

C&D-Waste: end of life, recycling possibilities and landfilling restrictions in Austria

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APPROACHES IN
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Summary of contents

End of Life

- When a building becomes waste
- When waste becomes a construction material

Recycling Possibilities

- Dismantling
- Recycling

Landfilling Restrictions

- Types of landfill
- dos and dont´s



Regulations to be implemented

Regulations issued by the Austrian Ministry

- Treatment obligations concerning construction and demolition waste
- “End of waste act” concerning recycled building materials
- Austrian Standards Institute
 - ÖNORM B 3151 recovery-oriented dismantling
 - ÖNORM B 3140 Recycled aggregates for the construction industry



End of waste act

Regulations from the Ministry

Responsibilities during construction and demolition activities

- Separation and treatment of waste derived from construction and demolition activities
- End of waste regulations concerning recycled building materials (Recycled Building Materials Decree)
 - applies to builders (client) and construction company



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End of waste status

Requirements:

- Usage for a specific purpose
- A market for subjected materials exists
- Quality criteria, written down in technical or legal standards as well as recognized quality guidelines, which consider the various kinds of waste specific pollutants.
- Recycling material should cause neither more pollution nor higher environmental risk than comparable primary raw material



Following requirements must be met

- Materials that draw from **recovery-oriented dismantling processes**
- Quality criteria is fulfilled (Class U-A)
- Complies to one of the technical grades of S, I, II, III or IV according to ÖNORM B 3140
- Proven quality according to § 13
- All relevant technical and legal standards are adhered to



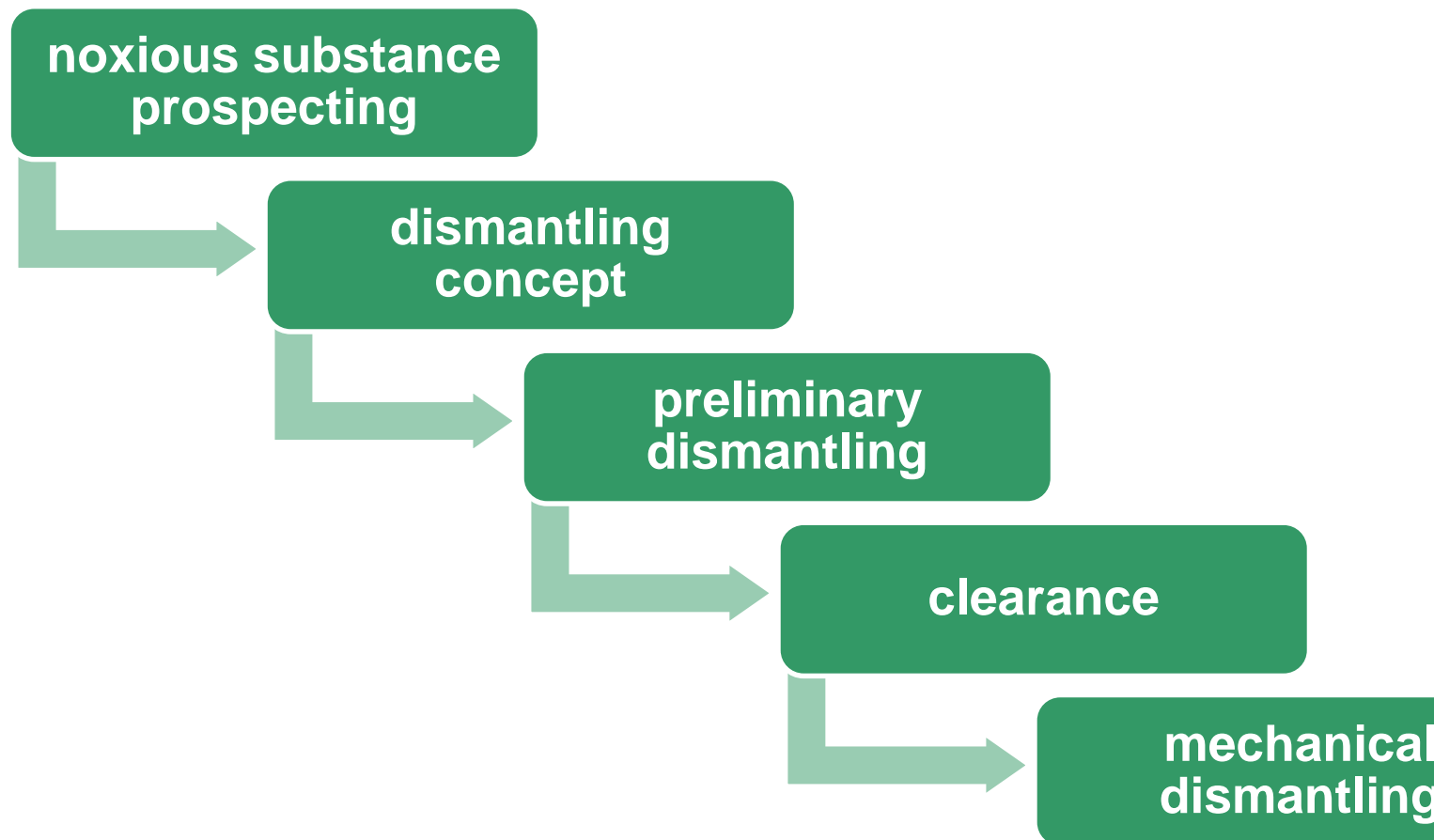
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ÖNORM B 3151

Dismantling of buildings as a standard method for demolition (ÖNORM B 3151)



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ÖNORM B 3151

During the preparatory dismantling process all sources of hazardous substances have to be cleared away.

- asbestos as well as materials containing tar
- building elements containing mineral oil
- pollutant containing electrical components (eg fluorescent tubes, energy saving lamps, etc.)
- industrial chimneys
- refrigerant from refrigeration equipment, CFC-containing insulation
- radioactiv fire detectors
- other hazardous waste and slag waste



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ÖNORM B 3151

During the preparatory dismantling process, following items, materials and substances have to be cleared away. (If necessary by means of disassembling):

- floor constructions and double bottoms
- non-mineral flooring materials
- non-mineral wall coverings (eg plastic, cork, wood)
- installations of plastic
- facade structures, insulation
- glass, glass walls, glass block walls
- building elements made of gypsum
- partition walls made of cork, wood, plastic
- doors and windows



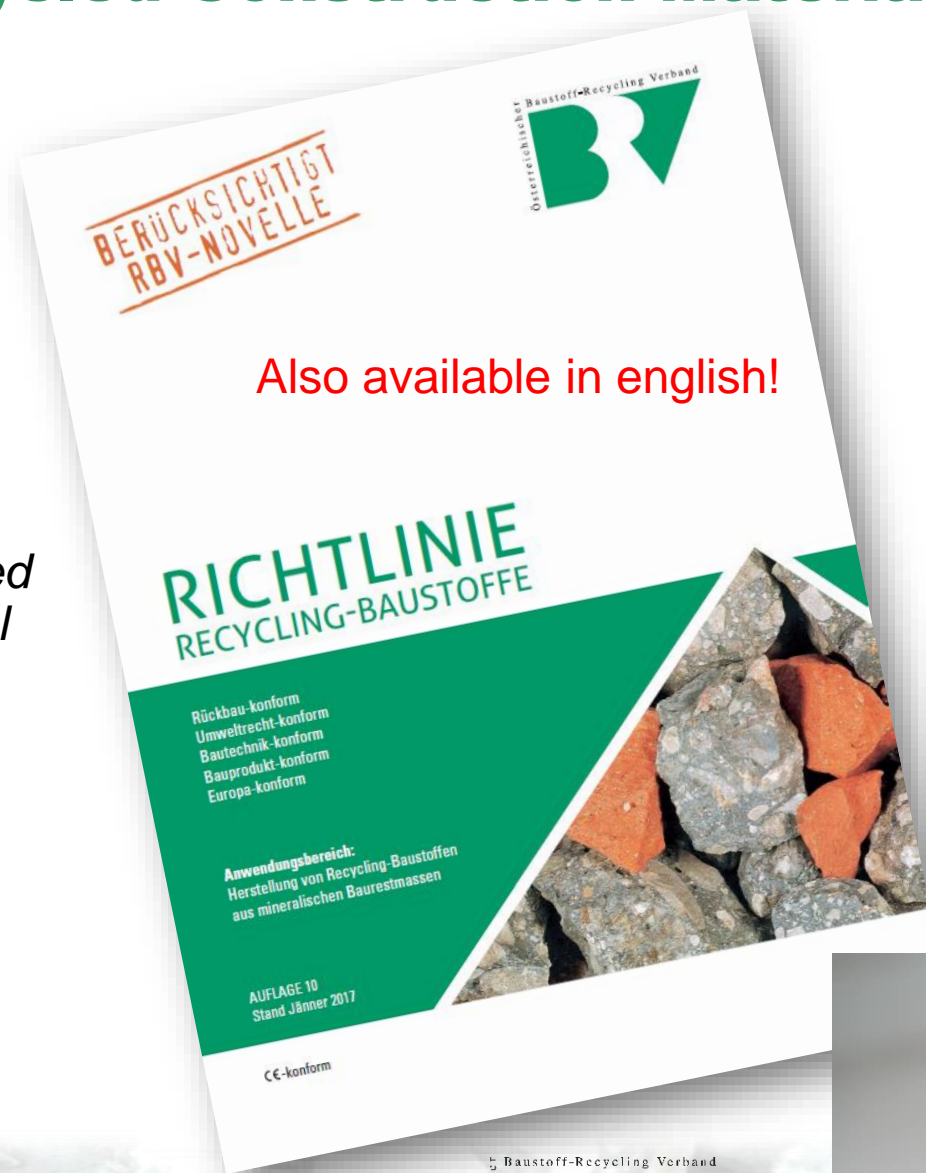
Guidelines for Recycled Construction Material

The guideline for recycled building materials

Scope: Manufacture of recycled building materials from mineral construction waste

**10th edition,
Edition: January 2017**

Fulfills technical standards und law!



Also available in english!

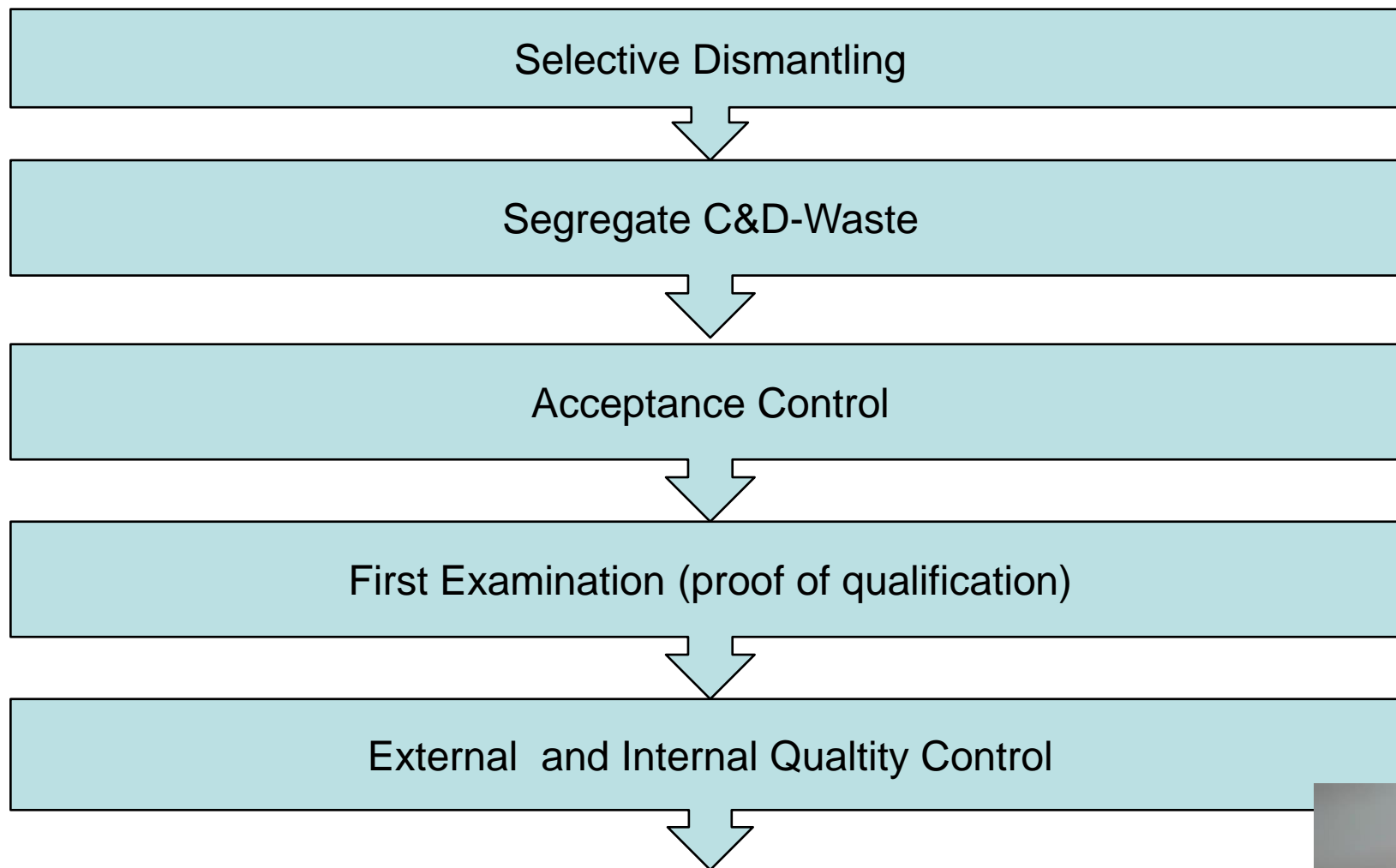


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Qualitymanagement



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Technical Compatibility - Construction classes

According to the proposed civil engineering application areas, recycled building materials are divided into following grades:

Grade S, I, II

used in unbound upper layers and sub-base layers
used for hydraulically or bituminous bound base layers
frost proof, frost resistant construction materials
(increased resistance against fragmentation)

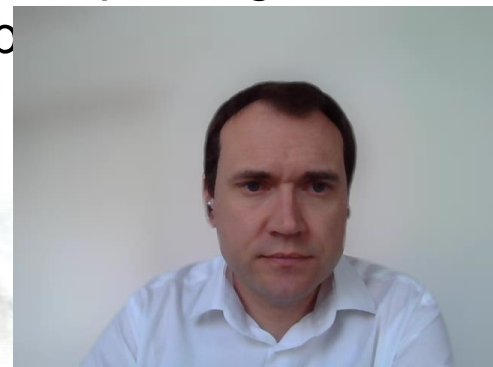
Grade III, IV

used for both hydraulically bound base layers and filling materials for roads, parking areas, noise protection walls, general filling, trench filling and ground imp



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Environmental Compatibility – Quality Classes

Quality Classes

Recycled construction materials produced in recycling plants are classified into quality classes according to their composition. The classes are defined by means of a list of parameters and associated limit values.

Fields of Application

In order to regulate the environmentally sustainable use of recycled construction materials, it is necessary to determine the type of application with regard to hydro-geological application areas. Fundamentally, the use of recycled construction materials of quality class lower than U-A is permitted in water-source preservation areas and in areas with set conditions for water management.



Environmental Compatibility – Quality Classes

Quality classes, parameter range and limits
 Designation of the quality classes, areas of use and usage prohibitions

Abbr.	Quality class	Description	Unbound use without a low-permeability, bound surface or base layer	Unbound use under a low-permeability, bound surface or base layer	Manu-facture of concrete from C12/15	Manu-facture of asphalt mix	Manu-facture of asphalt mix for exclusive use for Federal and State roads in accordance with RVS 8.16.01
U-A	unbound – A	Aggregates for unbound and hydraulically or bituminously bound use	Yes	Yes ¹	Yes	Yes	Yes
U-B	unbound – B	Aggregates for unbound and hydraulically or bituminously bound use	No	Yes ¹	Yes	Yes	Yes

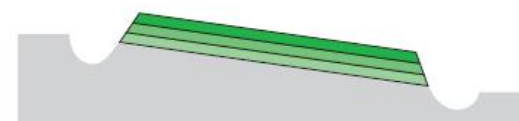


Quality and use

RA – Recycled crushed asphalt granulate



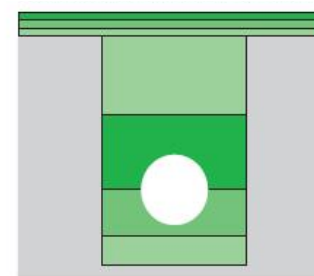
RA
Recycled crushed asphalt granulate



RB – Recycled crushed concrete granulate



RB
Recycled crushed concrete granulate



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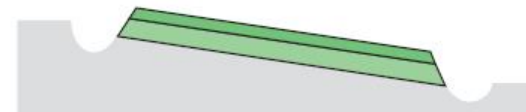
Quality and use

RAB – Recycled crushed mixed asphalt and concrete granulate



RAB

Recycled crushed mixed asphalt and concrete granulate

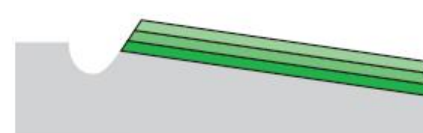


RM – Recycled crushed granulate mix of concrete and asphalt.



RM

Recycled crushed granulate mix of concrete and/or asphalt with a maximum content of stone (natural and/or recycled) of 50%



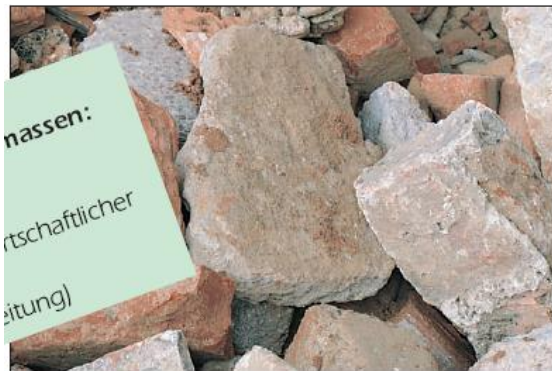
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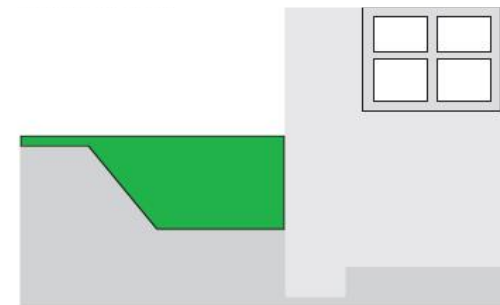
Quality and use

RH – Recycled sand or gravel from above-ground construction



RH

Recycled sand from above ground structures; recycled gravel from above ground structures

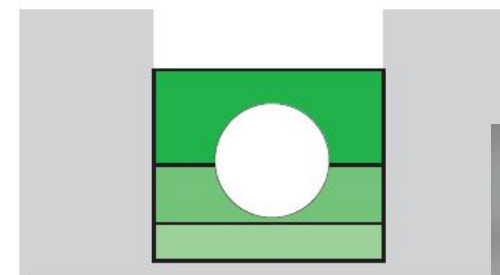


RMH – Recycled mineral demolition wastes from above ground construction



RMH

Recycled mineral demolition waste from above-ground structures



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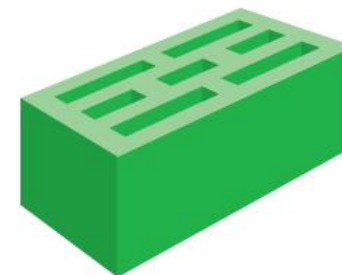
Quality and use

RZ - Recycled brick sand; recycled brick



RZ

Recycled sand from bricks; recycled gravel from bricks

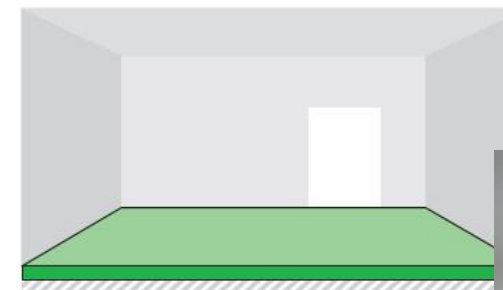


RHZ – Recycled brick sand as well as brick gravel gained from above-ground construction



RHZ

Recycled sand from bricks used for above ground structures; recycled gravel from bricks used for above ground structures



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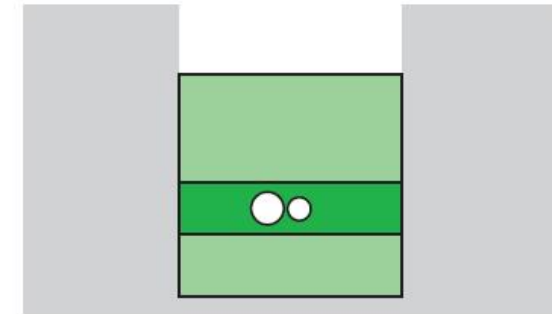
Quality and use

RS – Recycled sand



RS

Recycled sand



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Applicable Law

Decree for waste sites

Sets 4 types of waste sites:

1. Soil excavation dump → only clean excavated soil
2. Inert waste dump
3. Non-dangerous waste dump
 - Mineral C&D waste dump
 - Residual substance dump
 - Mass refuse dump
4. Dump for dangerous waste [non-existent in Austria]



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Landfill ban to strengthen recycling

Landfill ban to promote circular economy (from 1.1.2024):

Waste collected separately according to Recycling-BaustoffVO:

- SN 31407 Ceramics restricted to bricks (e.g. faulty batches) from production.
- SN 31410 road rubble
- SN 31411 34 or 35 excavated soil (technical bulk material)
- SN 31427 concrete demolition and SN 31427 17 concrete demolition (from construction and demolition measures)
- SN 31467 Track ballast
- SN 54912 Bitumen, asphalt
- SN 91501 21 Road sweepings (only sweeping chippings as natural aggregate)
- SN 31490 Recycled building material of quality class U-A in accordance with the Recycling Building Materials Ordinance.
- As of January 1, 2026, a landfill ban applies to gypsum boards, gypsum wallboards and fiber-reinforced gypsum boards and fiber-reinforced gypsum boards with some exceptions mentioned.

From 1.1.2023 recycled building materials have to be used as building materials in landfill construction



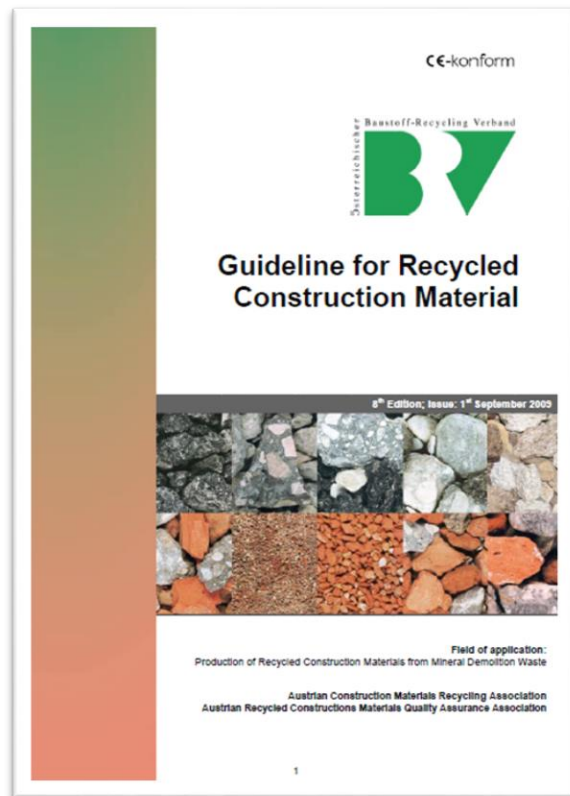
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Available in english



Guideline for Recycled Construction Material

Austrian Construction Materials Recycling Association – reference booklet



available at
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www.brv.at



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Hvala vam na pažnji!



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