



**F.I.R. Recommendation  
Guidelines  
for Quality Assessment of  
Recycled Building  
Materials**

## **Preamble**

The International Recycling Federation (F.I.R.) has made it its business to achieve a common agreement on quality assessment in the member associations.

The present recommendation regulates the design and structure to be followed by the individual national guidelines. Concerning the structural engineering qualities and associated fields of application as well as the valuation of environment compatibility, the number of differing national regulations is too great to allow a specified harmonization at present. The purpose of this recommendation is to achieve the application of a uniform procedure in order to create the preconditions for a common quality assessment of today's differing standards and technical regulations.

The recommendations in this document are related to the F.I.R. document concerning product definition. Mineral recycled building materials have to be considered a product when they have been produced by an authorized company, using regular quality control in accordance with national standards.

## F.I.R. Recommendation Guidelines for Quality Assessment of Recycled Building Materials

<b>1. Recovery</b>	Assessing the incoming materials. Keeping them free from impurities
<b>2. Storage</b>	Storage before processing. Storage after processing
<b>3. Processing</b>	Attaining the properties
<b>4. Quality category</b>	Classification according to field of application
<b>5. Constructional engineering assays</b>	Grain size distribution Frost resistance Solidity Compressibility
<b>6. Composition of the material</b>	Share of foreign ingredients Ratio of ingredients Noxious ingredients Hazardous ingredients
<b>7. Environment compatibility</b>	Elution behavior
<b>8. Inspection</b>	
<b>External inspection</b>	Definition of the parameters that must be checked and of intervals at least 1x per year in tabular form
<b>Internal inspection</b>	Definition of the parameters that must be checked and of frequency – depending on output (to) – per quality category in tabular form

## 1. Recovery

- Assessment of the incoming materials.

The material that is to be prepared may be recovered from

- ♣ free building materials
  - ♣ building materials bound with water
  - ♣ building materials bound with bitumen
  - ♣ industrial by-products
  - ♣ ashes produced by garbage incineration
- Keeping materials free from impurities/pure materials through separate recovery (selective dismantling) and collection of mineral and other residual building materials.

## 2. Storage

- Storage before processing

The various waste materials are to be stored separately to achieve an improvement of the product quality.

- Storage after processing

The products are to be stored separately according to quality categories.

## 3. Processing

- Obtaining the properties  
The materials have to be prepared in such a way that the fulfillment of the requirements of the respective quality category is guaranteed.

## 4. Quality categories

- Classification according to the field of application.  
Depending on the intended use the recycling building materials are to be graded.

## 5. Structural engineering assays

- Grain size distribution
- Frost resistance
- Solidity
- Compressibility

These and possible other assays have to be conducted according to the respective national regulations for the time being.

## **6. Composition of the material**

- Foreign matters

are all other mineral substances that are not in line with the main product (e.g. scraps of waste concrete in granulated asphalt).

- Ratio of ingredients

This defines the range of the share of individual mineral products in the granulate mix.

- Noxious ingredients

are substances that may affect the structural engineering qualities adversely.

- Hazardous ingredients

are organic and inorganic impurities that constitute a potential hazard for the environment.

## **7. Environment compatibility**

- Leaching behavior

For the recycling products the parameters that must be examined and the limiting values that are to be achieved must be indicated in accordance with the respective quality categories.

## **8. External inspection**

The external inspection has to be carried out by officially authorized or approved testing houses.

## **9. Internal inspection**

The internal inspection may be carried out by in-house laboratories or also by third-party testing houses.