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Directorate E: Sectoral and regional statistics
Unit E-2: Environmental statistics and accounts; sustainable development

Reporting on material recovery of C&D waste

Guidance for the reporting of the data according to Commission Decision 2011/753/EU and Commission Implementing Decision (EU) 2019/2000

Version of May 2021

CONTACT:

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1 Introduction

Directive 2008/98/EC of the European Parliament and of the Council on waste[1] sets in Article 11(2)(b) a target for the material recovery of non-hazardous construction and demolition waste of 70%, which must be achieved by the Member States by reference year 2020.

Until reference year 2015, data for compliance monitoring had to be submitted every three years, together with the implementation reports for Directive 98/2008/EC. With the revision of Directive 98/2008/EC, the reporting frequency changes and data have to be reported annually within 18 months of the reference year.

The rules and calculation methods for the compliance monitoring, which are set out in Commission Decision 2011/753/EU[2], remain unchanged, whereas the reporting format will slightly change.

The new reporting format for the data and for the quality check report is defined in Commission Implementing Decision (EU) 2019/1004[3], and it requires data on material recovery of C&D waste in more detail than in previous years[4]. The provisions of CID 2019/1004 are mandatory as of reference year 2020. However, the countries are asked to report the data according to the new format already for reference year 2019.

This guidance document aims to support the reporting of harmonised and high-quality data on C&D waste recovery based on the provisions of the CID 2019/1004 (EU)

2 Time schedule for reporting

According to Article 37(1) of the Directive 2008/98/EC, Member States shall report the data concerning the implementation of the C&D waste recovery target for each calendar year to the Commission. They shall report the data electronically, within 18 months of the end of the reporting year for which the data is collected (i.e. by 30 June each year).

The first reporting year for which reporting according to the new format is mandatory is 2020. Hence, the respective data are due by 30 June 2022. However, the countries are asked to report data according to the new format already for reference year 2019 (deadline: 30 June 2021).

[1] OJ L 312, 22.11.2008, p.3, last amended by Directive (EU) 2018/851 (OJ L 150, 14.6.2018, p. 109)
[2] OJ L 310, 25.11.2011, p.11
[3] OJ L 163, 20.06.2019, p.66
[4] So far: only total material recovery and the backfilled amount had to be reported. Now, material recovery must be split up into Preparing for re-use, recycling, backfilling and other material recovery

3 Scope and definitions

3.1 Scope

Article 11(2) of Directive 2008/98/EC stipulates the following:

> *"In order to comply with the objectives of this Directive, and move to a European circular economy with a high level of resource efficiency, Member States shall take the necessary measures designed to achieve the following targets:*
>
> *(b) by 2020, the preparing for re-use, recycling and other material recovery, including backfilling operations using waste to substitute other materials, of* ***non-hazardous construction and demolition waste excluding naturally occurring material defined in category 17 05 04*** *in the list of waste shall be increased to a minimum of 70 % by weight;*

It follows from Article 11(2) that the target refers to all non-hazardous C&D waste with the exception of the List of Waste[5] (LoW) entry 17 05 04 '*Soils and stones'*.

The scope of reporting is further specified in Annex III, section 1, of Decision 2011/753/EU where the LoW-codes that shall be included in the calculation of the recovery rate are listed. The list includes all non-hazardous waste entries of LoW chapter 17, except for the following:

- 17 05 04 Soils and stones (which is excluded already in Directive 2008/98/EC), and
- 17 05 06 Dredging spoil other than those mentioned in 17 05 05

The list in Annex III of Decision 2011/753/EU furthermore includes entries from LoW sub-chapter 19 12 *'Waste from mechanical treatment of waste (for example sorting, crushing, compacting for pelletising)*' if generated from the treatment of C&D waste. The complete list of LoW entries that may be considered for the reporting are shown in Annex 2 of this guidance document.

Scope of reporting

The calculation of the material recovery rate shall include:

- all non-hazardous waste entries of LoW chapter 17, except for:
  - 17 05 04 Soils and stones and
  - 17 05 06 Dredging spoil other than those mentioned in 17 05 05
- waste from the mechanical treatment of waste, if generated from the treatment of non-hazardous C&D waste as specified under the previous point.

The complete list of LoW entries that shall be included is shown in Annex 2 of the guidance document.

[5] OJ L 226, 6.9.2000, p. 3, last amended Commission Decision 2014/955/EU (OJ L 370, 30.12.2014, p.44)

4 Instructions for the completion of the questionnaire

4.1 Reporting format

The reporting format is laid down in CID 2019/1004, Annex IV, section C. The data shall be reported via the Excel-questionnaire shown in Figure 1.

Figure 1: Questionnaire on C&D waste generation and material recovery

olor	Reporting of the implementation of point (b) of Article 11(2) of Directive 2008/98/EC, concerning construction and demolition according to the format set out in Annex IV of the Commission Implementing Decisions 2019/1004																	
Country:																		
Reference year:	**2019**																	
Calculation method(1)		<= Select the calculation method here																
	Waste generated	**Standard footnotes**	**Explanatory footnote**	**Preparing for re-use**	**Standard footnotes**	**Explanatory footnote**	**Recycling**	**Standard footnotes**	**Explanatory footnote**	**Backfilling**	**Standard footnotes**	**Explanatory footnote**	**Other material recovery**(2)	**Standard footnotes**	**Explanatory footnote**	**Total material recovery**(3)	**Standard footnotes**	**Explanatory footnote**
	GEN			**PRP_REU**			**RCV_R**			**RCV_B**			**RCV_OTH**			**RCV**		
Tonnes																		

Notes:

(1) Data pursuant to Annex III Decision 2011/753/EU based on Regulation (EC) No 2150/2002 or reporting system of the Member State, chose from drop-down-menu in cell G5:
REGL_2150_2002 = data based on Regulation (EC) No 2150/2002
RS_MS = data based on Reporting system of the Member State

(2) This includes material recovery other than preparing for re-use, recycling and backfilling.

(3) This is the sum of the amounts reported under preparing for re-use, recycling, backfilling and other material recovery.

Cell shading:

White: Data provision is mandatory.
Light orange: footnotes (only to be filled-in when relevant)
Grey: The calculation of data is automatic and cannot be edited.

The following sections provide instructions for completing the questionnaire.

4.2 Reference year

The reference period of the reporting is the calendar year. In Article 2(1), Commission Decision 2011/753/EU sets out that "*Member States shall verify compliance with the targets set in Article 11(2) of Directive 2008/98/EC by calculating the weight of the waste streams which are generated and the waste streams which are prepared for reuse, recycled or have undergone other material recovery in* ***one calendar year***."

In case C&D waste is stored prior to treatment, the generation and recovery of waste may take place in different years and is thus reported in different years. Where the stored amounts are high in relation to the overall amount of C&D waste, this may lead to both under- or overestimations of the real recovery rate. If the reported recovery rate is biased by temporary storage in one or the other direction this should be indicated in the quality report.

4.3 Calculation methods

The recovery rate for C&D waste and the calculation methods are defined in Annex III of Decision 2011/753/EC and is calculated as follows:

$$\text{Recovery rate for C\&D waste [\%]} = \frac{\text{Materially recovered amount of C\&D waste}}{\text{Total amount of generated C\&D waste}}$$

Reporting on the total amount of generated C&D waste (denominator)

Commission Decision 2011/753/EC offers two options to calculate the C&D waste generation:

- Method '*WStatR*'

  Member States may compile the C&D waste total on the basis of the WStatR data covering the following cells of the WStatR waste generation matrix:

  (a) Waste generated by section F of the NACE Rev.2 and consisting of the following EWC-Stat codes:
  - W061 Metallic waste, ferrous
  - W062 Metallic waste, non-ferrous
  - W063 Metallic waste, mixed
  - W071 Glass waste
  - W074 Plastics
  - W075 Wood

  (b) The total of the EWC-Stat category W121 'Mineral C&D waste, i.e. the amount of W121 over all economic activities plus households.

  This calculation is assumed to be a good approximation of non-hazardous C&D waste generation. The listed EWC-Stat categories cover all non-hazardous waste codes of LoW chapter 17 except 17 05 04 and 17 05 06, which are excluded from the definition. An error of estimation may result from the fact that the categories W06 and W07 can include non-construction waste on the one hand and that construction waste of these materials may be reported under other NACE sections on the other hand.

- Method *'Other'*

  Member States may alternatively report the C&D waste generation on the basis of more precise national data. In this case, Member States shall explain in the quality report how the data relate to the WStatR data. The reasons for differences between both data sets should be explained in the quality report.

Please select the appropriate entry in the questionnaire to indicate which of the two calculation methods has been used to determine C&D waste generation. Please note that method 'WStatR' should be selected only when you strictly follow the calculation rules set out above.

Any compilation method that deviates from the instructions for method 'WStatR' should be labelled as 'Other'. Other methods may include the use of different data sources but also the use of the same data source as for the WStatR reporting when the data are compiled in a different way (e.g. data compilation based on LoW entries instead of EWC-Stat categories).

Reporting on the materially recovered amount of C&D waste (numerator):

For the calculation of the materially recovered amount, reporting countries have to rely on national data because the WStatR data do not allow determining the recovery of C&D waste accurately. This is for different reasons e.g. missing information on the origin of recovered metal, glass, plastic and wood waste; impact of imports and exports.

The waste types that shall be considered in the calculation are listed in Annex III of Decision 2011/753/EU and in the Annex to this document.

4.4 Measurement points

Art 2(2) of Commission Decision 2011/753/EU sets out that "*the weight of the waste prepared for reuse, recycled or materially recovered shall be determined by calculating the* ***input waste used in the preparation for reuse or the final recycling or other final material recovery processes****. A preparatory operation prior to the submission of the waste to a recovery or disposal operation is not a final recycling or other final material recovery operation. Where waste is collected separately or the output of a sorting plant is sent to recycling or other material recovery processes without significant losses, that waste may be considered the weight of the waste which is prepared for reuse, recycled or has undergone other material recovery.*"

The amount of C&D waste that is reported as materially recovered shall thus reflect the amount of waste that enters the final material recovery process. The suitable measurement points depend on the type of waste and on the treatment processes. Impurities and other non-targeted materials that are separated during the treatment process and finally disposed of or energetically recovered shall be deducted from the reported amount. For mineral building rubble and for mixed construction and demolition waste the selection of suitable measurement points is illustrated by process flow charts in Annex 3 and 4 of the guidance document.

4.5 Material recovery

All C&D waste that is materially recovered shall be considered for the calculation of the recovery. Material recovery is defined in Art. 3(15a) of Directive 98/2008/EC as *"any recovery operation, other than energy recovery and the reprocessing into materials that are to be used as fuels or other means to generate energy. It includes, inter alia, preparing for re-use,*

recycling and backfilling". The term 'inter alia' indicates that there may be other forms of materials recovery not explicitly mentioned in the definition that may also be counted towards the recovery target.

4.6 Preparing for reuse

"'*Preparing for re-use' means checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be re-used without any other pre-processing*" (Directive 2008/98/EC, Art. 3(16)).

In the context of C&D waste, this includes, for instance, the preparation for re-use of certain parts of buildings like roof elements, windows, doors, bricks, stones or concrete elements. A pre-requisite for the preparation for re-use of building elements is usually the selective deconstruction of buildings or other structures.

4.7 Recycling

"*'Recycling' means any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It (..) does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations*" (Directive 2008/98/EC, Art. 3(17)).

For the mineral part of the C&D waste, the main form of recycling is the processing into fine or coarse aggregate that may be used in the production of concrete or asphalt or in road construction.

Recycling is considered as high-quality recovery as compared to backfilling where C&D waste is used for filling purposes.

4.8 Backfilling

Backfilling is defined in Art. 3(17a) as "*any recovery operation where suitable non- hazardous waste is used for purposes of reclamation in excavated areas or for engineering purposes in landscaping. Waste used for backfilling must substitute non-waste materials, be suitable for the aforementioned purposes, and be limited to the amount strictly necessary to achieve those purposes."*

In order to classify a treatment operation as backfilling, all four criteria in the definition have to be fulfilled, i.e.:

- suitable non- hazardous waste is used for purposes of reclamation in excavated areas or for engineering purposes in landscaping;
- the waste must substitute a non-waste material;
- the waste must be technically suitable for backfilling purposes;
- only the amount that is strictly necessary for the purpose of the operation can be counted as backfilling.

Operations that fail to meet the four criteria cannot be classified as a backfilling operation.

4.9 Other forms of material recovery

Amounts that are materially recovered in a way that cannot be classified under the recovery operations described above shall be reported under this category. Please specify in the quality report the type of material and the type of recovery operation that is reported here.

4.10 Export of C&D waste for material recovery

C&D waste that is shipped for preparation for reuse, recycling or other material recovery to another Member State, shall only be counted toward the recovery target of the Member State in which it was collected (Com. Dec. 2011/753/EU, Art. 2(4)).

Exports of C&D waste to non-EU countries may be counted towards the material recovery target of the Member State in which it has been collected only when there is sound evidence that the shipment complies with the provisions of Regulation (EC) No 1013/2006 of the European Parliament and of the Council[6], and in particular Article 49(2) thereof.

5 Instructions for the completion of the quality report

This chapter provides instructions on how to complete the quality report that has to be delivered together with the C&D waste data on an annual basis. The structure of this chapter follows the structure set out in CID 2019/1004. Advice is given on the information that should be provided under the six questions of the quality report.

5.1 Determination of C&D waste generation

1. How are the amounts of generated construction and demolition waste determined? How do those amounts relate to data reported on the basis of Regulation (EC) No 2150/2002? (Questionnaire - question 3.1)

The calculation method for the C&D waste generation (*WStatR* or *Other*) has to be indicated in the questionnaire. The respective method shall be further specified in the quality report.

Description of methodology (Questionnaire - question 3.1.1)

Please specify here the data sources used, how the data are compiled and the estimations that have been used to produce the generation data. Please provide information on the relevant characteristics of the data collection. The description should include in particular the following characteristics:

[6] OJ L 190, 12.7.2006, p. 1, last amended by Commission Regulation (EU) 2015/2002 (OJ L 294, 11.11.2015, p.1)

- A short description of the data source(s) and the collection method(s), including information on the type of data collection (e.g. administrative source, statistical survey, modelling, estimation), the frequency of the collection and the waste nomenclature used (e.g. LoW, EWC-Stat).
- Information on the statistical entities from which the data are collected (e.g. construction companies, clients of the construction measures, waste collectors, the treatment facilities). Please indicate which legal entities are responsible for the reporting of C&D waste generation data.
- In case of sampling (Questionnaire - question 3.1.2):
    - Information on the number of entities in the sample and their share in the statistical population and the sampling method.
    - Information on how the sample survey is extrapolated grossed up (parameters used for grossing up, raising factors)
- A brief assessment of the data quality, including errors related to sampling, coverage, measurement, processing and non-response

Please note: If you apply the method 'WStatR' or use the same data source as for the WStatR data, the information requested above method may be available already from the WStatR quality report. In this case, please refer to the respective sections of the WStatR quality report. However, as the WStatR quality report covers all sectors and waste types, the information provided is often rather general. So please make sure that specific information on C&D waste is provided.

Particular aspects when method 'WStatR' is applied

If you apply the method 'WStatR', the data should be identical with the respective data submitted under the WStatR reporting. This will be cross-checked by Eurostat during data validation. If there should be a difference between both data, then please check the reasons and provide an explanation in the quality report.

Particular aspects when method 'Other' is applied

If data are based on sources other than WStatR or compiled differently, it is important to describe how the method and the data relate to the WStatR data in view of scope and quality. In particular, the reasons for differences in the reported amounts between both data sets should be explained.

Changes compared to previous reporting years (Questionnaire - question 3.1.3)

Please indicate methodological changes that were implemented since the last reporting, i.e. changes in data source, data collection or data compilation, that may have an impact on the reported data.

Please also comment on significant changes of amounts compared to the previous year. Indicate in particular whether the changes are assumed to reflect real developments or whether they may result from methodological changes

Reporting by material (Questionnaire - question 3.2.5)

It would be most helpful for Eurostat's data validation if the reported data would be reported by material. Countries are therefore encouraged to complete the Table 1 in addition to the data reported in the questionnaire.

5.2 Method for determining the material recovery

2. How are the data on preparing for re-use, recycling, backfilling and other material recovery compiled? (Questionnaire - question 3.2)

Please provide a description of the collection method for the data on material recovery of C&D waste. Please address the aspects outlined in chapter 5.1 on the methodology for C&D waste generation data accordingly. In addition, please address in your description the specific treatment-related aspects listed in the following.

Please indicate if there are end-of-waste criteria for the recycled aggregates in your country.

LoW entries used (Questionnaire - question 3.2.1)

If the data compilation on C&D waste recovery is based on the List of Waste, then please specify which of the LoW entries listed in Annex III (1) of Com. Decision is used for the compilation.

Backfilling (Questionnaire - question 3.2.2)

Please include a description how the definition of backfilling laid down in Article 3(17a) of Directive 2008/98/EC[7] is applied in your country in the context of reporting on C&D waste, i.e. what kind of reprocessing operation is undertaken. In case you have defined a national treatment code for backfilling, please provide the definition of the code.

If possible, please specify the backfilling applications for which the C&D waste is preferably used.

Other material recovery (Questionnaire - question 3.2.3)

In case you have reported C&D waste amounts under 'Other material recovery' because the recovery operation cannot be classified under one of the other material recovery operations, then please specify in the quality report the type of material and the type of recovery operations (reprocessing operation undertaken and the application purpose) that are reported here and their shares (%).

[7] 17a. 'backfilling' means any recovery operation where suitable non-hazardous waste is used for purposes of reclamation in excavated areas or for engineering purposes in landscaping. Waste used for backfilling must substitute non-waste materials, be suitable for the aforementioned purposes, and be limited to the amount strictly necessary to achieve those purposes

Changes compared to previous reporting years (Questionnaire - question 3.2.4)

Please indicate methodological changes that were implemented since the last reporting and comment on significant changes in C&D waste treatment.

Please indicate if the temporary storage of waste should bias the reported recovery rate.

Reporting by material (Questionnaire - question 3.2.5))

As indicated above, it would be most helpful if the reported data would be reported by material. Countries are therefore encouraged to complete the Table 1 in addition to the data reported in the questionnaire.

Table 1: Generation and recovery of C&D waste by material

Material	Generated waste (t)	Preparing for re-use (t)	Recycling (t)	Backfilling (t)	Other material recovery (t)	Total material recovery (t)
Mineral C&D waste						
Metal waste						
Glass waste						
Plastic waste						
Wood waste						
Other waste[1)]						
Total						

1) Please specify

5.3 Measurement at pre-treatment facilities

3. Are the data based on the input to preliminary treatment facilities? If yes, please provide information on the efficiency of preliminary treatment. (Questionnaire - question 3.3)

The amount of materially recovered C&D waste should reflect the amount that enters the final recovery process (see chapter 4.4). It should exclude non-targeted material that is separated in the process of waste treatment. Material recovery should therefore preferably be measured at the entrance to the final recovery process. Alternatively, separately collected waste or the output of sorting may be considered as recovered if sent to the final recovery process without significant losses.

Please describe at which stage in the waste treatment chain the recovery of C&D waste are measured. If helpful, please refer to the exemplary process descriptions in Annex 3 and 4.

If recovery is measured at the input to a preliminary treatment process, please make sure that non-targeted material is deducted from the treatment input. In this case, please indicate the efficiency of the main treatment processes.

The efficiency can be expressed either:

- as the share of rejects / non-targeted materials that are separated from the recovered material, or
- as the share of material regained from the C&D waste for material recovery.

Please provide the efficiency indicators separately for the different materials, i.e. for minerals, metals, wood, glass and plastics. Where appropriate, please specify the type of treatment process (e.g. sorting, preparation of building rubble, etc.)

5.4 Measurement of the final material recovery process

4. Are the data based on the input to the final material recovery process?(Questionnaire - question 3.4)

If the data are based on the input to the final recovery process, please specify the points of measurement separately for the different materials. Please refer to the flow charts in Annex 3 and 4 where this is helpful. Please indicate whether you determine the recovered amounts on the basis of the outputs of the last pre-treatment operation or at the input into the final recycling.

C&D waste may be treated in sorting or other (pre-)treatment facilities that receive also waste from other sources. C&D waste may therefore be mixed with similar waste of other origin. This may apply for instance to sorting facilities that receive mixed construction and demolition waste together with mixed waste from other commercial sources. A further example would be shredding facilities that treat metal waste from demolition together with metal-containing wastes from other sources. The outputs will usually be classified as chapter 19 wastes. Their sources will thus no longer be identifiable by their waste code but the allocation to the source will have to be estimated, e.g. based on the input of the primary (i.e. the ratio between C&D waste and other waste entering the facility). Please describe how the amount of recovered C&D waste is determined in such cases where different waste flows mix up during waste treatment.

5.5 Data validation

5. Please describe the data validation process (Questionnaire - question 3.5)

Please provide a short description of the validation process and indicate the main quality issues detected.

Please address the checks and the results with regard to the following aspects (Questionnaire - question 3.5.1):

- completeness and full coverage of data collection;
- outliers;
- classification errors;
- identification of double-counting, in particular with regard to recovery;
- changes over time.

If you use the same data source as for the WStatR reporting, the description of the validation process may be available already from the WStatR quality report. In this case, please reference to the respective sections of the WStatR quality report but make sure that specific information on C&D waste is provided.

5.6 Export of C&D waste

6.	Has waste been (a) shipped to another Member State? (b) exported out of the Union for treatment? If yes, how have the reuse and recycling rates and the recovery rates for those shipped or exported amounts been derived and monitored/validated?(Questionnaire - question 3.6)

If significant amounts of C&D waste are exported for recovery, then please specify the types of C&D waste exported.

Annex 1: List of relevant legal acts and related documents

No.	Legislation	
Waste legislation		
1	Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives	OJ L 312, 22.11.2008, p.3, last amended by Directive (EU) 2018/851 (OJ L 150, 14.6.2018, p. 109)
2	Commission Decision of 18 November 2011 establishing rules and calculation methods for verifying compliance with the targets set in Article 11(2) of Directive 2008/98/EC of the European Parliament and of the Council (2011/753/EU)	OJ L 310, 25.11.2011, p.11
3	Commission Implementing Decision (EU) 2019/1004 of 7 June 2019 laying down rules for the calculation, verification and reporting of data on waste in accordance with Directive 2008/98/EC of the European Parliament and of the Council and repealing Commission Implementing Decision C(2012) 2384	OJ L 163, 20.06.2019, p.66
4	Commission Decision of 3 May 2000 replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste (2000/532/EC)	OJ L 226, 6.9.2000, p. 3, last amended Commission Decision 2014/955/EU (OJ L 370, 30.12.2014, p.44)
5	Regulation (EC) No 1013/2006 of the European Parliament and the Council of 14 June 2006 on shipments of waste	OJ L 190, 12.7.2006, p.1, last amended by Commission Regulation (EU) 2015/2002 (OJ L 294, 11.11.2015, p.1)
Other documents		
5	RPA, 2020: Study to support the preparation of Commission guidelines on the definition of backfilling. Final report prepared for DG Environment, January 2020	

Annex 2: Waste codes relevant for the reporting on C&D waste

Table 2: List of Waste codes that shall be included in the calculation of C&D waste recovery targets according to Commission Decision 2011/753/EC, Annex III

LoW entries		EWC-Stat category
17 01 01	Concrete	W121
17 01 02	Bricks	W121
17 01 03	Tiles and ceramics	W121
17 01 07	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	W121
17 02 01	Wood	W075
17 02 02	Glass	W071
17 02 03	Plastic	W074
17 03 02	Bituminous mixtures other than those mentioned in 17 03 01	W121
17 04 01	Copper, bronze, brass	W062
17 04 02	Aluminium	W062
17 04 03	Lead	W062
17 04 04	Zinc	W062
17 04 05	Iron and steel	W061
17 04 06	Tin	W062
17 04 11	Cables other than those mentioned in 17 04 10	W062
17 04 07	Mixed metals	W063
17 05 08	Track ballast other than those mentioned in 17 05 07	W121
17 06 04	Insulation materials other than those mentioned in 17 06 01 and 17 06 03	W121
17 08 02	Gypsum-based construction materials other than those mentioned in 17 08 01	W121
17 09 04	Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	W121
19 12 01	Paper and cardboard	W072
19 12 02	Ferrous metal	W061
19 12 03	Non-ferrous metal	W062
19 12 04	Plastic and rubber	W074
19 12 05	Glass	W071
19 12 07	Wood other than that mentioned in 19 12 06	W075
19 12 09	Minerals (for example sand, stones)	W128_13

Table 3: EWC-Stat codes that cover non-hazardous C&D wastes listed in Table 2 above

EWC-Stat code	EWC-Stat description
W061	Metal wastes, ferrous
W062	Metal wastes, non-ferrous
W063	Metal wastes mixed, ferrous and non-ferrous

W071	Glass wastes
W072	Paper and cardboard wastes
W074	Plastics Wastes
W075	Wood wastes
W121	Mineral construction n and demolition wastes

Annex 3: Processing of building rubble

Mineral building rubble, consisting of concrete (LoW 17 01 01), bricks (17 01 02), tiles and ceramic (17 01 03) and mixtures thereof (17 01 07) accounts for around 80% or more of the target-relevant C&D waste. Depending on the quality of the material, building rubble may be processed to aggregates and used for the production of secondary building materials, for road construction or for backfilling. Figure 2 shows a flow chart of a typical processing plant for building rubble. Typical treatment steps include the crushing, sieving and magnetic separation of ferrous metals. These processes may be repeated with different shredding aggregates and screening machines. The material is sieved into different grain-size classes. Light impurities like plastics or paper are removed by air separation. The final product of the process are mineral aggregates of different grain-sizes.

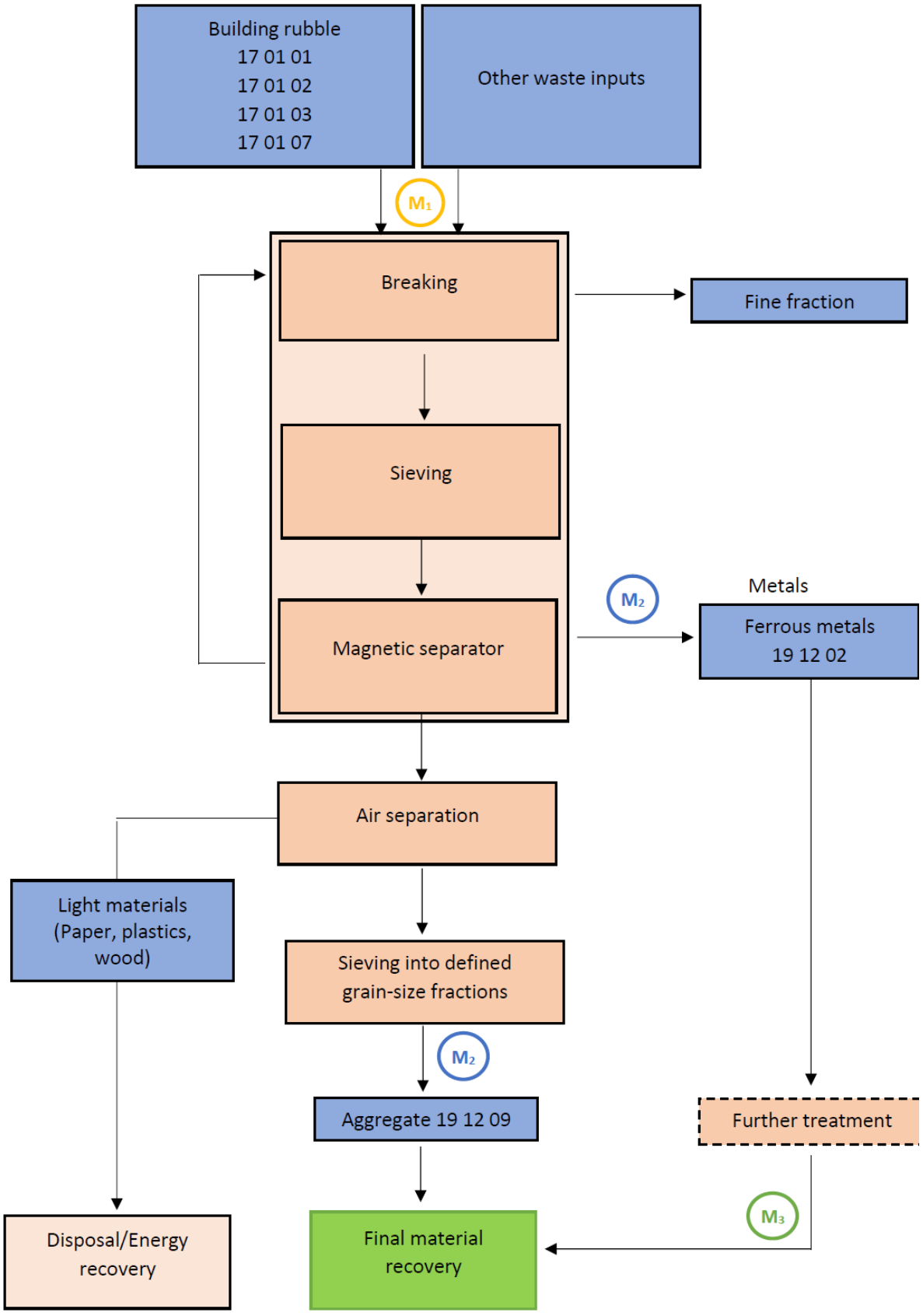
The preferable point for accurately measuring the aggregates destined for material recovery is point M2, i.e. the output of the processing plant.

The measurement at the entrance to the processing plant (M1) is also possible provided that the materials that are separated during treatment (e.g. the fine fraction and the light materials) are deducted from the input. In this case, it should be explained in the quality report how the correction for the non-recovered materials is done.

For the recycling of the metal fraction, the suitable measurement point would be the output of the processing plant (M2) or the output of subsequent treatment steps that may be necessary for the improvement of the material quality (M3).

If the processing plant receives different inputs, e.g. building rubble and excavation waste, the outputs have to be allocated to the different inputs. Whether a proportional allocation or another allocation approach is appropriate depends on the character of the input materials.

Figure 2: Process flow chart on the treatment of building rubble



Annex 4: Sorting of mixed construction and demolition waste

Mixed construction and demolition waste (LoW 17 09 04) usually consists of a variety of materials including mineral waste (concrete, tiles, bricks, etc.), metals, cables, plastics, wood, glass and possibly excavated earth. Recovery operations mainly aim at the reclamation of metals and of plastic parts for recycling, on the separation of materials for energy recovery (e.g. wood waste, paper, floor coverings) and possibly on the recovery of parts of the mineral fraction.

A prerequisite for recovery is the sorting of the waste. Typical treatment steps include presorting (→ removal of large impurities), sieving (→ separation of the fine fraction), sorting (→ reclamation of plastics, wood, paper, etc), magnetic separation of ferrous metals and the removal of the remaining light fraction through air-separation.

Depending on the output quality, the separated recyclables may either go directly to recycling facilities or they may undergo further processing to separate remaining impurities and to improve the material quality. The mineral fraction may be landfilled or further processed for material recovery, depending on their quality.

The flow chart in Figure 3 illustrates that the entry into the sorting facility (M_1) is clearly not a suitable measurement point to determine the materially recovered amounts. Measurement point M_1 may however be important to determine the share of C&D waste in the total input to the facility, if C&D waste and other wastes are treated in the same facility.

Possible measurement points for the recovered amount are the outputs of the sorting facility (M_2) or the outputs of the further processing (M_3). If material recovery is measured at the sorting output (M2) significant losses in the further processing shall be deducted. If C&D waste is treated together with other waste, the share of the recovered amount originating from C&D waste has to be determined.

Figure 3: Process flow chart on the treatment of mixed construction and demolition waste