

## Recycled Aggregates from Inert Waste

### Introduction

The UK is fortunate in having an abundant supply of primary aggregates that can be sourced from numerous sites throughout the country. However, there is growing pressure on the industry to move towards more sustainable construction methods and reduce the consumption of primary aggregates by switching to recycled or secondary aggregates.

Approximately 200 million tonnes of aggregates are used each year in the UK as raw construction materials and of this supply, around 57 million tonnes are already derived from recycled or secondary sources. 28% of UK aggregate demand is met with these more sustainable resources. In Scotland construction aggregate demand is some 29 million tonnes of which in the region of 20% is met with recycled aggregates.

The purpose of this guidance is to clarify the point at which recycled aggregates manufactured from inert waste, in SEPA's view, cease to be waste and waste management controls are no longer required.

### Recycled Aggregates & End of Waste

In SEPA's view Recycled Aggregate will normally be regarded as having ceased to be waste, and therefore no longer subject to waste management controls, if:

- Through clear waste acceptance criteria, inputs are limited to the specified inert wastes and well controlled.
- The aggregate is produced under Factory Production Control as required by the European standards.
- It conforms to the requirements of the appropriate specification for the use for which it is destined.
- It requires no further processing, including size reduction, prior to final use.
- It is dispatched from the site for a certain use.

If all of these requirements are met, the Recycled Aggregate will not be regulated as waste once dispatched from the site for a certain use.

Where these tests are not satisfied, for example the aggregate does not conform to the relevant specification, the aggregate will normally be considered to be waste. In such circumstances, the transport, storage and use of the waste aggregate must be carried out in compliance with the [duty of care](#) obligations and the use of the aggregate in construction will require an [exemption](#) from waste management licensing (e.g. Paragraph 19 for the use of waste in construction). For example, coarse rubble may be suitable for some hard standing constructions but this material is waste and an exemption is required to be in place to authorise use.

### Waste Acceptance Criteria

Only the waste types listed in Annex 1 to this statement can be accepted for the manufacture of recycled aggregate.

The producer must develop 'waste acceptance criteria' specific to each site to ensure that only inert waste is accepted for processing. These criteria must be followed at all times.

Every load must be inspected visually, both on initial receipt and after tipping, to ensure compliance with the acceptance criteria.

A procedure for dealing with non-conforming incoming waste must be set up, for example, rejection of loads, quarantine or disposal. Records must be kept of how the procedure has been implemented.

Inert wastes suitable for producing recycled aggregate should be stored separately from mixed wastes and in a manner which prevents cross-contamination.

Non-inert waste from household, commercial and industrial sources such as trommel fines produced from mixed waste is not permitted to be used in the manufacture of recycled aggregates.

## Standards and Specifications

The producer must comply with all the requirements of the BS EN standard appropriate for the use for which the aggregate is destined. Producers must set up and produce the aggregate under a system for factory production control as set out in the relevant BS EN standard. The requirements for evaluation of conformity from the relevant BS EN apply in all cases.

Annex 2 details the main standards and specifications relating to aggregates. The majority of recycled aggregate in Scotland is either capping material (e.g. 6F4 and [6F5](#)) or subbase (e.g. [Type 1](#)). Some production sites can produce aggregates for concrete, such as washed sand, but this is less widespread. The [WRAP specifier tool](#) has details of the different aggregate types.

SEPA considers that it is for buyers and sellers to establish that the standards and specifications are met during individual transactions.

For the avoidance of doubt, SEPA expects finished recycled aggregates to contain less than 1% w/w of cohesive materials (e.g. clay and soil), metals, wood, plastic, rubber and gypsum plaster, in line with the limits set within the aggregates standards. Where SEPA becomes aware of aggregate with contamination greater than 1% being used without the appropriate authorisation, we will take enforcement action.

Further, deliberately mixing aggregate with contamination such as metal, wood, plastic, gypsum or trommel fines from mixed waste up to the 1% w/w limit is considered disposal and would not be possible under any exemption or licence. It would also be a breach of the waste acceptance criteria which must ensure that only inert waste is accepted for processing.

## Recycled Aggregates may become waste again

Producers and users of aggregate should note that, even if these criteria are complied with, the recycled aggregate will become waste again and subject to waste management controls at any stage it is discarded or there is an intention or requirement to discard it, for example if it is:

- disposed of; or
- stored indefinitely with little prospect of being used.

In addition, if recycled aggregate material is mixed with waste materials, the resulting entire mix will be considered to be a waste and subject to waste management controls.

## Recycled Aggregates Supplier Directory

To make it easier for clients and contractors to know if a particular producer is working to the required standards Zero Waste Scotland operates a [Directory of Recycled Aggregates Producers](#).

The producer sites listed in this Directory are working to this guidance with the required acceptance criteria, management systems, production control, testing regimes and paperwork in place to demonstrate that their product has been fully recovered and is no longer a waste. They are subject to an ongoing auditing process.

SEPA considers that the sites on the Directory are capable of producing non-waste recycled aggregates provided there is certainty of use and no further processing is required. However, the Directory does not provide a guarantee for each batch and clients and contractors are still advised to request evidence of compliance and recent testing certificates which should be readily available. There are [checksheets](#) and [guidance](#) available to help clients and contractors determine if a particular aggregate producer is producing recycled aggregate in accordance with this guidance.

## Limitations

This Guidance applies in Scotland only and is based on current understanding. The terms of this Guidance may be subject to periodical review and be changed or withdrawn in light of technological developments, regulatory or legislative changes, future government guidance or experience of its use. SEPA reserves its discretion to depart from the position outlined in this Guidance and to take appropriate action to avoid any risk of pollution or harm to human health or the environment.

## Good practice for the transportation, storage and use of aggregates (including recycled aggregates)

- Aggregates should be handled and stored to minimise the creation of airborne dust.
- Engineering control measures such as enclosed silos/bins/hoppers, local exhaust ventilation, sprays suppression systems, etc. should be used where there is a risk of airborne dust creation.
- Open conveyor handling systems should be provided with wind boards or other protection to prevent wind-whipping.
- Aggregates are inert, but dust and fine particles should be prevented from entering watercourses and drains. Deposition of dust on vegetation and surrounding property should be avoided by controlling the release of dust at source.

### Useful Links

Recycled Aggregate Directory - <http://www.zerowastescotland.org.uk/aggregatesdirectory> 

Aggregain - The Quality Module - <http://aggregain.wrap.org.uk/quality/index.html> 

WRAP Specifier Tool - <http://aggregain.wrap.org.uk/specifier/index.html> 

Compliance checklist for purchasers - [http://www2.wrap.org.uk/downloads/16553-03\\_Producers\\_Checklist\\_WEB.a2e72310.5662.pdf](http://www2.wrap.org.uk/downloads/16553-03_Producers_Checklist_WEB.a2e72310.5662.pdf) 

Guidance notes for purchasers -  - [http://www2.wrap.org.uk/downloads/16553-05\\_Producers\\_Guidance\\_Note\\_WEB.8be8b5a3.5664.pdf](http://www2.wrap.org.uk/downloads/16553-05_Producers_Guidance_Note_WEB.8be8b5a3.5664.pdf)

WML Exemption – Paragraph 13 - [http://www.sepa.org.uk/waste/waste\\_regulation/application\\_forms/exempt\\_activities/paragraph\\_13.aspx](http://www.sepa.org.uk/waste/waste_regulation/application_forms/exempt_activities/paragraph_13.aspx) 

Duty of Care - <http://www.business.scotland.gov.uk/bdotg/action/layer?r.l1=1079068363&r.l2=1086048413&r.s=tl&site=202&topicId=1079431917>

## Annex 1: Inert wastes acceptable for the production of recycled aggregate

### Wastes from physical and chemical processing of non-metalliferous minerals

Type and restrictions	Waste code
<b>Waste gravel and crushed rock other than those mentioned in 01 04 07</b>	<b>01 04 08</b>
May include excavations from mineral workings.	
<b>Waste sand and clays</b>	<b>01 04 09</b>
Waste sand only – many not include contaminated sand	

### Wastes from manufacture of glass and glass products

Type and restrictions	Waste code
<b>Waste glass-based fibrous materials</b>	<b>10 11 03</b>
No wastes with organic binders.	

### Packaging (including separately collected municipal packaging waste)

Type and restrictions	Waste code
<b>Glass packaging</b>	<b>15 01 07</b>

### Construction and demolition waste – concrete, bricks, tiles and ceramics

Type and restrictions	Waste code
<b>Concrete (not concrete slurry)</b>	<b>17 01 01</b>
<b>Bricks</b>	<b>17 01 02</b>
<b>Tiles and ceramics</b>	<b>17 01 03</b>
<b>Mixtures of concrete, bricks, tiles and ceramics other than those in 17 01 06</b>	<b>17 01 07</b>

### Construction and demolition waste – wood, glass and plastic

Type and restrictions	Waste code
<b>Glass</b>	<b>17 02 02</b>
May not include fibreglass or glass fibre.	

### Construction and demolition waste – bituminous mixtures, coal tar and tarred products

Type and restrictions	Waste code
<b>Bituminous mixtures other than those mentioned in 17 03 01</b>	<b>17 03 02</b>
Allowed only if: Bituminous mixtures from the repair and refurbishment of the asphalt layers of roads and other paved areas (excluding bituminous mixtures containing coal tar and classified as waste code 17 03 01). May not include coal tar or tarred products.	

### Construction and demolition waste – soil

Type and restrictions	Waste code
<b>Soil and stones other than those mentioned in 17 05 03</b>	<b>17 05 04</b>
Must not contain any contaminated soil or stone from contaminated sites.	
<b>Track Ballast other than those mentioned in 17 05 07</b>	<b>17 05 08</b>
Must not contain soil and stones from contaminated sites	

### Wastes from the mechanical treatment of waste not otherwise specified

Type and restrictions	Waste code
<b>Glass</b>	<b>19 12 05</b>
Does not include glass from cathode ray tubes.	
<b>Minerals (for example sand, stones)</b>	<b>19 12 09</b>
Must not contain contaminated concrete, bricks, tiles, sand and stone or gypsum from plasterboard.	

### Municipal wastes - including separately collected fractions

Type and restrictions	Waste code
<b>Glass</b>	<b>20 01 02</b>
May not include fibreglass.	
<b>Garden and park wastes (including cemetery waste) – soil and stones</b>	<b>20 02 02</b>
May not contain contaminated stones from garden and parks waste.	

## Annex 2: Standards, specifications and quality controls for the use of aggregates

Product and Use	Standard	Specification	Quality controls
Unbound recycled aggregate: Pipe bedding Drainage	BS EN 13242: Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction	<a href="#">Highways Agency Specification for Highway Works (SHW): Series 500</a> Highway Authorities and Utilities Committee (HAUC): Specification for the reinstatement of openings in highways (SROH)	BS EN 13242: Level 4 Attestation SHW: Quality Control procedures in accordance with the Quality Protocol for the production of aggregates from inert waste SROH: Compliance with SHW
Unbound recycled aggregate: Granular fill General fill Capping (e.g. <a href="#">6F5</a> )	BS EN 13242: Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction	<a href="#">Highways Agency Specification for Highway Works: Series 600</a> HAUC: Specification for the reinstatement of openings in highways BS EN 13285: Unbound mixtures: Specifications	BS EN 13242: Level 4 Attestation SHW: Quality Control procedures in accordance with the Quality Protocol for the production of aggregates from inert waste SROH: Compliance with SHW
Unbound recycled aggregate: sub base (e.g. <a href="#">Type 1</a> )	BS EN 13242: Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction	<a href="#">Highways Agency Specification for Highway Works: Series 800</a> HAUC: Specification for the reinstatement of openings in highways BS EN 13285: Unbound mixtures: Specifications	BS EN 13242: Level 4 Attestation SHW: Quality Control procedures in accordance with the Quality Protocol for the production of aggregates from inert waste SROH: Compliance with SHW
Recycled aggregate for concrete (e.g. washed sand)	BS EN 12620: Aggregates for concrete	<a href="#">Highways Agency Specification for Highway Works: Series 1000</a> BS 8500-2: Concrete	BS EN 12620: Level 4 Attestation SHW: Quality Control procedures in accordance with the Quality Protocol for the production of aggregates from inert waste
Recycled aggregate for asphalt	BS EN 13043: Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas	<a href="#">Highways Agency Specification for Highway Works: Series 900</a> HAUC: Specification for the reinstatement of openings in highways	BS EN 13043: Level 4 Attestation SHW: Quality Control procedures in accordance with the Quality Protocol for the production of aggregates from inert waste SROH: Compliance with SHW
Recycled aggregate for hydraulically bound mixtures	BS EN 13242: Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction	<a href="#">Highways Agency Specification for Highway Works: Series 800</a> HAUC: Specification for the reinstatement of openings in highways BS EN 14227-1 to 5 Hydraulically Bound Mixtures: Specifications	BS EN 13242: Level 4 Attestation SHW: Quality Control procedures in accordance with the Quality Protocol for the production of aggregates from inert waste SROH: Compliance with SHW
Reclaimed asphalt for use in bituminous mixtures	BS EN 13108-8 Bituminous mixtures — Material specifications — Part 8: Reclaimed asphalt.	<a href="#">Highways Agency Specification for Highway Works: Series 900</a> BS EN 13108 -1 to 5 Bituminous Mixtures – Material Specifications	BS EN 13108-8 NHSS Sector Scheme 14 SHW: Quality Control procedures in accordance with the Quality Protocol for the production of aggregates from inert waste SROH: Compliance with SHW

The British Standards Institute (BSI) publishes guidance documents that explain how the European Aggregate Standards are applied within the UK, the ones relevant to the above table are:

- PD 6682-1 Aggregates for concrete. Guidance on the use of BS EN 12620
- PD 6682-2 Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas. Guidance on the use of BS EN 13043
- PD 6682-6 Aggregates for unbound and hydraulically bound materials for use in civil engineering works and road construction. Guidance on the use of BS EN 13242

All aggregates PDs and BS ENs can be purchased from BSI: <http://shop.bsigroup.com>