

**European Platform for Recycled Aggregates (EPRA)
Position on REACH and Recycled Aggregates**

The European Aggregates Association (UEPG) and the International Recycling Federation (F.I.R.) launched the European Platform for Recycled Aggregates (EPRA). The mission of EPRA is to achieve the best use of recycled aggregates for the highest application possible, the increase in recycling of Construction & Demolition Waste and the development of the use of products derived from it.

EPRA believes that recycled aggregates are articles and need not to be registered according to the REACH regulation.

In this paper EPRA provides for assistance to the European Commission, to the European Chemical Agency, to national authorities and to producers and sellers of recycled aggregates how to interpret the status of recycled aggregates.

The European Commission Services and the Competent Authorities¹ confirmed that *“If for this function the shape, surface or design is more important than the chemical composition, the recovered aggregates can be considered as articles.”*

Evidence has already been given by CEN/TC154² that indeed the shape, function or design of recycled aggregates are more important than the chemical composition for the intended applications:

“The standards require that aggregate particles are produced with specified, defined and precise shape and surface characteristics. These characteristics determine the function of the aggregate to a far greater degree than its chemical composition.”

Recycled aggregates are derived from Construction & Demolition Waste (C&DW). The Construction Product Directive requires that recycled aggregates meet CE-marking requirements. The most important requirements on all types of aggregates and for all uses, as stated in TC 154 standards, are the geometrical, mechanical and physical ones. As can be judged from the requirements for recycled aggregates, chemical composition is not an issue for application. Producers use specific equipment to provide recycled aggregates with the required physical features.

EPRA believes that the above is sufficient evidence that recycled aggregates are true articles in the sense of the definition given in the REACH regulation.

¹ Document CA/24/2008 rev.2 (29 October 2009), “Follow-up to the 5th Meeting of the Competent Authorities for the Implementation of Regulation (EC) 1907/2006 REACH – Waste and Recovered Substances”.

² Resolution 132 taken on 2008-09-23.

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Supportive Guidance

Typical applications of recycled aggregates

Recycled aggregates are derived from Construction & Demolition Waste (C&DW). Only clean, inert C&DW is used. This material is selected and cleaned throughout the supply chain and by strict acceptance procedures of recycling companies. The inert material is finally processed in crushing plants where prior to crushing residual disturbing materials are removed by sieving, windsifting and magnetic separation. Crushed material can be sieved to produce any size according to market specifications.

Important applications of recycled aggregates are summarized in the following table.

Application	Comments	Main parameters
Unbound sub-base layer in roads	This is a common application of recycled aggregates as a substitute for traditional materials. When of high quality it may be possible to reduce the thickness of the sub-base layer.	- Particle shape/Interlock - Strength - Durability - Grading
Bound aggregates in road foundations and sub-base layers	Used with hydraulic/cementitious/bitumen binders. Again if of suitable quality it may be possible to reduce the thickness of the overall pavement construction.	- Particle shape/Interlock - Strength - Grading
Coarse Aggregates for Concrete	In many countries, 20% is a common level of replacement for general purpose of concrete. Clean crushed concrete is preferred.	- Particle shape/Interlock - Strength - Grading - Visual composition
Railway Ballast	Re-use of existing material after cleaning (oil removal) and re-grading.	- Grading - Particle shape/Interlock - Strength - Durability
Ground improvements, oversites, work platforms	Generally incorporated into the project completion after initial temporary use during the construction phase.	- Grading - Particle shape/Interlock - Strength
Asphalt	Asphalt planings from existing bituminous layers. Both aggregate and binder re-used as a constituent of a new mix.	- Compatibility with new mix requirements with particular reference to skid resistance for surface layer.

European standards for recycled aggregates

Aggregates are intended to be incorporated in construction works for specific use. Therefore aggregates have to fulfil precise requirements. These requirements (according to the Mandate M125 issued by the Commission) are described in CEN TC 154 harmonized standard. CEN TC 154 Standards give the following definitions:

- Aggregate granular material used in construction, may be natural, manufactured or recycled
- Natural aggregate: aggregate from mineral sources which have been subjected to nothing more than mechanical processing
- Manufactured aggregate: aggregate of mineral origin resulting from an industrial process involving thermal or other modification.
- Recycled aggregate: aggregate resulting from the processing of inorganic material previously used in construction

Recycled aggregates meeting the requirements are fit for use. Their physical appropriateness has been proven. The most important requirements on all types of aggregates and for all uses, as stated in TC 154 standards, are the geometrical, mechanical and physical ones. The following table summarizes the main parameters which are relevant to assess the fitness for use according to CEN TC 154 Standards.

Main parameters	Tests for geometrical properties	Tests for mechanical and physical properties
Particle Shape/Interlock	Determination of particle shape – Flakiness Index	
	Determination of particle shape - Crushed and broken surfaces	
Strength		Determination of resistance to wear
		Determination of the resistance to fragmentation
Durability		Determination of particle density and water absorption
		Determination of resistance to wear
		Determination of the resistance to fragmentation
		Determination of resistance to freezing and thawing
Grading	Determination of particle size distribution	
Visual composition	Classification test for the constituents of coarse recycled aggregates	