)	82.4	80.2	78.5	72.1	55.7	54.3	55.0	50.0	51.9	59.6	61.8	63.0	61.8	62.6	57.9	50.7	57.5
TOTAL RECYCLED AGGREGATES	**56.3**	**-**	**-**	**57.2**	**49.3**	**53.4**	**54.1**	**49.6**	**50.6**	**55.5**	**57.8**	**60.1**	**63.4**	**63.4**	**64.6**	**55.6**	**62.7**
Non-hazardous CDEW (incl. track ballasts) (c)	49.1	-	-	50.8	44.1	47.8	48.3	44.8	45.5	50.0	51.9	54.1	57.4	57.3	58.5	50.0	56.5
Asphalt Planings (d)	7.2	-	-	6.4	5.3	5.6	5.8	4.8	5.0	5.5	5.8	6.0	6.1	6.1	6.0	5.5	6.2
TOTAL SECONDARY AGGREGATES	**11.8**	**-**	**-**	**10.6**	**8.5**	**7.8**	**7.8**	**8.0**	**9.1**	**8.9**	**7.9**	**7.7**	**7.0**	**7.1**	**6.5**	**6.5**	**6.9**
China and ball clay waste (e)	2.6	-	-	2.7	1.6	1.6	2.1	2.0	2.1	1.9	2.0	2.0	2.4	2.3	2.6	2.6	2.9
Colliery spoil (f)	1.0	-	-	0.8	0.8	0.8	0.8	0.6	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Furnace bottom ash (FBA) (g)	1.1	-	-	0.8	0.6	0.6	0.7	0.9	0.9	0.7	0.7	0.8	0.1	0.2	0.1	0.0	0.0
Incinerator bottom ash (IBA) (h)	0.9	-	-	0.9	0.9	0.9	0.9	0.9	1.1	1.3	1.6	1.9	1.8	1.8	2.0	2.3	2.3
PFA Fly ash (i)	1.8	-	-	1.0	1.0	1.3	0.6	0.8	1.0	1.0	1.0	1.1	0.4	0.4	0.3	0.2	0.3
Iron and steel slag (j)	1.5	-	-	1.8	1.4	0.9	1.1	1.3	1.6	1.8	1.4	0.9	1.1	1.2	1.1	0.9	0.9
Slate waste (k)	0.9	-	-	0.7	0.6	0.6	0.7	0.6	0.7	0.6	0.5	0.6	0.6	0.6	0.1	0.1	0.1
Clay and shale (l)	1.2	-	-	1.5	1.1	0.8	0.7	0.5	0.9	0.6	0.0	0.2	0.2	0.1	0.0	0.0	0.0
Chalk (m)	0.8	-	-	0.5	0.5	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
TOTAL AGGREGATES SUPPLY	**272.3**	**-**	**-**	**255.0**	**204.6**	**197.8**	**207.8**	**190.5**	**194.0**	**226.2**	**235.6**	**244.7**	**246.7**	**250.4**	**248.3**	**220.7**	**253.0**
Share of recycled and secondaries	25%	-	-	27%	28%	31%	30%	30%	31%	28%	28%	28%	29%	28%	29%	28%	28%
OTHER INDUSTRY INDICATORS																	
ONS: Construction output (annual %)	-2.4%	0.8%	2.2%	-2.6%	-13.2%	8.5%	1.0%	-7.2%	1.6%	9.9%	3.8%	4.1%	6.1%	0.0%	2.0%	-14.5%	12.9%
MPA: Asphalt sales (annual %)	3.6%	-7.8%	0.3%	-4.0%	-17.5%	6.0%	4.2%	-16.9%	3.9%	8.8%	6.5%	3.5%	0.2%	0.7%	-0.8%	-8.6%	12.5%
BEIS: Deepmined coal output (annual %)	-23.8%	-1.2%	-18.7%	5.5%	-7.1%	-1.7%	-1.1%	-15.9%	-33.6%	-9.9%	-24.5%	-99.2%	-7.8%	19.9%	311.3%	7.8%	-12.1%

Notes:

- not available.

* Includes marginal revisions of previous estimates.

(a) BGS up to 2020. Estimate for 2021 based on trends in MPA aggregates sales.

(b) BGS up to 2020. Estimate for 2021 based on trends in MPA aggregates sales.

(c) 2005, 2008: England totals from WRAP. MPA estimates for Scotland and Wales. From 2009: Projected using trends in construction activity.

(d) 2005: England total from DCLG. MPA estimates for Scotland and Wales. From 2008: Follows trends in MPA asphalt sales.

(e) 2005: DCLG. From 2008: Data for Devon and Cornwall only from Devon County Council and Cornwall Council.

(f) 2005: DCLG. From 2008: Follows deep mined coal production trends from BEIS.

(g) 2005: England total from DCLG. 2008-20: UKQAA. 2021: follows construction trends.

(h) 2005-12: ESA. From 2013: Data for England and Wales from the Environment Agency (include EWC 10 01 01 / 10 01 15 / 19 01 12).

(i) UKQAA. Where data is missing (2015, 2016, 2021), it is assumed to follow construction trends.

(j) 2005: England total from DCLG. From 2008: Euroslag and MPA calculations.

(k) 2005: England total from DCLG. 2009-20: BEIS, MPA calculations. 2021: Follows construction activity.

(l) 2005-20: BGS. 2021: assumed unchanged from 2020.

(m) 2005-14: BGS. Includes chalk for other construction uses (excl. cement). 2015-21: MPA calculations.

Bibliography

BEIS. (2022a). Historical coal data: coal production, availability and consumption 1853 to 2021. Department for Business, Energy & Industrial Strategy. Retrieved from GOV.UK: https://www.gov.uk/government/statistical-data-sets/historical-coal-data-coal-production-availability-and-consumption#history

BEIS. (2022b). Building materials and components statistics: December 2022. Monthly publication. Retrieved from Department for Business, Energy & Industrial Strategy: https://www.gov.uk/government/statistics/building-materials-and-components-statistics-december-2022

BGS. (2014, 2019). Aggregate Minerals (AM) surveys for England and Wales. British Geological Survey. Retrieved from GOV.UK: https://www.gov.uk/government/collections/minerals#annual-minerals-raised-inquiry-survey

BGS. (Multiple years). United Kingdom Minerals Yearbook. Annual report, British Geological Survey.

Cornwall Council. (Multiple years). Minerals Monitoring: Local Aggregate Assessment. Annual report.

DCLG. (2007a). Survey of Arisings and Use of Alternatives to Primary Aggregates in England - 2005 Construction, Demolition and Excavation Waste. Department for Communities and Local Government.

DCLG. (2007b). Survey of Arisings and Use of Alternatives to Primary Aggregates in England, 2005 - Other materials. Department for Communities and Local Government.

DEFRA. (2018). Digest of waste and resource statistics. Department for Environment, Food & Rural Affairs. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/878124/Digest_of_Waste_and_Resource_Statistics_2018_v2_accessible.pdf

Devon County Council. (Multiple years). Mineral and Waste Policy: Local Aggregate Assessment. Annual report.

EAPA. (2014). Asphalt: the 100% recyclable construction product. European Asphalt Pavement Association.

Environment Agency. (Multiple years). Pollution Inventory datasets. Retrieved from GOV.UK: https://data.gov.uk/dataset/cfd94301-a2f2-48a2-9915-e477ca6d8b7e/pollution-inventory

ESA. (2016). Retrieved March 2018, from Environmental Services Association: http://www.esauk.org/energy_recovery/iba_-_incinerator_bottom_ash/

Euroslag. (Multiple years). Production and use of blastfurnace and steel slags. Available upon request.

KABCA. (2023). What is Ball clay? Retrieved January 2023, from The Kaolin and Ball Clay Association: https://kabca.org/what-is-ball-clay.php

KABCA. (2023). What is Kaolin? Retrieved January 2023, from The Kaolin and Ball Clay Association: https://kabca.org/what-is-kaolin.php

MPA. (2019). From waste to resource: A UK Mineral Products industry success story. Mineral Products Association. Retrieved from https://www.mineralproducts.org/MPA/media/root/Publications/2019/MPA_Inert_Waste_Feb2019.pdf

ONS. (2022). Output in the Construction Industry: October 2022. Monthly publication. Retrieved from Office for National Statistics: https://www.ons.gov.uk/businessindustryandtrade/constructionindustry/bulletins/constructionoutputingreatbritain/october2022

ONS. (Multiple years). Mineral Extraction in Great Britain (AMRI). Annual publication, Office for National Statistics. Retrieved from GOV.UK: https://www.gov.uk/government/collections/minerals#annual-minerals-raised-inquiry-survey

UEPG. (Multiple years). Annual estimates of aggregates production. Retrieved January 2023, from Aggregates Europe: https://uepg.eu/pages/figures

UKQAA. (Multiple years). Annual statistics. Retrieved January 2023, from UK Quality Ash Association: http://www.ukqaa.org.uk/information/statistics/

WRAP. (2010). Construction, demolition and excavation waste arisings, use and disposal for England 2008. Waste and Resources Action Programme.

The Mineral Products Industry at a Glance:

400mt

GB production of aggregates and manufactured mineral products (GB)

4 times

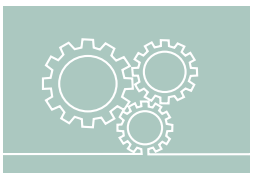
The volume of energy minerals produced in the UK including oil, gas and coal

£16bn

Annual turnover for the Minerals and Mineral Products industry (UK)

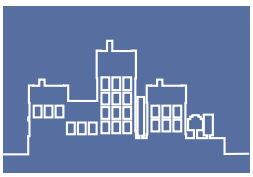
£5.8bn

Gross value added generated by the industry (UK)



£597bn

Annual turnover of the industries we supply (UK)

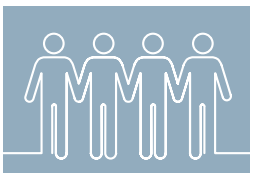


£172bn

Value of construction, output, our main customer (UK)

81,000

People employed in the industry (UK)



3.5m

Jobs supported through our supply chain (UK)

The Mineral Products Association is the trade association for the aggregates, asphalt, cement, concrete, dimension stone, lime, mortar and silica sand industries.

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mpa
essential materials
sustainable solutions

Mineral Products: essential for schools . . . hospitals . . . homes . . . roads . . . railways . . . energy supply . . . airports . . . ports . . . food . . . water . . . agriculture