

MONITORING

Monitoring Regulation: What is new from 2013?

IMPRINT

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1 INTRODUCTION

This document gives a first overview of the most important changes in the monitoring and reporting requirements that will be coming into force with the new EU Monitoring Regulation (MRR), compared to the 2007 Monitoring Guidelines (MRG) that were in force during the second trading period.

Two overarching chapters will describe the transition procedure from the MRG to the MRR (Chapter 2) and give definitions (Chapter 3), while Chapters 4 to 10 will describe the most significant changes for installation operators regarding monitoring and reporting. Chapter 11 summarises the major changes for aircraft operators.

As for emissions reports, the form management system (FMS) will be provided to support operators entering relevant information and data. Further guidance regarding the implementation and interpretation of the MRR will be available in a Guideline and other supporting documentation if required.

2 THE TRANSITION FROM THE 2007 MONITORING GUIDELINES TO THE MONITORING REGULATION: WHEN DO WHICH RULES APPLY?

The specifications for monitoring and reporting have been amended in the MRR and will come into force on the third day after publication in the Official Journal of the European Union¹. They will affect the determination of emissions data from January 1st 2013. The MRG will be revoked on the day of publication of the MRR. Its regulations, however, remain valid for the determination of emissions until the end of 2012. In contrast to the MRG, the MRR will be legally binding for all operators (installation as well as aircraft operators), competent authorities and verifying bodies. Table 1 gives an overview of the procedure cycle with transition points between second and third period.

Table 1: Procedural Transition Steps from MRG to MRR

Procedure for a Reporting Period	Transition
Monitoring Plans	Monitoring plans must be reviewed and approved according to MRR specifications.
Deadlines for the submission of a 2013-2020 monitoring plan according to TEHG § 6 Section 1 Sentence 1 and (for aviation) additionally according to MRR Article 51 Section 1	Stationary Installations: Existing installations: 31.07.2012 Beginning of operations after 28.02.2012: Before start of operations Aircraft operators: Start of operations before 31.08.2012: 30.09.2012 Start of operations after 31.08.2012: immediately, if possible four months before launching flights subject to emissions trading and at the latest six weeks after the start of aviation operations or immediately after the administering state is known.
Monitoring	Changes in monitoring methodology due to new or changed requirements in the MRR must be implemented by 01.01.2013.

¹ The MRR will probably come into force in late May/early June 2012

Procedure for a Reporting Period	Transition
Reporting	<p>Stationary Installations:</p> <p>Emissions generated until the end of 2012 must be determined according to the MRG and reported to the relevant Federal authority by 01 March 2013.</p> <p>Emissions generated from 01.01.2013 must be determined by the installation operator on the basis of the MRR requirements. The 2013 emissions report must be submitted directly to the DEHSt by March 31st 2014. This prolongs the deadline for the submission of emissions reports by one month.</p> <p>Aircraft Operators:</p> <p>Emissions generated until the end of 2012 must be determined according to the MRG and reported to the DEHSt by March 31st 2013.</p> <p>Emissions generated from 01.01.2013 must be determined by the aircraft operator on the basis of the MRR requirements and reported to the DEHSt by March 31st 2014.</p>
Verification	The MRG specifications remain in place for emissions report, whereas the Accreditation and Verification Regulation (AVR), coming into force in parallel with the MRR, will be relevant for the verification of emissions reports from 2013.

3 TERMINOLOGY

The MRR contains many additional definitions, some of which came from individual sections of Annex I and the industry-specific Annexes of the MRG and were brought together in the introductory Chapter 1 Article 3 of the MRR.

In many areas, new definitions provide a more tangible meaning, e.g. for “preliminary emission factor”, “biomass fraction” or “maximum permissible error”. Other definitions were revised, such as “source stream” or “inherent risk”. Other definitions were taken out, e.g. the definition of “pure”, or they were integrated into the text of the regulation, e.g. „monitoring plan“, “de minimis source stream” or “minor source stream“. Some crucial definitions will be described below, while others will be discussed in the application-related context of the subsequent chapters.

3.1 PRELIMINARY EMISSION FACTOR: CLARIFICATION ON THE CALCULATION OF EMISSIONS

The introduction of a definition for the preliminary emission factor makes the calculation of emissions more transparent. The preliminary emission factor refers to the total carbon content of a mixed source stream (fossil and biofuel). Considering the biomass fraction (ration of carbon stemming from biomass to the total carbon content), the emission factor for the fossil fraction of the source stream can be calculated. This calculation method has been adopted by the Form Management System from the first trading period.

3.2 LEGAL METROLOGICAL CONTROL AND MAXIMUM PERMISSIBLE ERROR: FOCUS ON QUALITY OF MEASUREMENT

Compared to the MRG, the MRR puts even more emphasis on the quality of the measuring devices and their correct use in the practical determination of activity data. This is why Article 3 No. 24 of the MRR defines the „maximum permissible error“. It is the definition previously found in Annex I and the measuring device-specific Annexes of Directive 2004/22/EC. If a Member State has already a legal metrological control system (as in Germany), its definitions of maximum permissible errors for devices requiring official calibration (maximum permissible error in service) may be used to provide simplified evidence of uncertainty (see Chapter 6.1).

3.3 CO EMITTED INTO THE ATMOSPHERE TO BE TREATED LIKE CO₂

Article 3 No. 15 of the MRR (definition of the conversion factor) states that carbon monoxide (CO) that is emitted into the atmosphere must be treated like the molar equivalent of CO₂. In other words, the full amount of CO emitted into the atmosphere is subject to emissions trading. The same rule applies to mass balances, as stated in Article 25 Section 2, as well as for continuous measurement methods. For these, Article 43 Section 1 states that CO emitted into the atmosphere must be treated like CO₂. Thus, unlike the MRG (where this rule existed only in Annex III referring to refineries), the MRR applies a uniform rule for all activities and monitoring methods.

3.4 BIOMASS, BIOLIQUIDS AND BIOFUELS

The MRR incorporates the definitions of the Renewable Energy Directive 2009/28/EC (RED)) for biomass, biofuels and bioliquids (see also Chapter 7).

3.5 MIXED FUELS AND MATERIALS, FOSSIL FRACTION, BIOMASS FRACTION, FOSSIL CARBON

Mixed fuels and materials are defined in Article 3 No. 33 and 34 of the MRR. According to the MRR, these are fuels or materials containing fossil carbon as well as carbon stemming from biomass. The term biomass fraction used in the first and second trading period caused some misunderstanding and has been clarified in a new definition of “biomass fraction”. Biomass fraction describes the ratio of carbon stemming from biomass to the total carbon content of the fuel or material. Accordingly, the “fossil fraction” describes the ratio of fossil carbon to total carbon content of the fuel or material. The term “fossil carbon” was also elaborated. Fossil carbon comprises fossil organic as well as fossil inorganic carbon.

4 THE MONITORING PLAN 2013-2020: WHAT IS NEW?

4.1 REQUIREMENTS REGARDING THE CONTENT OF THE MONITORING PLAN

Some of the requirements for the description of an installation’s monitoring method in the monitoring plan have been amended and extended.

Generally, following requirements apply to the monitoring plan:

- The monitoring plan must be submitted to the competent authority (i.e. according to § 6, Section 1, § 19 Section 1 No. 3 of the Greenhouse Gas Emissions Trading Act of July 2011 (TEHG 2011) the German Emissions Trading Authority (DEHSt)) for approval (MRR Article 11 Section 1).
- It must contain a detailed, complete and transparent documentation concerning the methodology of a specific installation or aircraft operator and at least all elements described in Annex I of the MRR (MRR Article 12 Section 1).
- The following documentation must be submitted together with the monitoring plan:
 - Evidence for each source stream and emission source demonstrating compliance with the uncertainty thresholds for activity data and calculation factors, where applicable, for the applied tiers, as well as
 - The risk assessment result.

Where Annex I of the MRR stipulates certain procedures, these must be established by the installation operator outside the monitoring plan. They must be documented and maintained. The monitoring plan must contain a summary of company procedure instructions comprising the following information (MRR Article 12 Section 2):

- the title of the procedure
- a traceable and verifiable reference for identification of the procedure
- identification of the post or department responsible for implementing the procedure and for the data generated from or managed by the procedure
- a brief description of the procedure allowing the operator or aircraft operator, the competent authority and the verifier to understand the essential parameters and operations performed
- the location of relevant records and information

- the name of the computerised system used, where applicable
- a list of EN standards or other standards applied, where relevant

In addition, the monitoring plan must contain information on the monitoring and reporting of any operational changes (MRR Article 12 Section 3 in connection with Allocation Ordinance 2020 (ZuV 2020) § 22). This is required to establish what changes may affect the allocation for an installation (see §§ 19-21 ZuV 2020) and to implement Article 24 Section 1 of Decision 2011/278/EU of the Commission determining transitional Union-wide rules for harmonised free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council.

4.2 WHEN ARE CHANGES TO AN EXISTING MONITORING PLAN REQUIRED?

The circumstances leading to a change of an existing monitoring plan have been described in more detail in the MRR than previously in the MRG. Article 14 MRR gives examples of circumstances that require an adaptation of the monitoring plan. Generally, installation operators are obliged to check regularly whether the monitoring plan still reflects the actual situation in the installation and adapt it if required. Any intended or necessary modification of the monitoring plan must be reported to the DEHSt without delay. *Significant* changes require approval (MRR Article 15). Should the DEHSt consider the changes as non-significant, it will inform the installation operator.

Modifications to the monitoring plan of an installation are subject to notification, if:

- new activities or the use of different types of fuel or material lead to emissions not covered by the existing monitoring plan;
- the availability of data has changed, allowing for higher accuracy in the determination of emissions, such as the use of new types of measuring instruments, sampling or analysis methods;
- the data generated by previously used monitoring methodology turn out to be incorrect;
- the adaptation leads to higher accuracy of the reported data, if technically feasible with no disproportionate effort;
- the monitoring plan does not meet MRR requirements and the DEHSt requests an adaptation;
- the verification report recommends an improvement to the monitoring plan.

Significant modifications of the monitoring plan for installation operators that must be notified and approved include the following situations:

- changes of the category of the installation;
- notwithstanding Article 47(8), changes regarding whether the installation is considered an installation with low emissions;
- changes to emission sources;
- a change from calculation-based to measurement-based methodologies, or vice versa, used to determine emissions;
- a change in the tier level applied;
- the introduction of new source streams;
- a change in the categorisation of source streams - between major, minor or de minimis source streams;
- a change of the default value for a calculation factor, where the value is to be laid down in the monitoring plan;
- the introduction of new procedures related to sampling, analysis or calibration, where the changes of those procedures have a direct impact on the accuracy of emissions data;
- the implementation or adaption of a quantification methodology for emissions from leakage at storage sites.

The list in the MRR Article 15 Section 3 is not exhaustive. Any modification in an installation or monitoring methodology that affect the accuracy and precision of emissions determination is significant and necessitates an immediate modification and approval of the monitoring plan.

4.3 IMPROVEMENT REPORT: CONTINUOUS ASSESSMENT OF MONITORING METHODS

The new rules of MRR Article 69 ensure a more consistent continuous assessment of monitoring. Installation operators must now regularly revise and review their monitoring methods if they do not comply with the MRR requirements or if the verifier flags up flaws in the monitoring methods or suggests improvements in the verification report enclosed to the annual emission report.

If installations operators use a fall-back approach (MRR Article 22) or no longer applies the tiers stated in the Regulation (MRR Article 26 Section 1), they must submit an improvement report to the DEHSt. If an operator intends not to apply the tiers stated in the MRR, the report must contain evidence that the required conditions are met. The operator must give evidence that, for example, in a fall-back scenario, at least tier 1, to be applied to major and minor source streams, cannot be applied for technical reasons or only at unreasonable costs. However, should the operator come to the conclusion that the tiers can now be applied without further complications, the improvement report must contain suggestions on how and when monitoring methods will be improved and the monitoring plan adapted accordingly.

If the verification report identified flaws or made recommendations for the improvement of monitoring methods, the installation operator must state in the improvement report when and what type of improvement methods will be put in place. If the installation operator takes the view that the verifier's recommendations will not lead to any improvement, the view must be substantiated. If the verifier's recommendations can be implemented only at unreasonable costs, this must be supported by evidence.

According to the above mentioned conditions, Category C installations must compile an improvement report annually, Category B installations every two years and Category A installations every four years.

5 MONITORING METHODOLOGY AND APPLICABLE TIERS APPROACH

5.1 TIERS FOR CALCULATION-BASED APPROACHES: HIGHEST TIER REQUIREMENTS REMAIN IN PLACE FOR INSTALLATIONS OF CATEGORIES B AND C

The tiers established since the first trading period with different accuracy requirements in the monitoring of installations subject to emissions trading remains in place (MRR Article 26). So does the requirement that the highest tier combination must be adhered to all major source streams in installations with more than 50kt fossil CO₂ emissions per year (Category B and C installations). MRR Annex II Section 1 contains the accuracy requirements for the determination of activity data and Annex II Sections 2-4 in connection with activity-related specifications of Annex IV the tiers to be applied for the determination of source stream parameters. Tier levels stated in Annex V are the minimum requirements for installations with 50 kt of fossil CO₂ emissions or less per year.

Depending on approval by the DEHSt, Category C emitters – i.e. installations with fossil CO₂ emissions of more than 500 kt per annum – may apply the next lower tier (but at least tier 1) if measures to adhere to the required thresholds are technically not feasible or would cause unreasonable costs. Category B and C emitters – i.e. installations with fossil CO₂ emissions below 500 kt per annum – may be permitted to deviate by a maximum of two tiers below the required tier, but must apply at least tier 1 – if measures to adhere to the required thresholds are technically not feasible or would cause unreasonable costs.

However, installations of Categories B and C that do not apply the highest tier must submit improvement reports in the intervals shown in Figure 1, which must be approved by the DEHSt. See MRR Article 69 Section 2 in connection with Article 26 Section 1 Sentence 1 and Article 41 Section 1.

Exemptions from this rule apply to Category B and C installations with de minimis and minor source streams (see Chapters 5.4) and for the determination of source stream parameters for commercial standard fuels. For the latter it is sufficient to conform to the tiers stated in Annex V.

Only if operators do not comply with these requirements, improvement reports for monitoring source stream parameters for commercial standard fuels must be submitted. For Category A installations, improvement reports must be submitted for approval by the DEHSt every four years if they fall below the tiers stated in Annex V or, with continuous measurement, fall below the tiers stated in Article 41 Section 1 in connection with Annex VIII of the MRR.

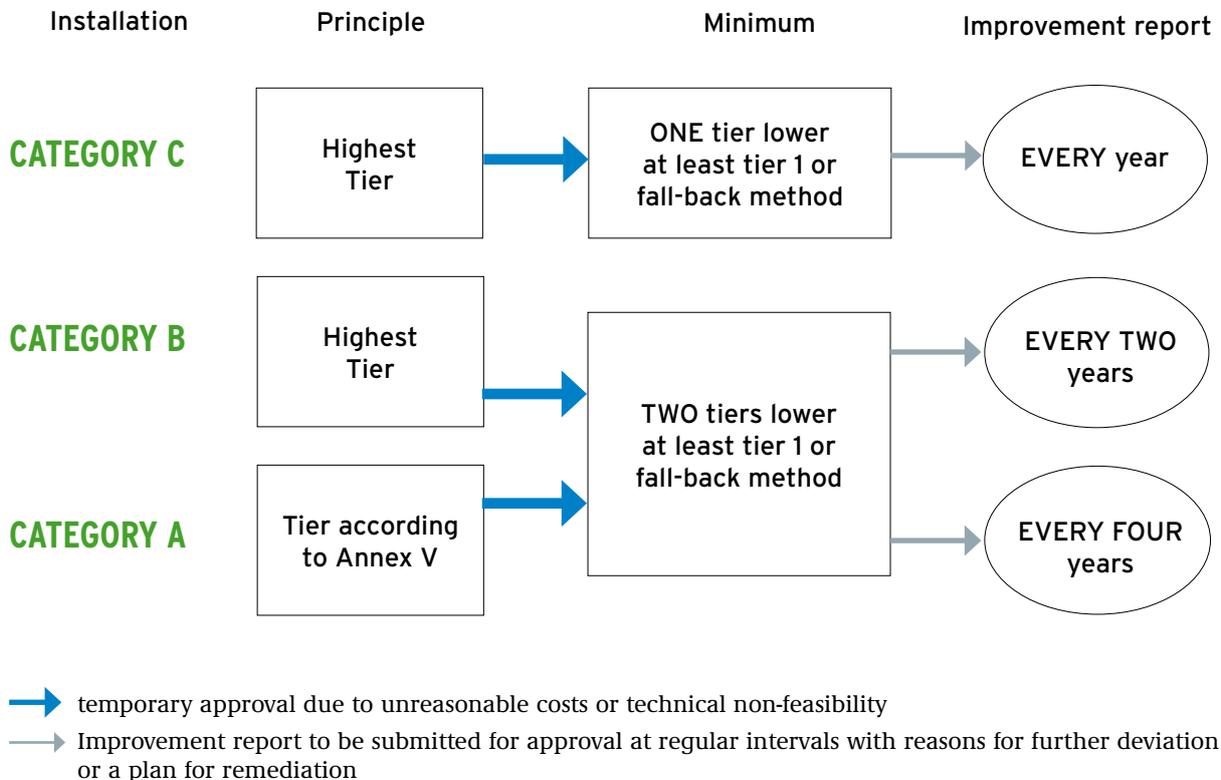


Figure 1: Figure 1: Required tiers for major source streams according to Article 26 (1) and major emission sources according to Article 41 (1) MRR

5.2 MONITORING METHODS: EQUIVALENCE OF CALCULATION-BASED APPROACHES AND CONTINUOUS EMISSION MEASUREMENT

In contrast to the first and second trading periods, the measurement-based method will be recognised as equivalent to calculation-based methods for the determination of CO₂ emission sources. Chapter 5.3 explains the requirements for that method. Continuous emission measurement still needs to be supported by a calculation of annual CO₂ emissions, but without defined uncertainty thresholds. However, the calculation must be as accurate as reasonably possible. The calculation is carried out according to the specifications of the Annex relevant for the activity in question and must be explained in the monitoring plan. This simplification has no effect on the requirements for the determination of deductible CO₂ from biomass. If CO₂ emissions stemming from biomass are to be deducted, they must be determined by calculation-based methods, applying the specified tier requirements

For the determination of N₂O emissions pursuant to MRR Annex IV Section 16 and the determination of emissions from transferred CO₂ pursuant to MRR Article 49, continuous emission measurement is mandatory. No supporting calculation is required in these cases.

5.3 REQUIREMENTS FOR THE CONTINUOUS EMISSION MEASUREMENT

MRR Articles 40-46 contain specifications for the continuous measurement of N₂O as well as CO₂ emissions.

All emission sources emitting over 5,000 t of CO_{2(e)} per annum or responsible for over 10 % of the total emissions of an installation must comply with the highest tiers stated in Annex VIII Section 1 of the MRR. For all other emission sources, the installation operator must apply at least the next lowest tier. Installation operators intending not to comply with these requirements must provide evidence that applying the highest tiers to continuous emission measurement as well as to the calculation-based approach would technically not be feasible or lead to unreasonable cost. If the operator can provide such evidence, the next lowest tier specified for continuous emission measurement can be applied. However, deviating below tier 1 is generally not allowed (MRR Article 41 Section 2). As before, evidence for compliance with uncertainty threshold includes a comprehensive analysis of uncertainties.

As before, CO₂ emissions may be determined at all or selected emission sources using continuous emission measurement systems. In continuous N₂O as well as CO₂ emission measurement, standardised or otherwise recognised methods must be applied. A hierarchy of standards applies (see Chapter 6.2). Installation operators must comply in particular with EN 14181 (Stationary source emissions - Quality assurance of automated measuring systems) and EN 15259 (Air quality – Measurement of stationary source emissions). As far as laboratories are involved, these must be accredited in accordance with EN ISO/IEC 17025 for the relevant analytical methods or calibration activities. (MRR Article 42). Exemptions are specified in Article 34 Sections 2 and 3 (see Chapter 6.2).

5.4 CLASSIFICATION INTO MINOR SOURCE STREAMS AND DE MINIMIS SOURCE STREAMS: COMPLEMENTARY RULES FOR MASS BALANCE AND APPLICATION FOR EASEMENTS

Amended regulations for the classification of source streams

The MRG definitions for minor and de minimis source streams referred to fuel and material source streams only. When a mass balance approach was used, there was no connection between emission volumes assigned to the mass balance elements and the total emissions actually emitted and it was thus not possible to apply these definitions one-to-one to mass balances.

The MRR addressed the problem by redefining source streams in Article 3 No. 4 (now also including the mass balance approach) and a re-wording of Article 19 Section 3. The operator shall classify each source stream, comparing the source stream against the sum of all absolute values of fossil CO₂ and CO_{2(e)} corresponding to all source streams included in calculation-based methodologies and of all emissions of emission sources monitored using measurement-based methodologies, before subtraction of transferred CO₂. The method defined in FAQ Nr. M013 during the second trading period has thus been modified.

MRR Article 19 Section 3 defines the thresholds for the classification in „minor“ and „de minimis source streams“. These correspond to the specifications of the second trading period. Fuel/material source streams are defined as „minor source streams, where the source streams selected by the operator jointly correspond to less than 5,000 tonnes of fossil CO₂ per year or to less than 10%, up to a total maximum contribution of 100,000 tonnes of fossil CO₂ per year, whichever is the highest in terms of absolute value.“

De minimis fuel/material source streams are „the source streams selected by the operator jointly correspond to less than 1,000 tonnes of fossil CO₂ per year or to less than 2%, up to a total maximum contribution of 20,000 tonnes of fossil CO₂ per year, whichever is the highest in terms of absolute value“.

Application for easements for minor source streams

There is another change regarding minor source streams. Installation operators must now apply the tier that is technically feasible and not unreasonably costly, with the minimum requirement remaining tier 1 (MRR Article 26 Section 2). In contrast to major source streams, evidence for deviation from the highest tier combination must only be submitted once per trading period. Minor source streams are thus not subject to the continuous improvement principle or obligation to check for feasibility of improvements as stated in MRR Article 69. A tier-independent estimation method continues to be applicable to the subgroup of de minimis source streams (MRR Article 26 Section 3).

5.5 „UNREASONABLE COSTS“: THE SAME PRINCIPLE AS IN THE SECOND TRADING PERIOD WITH NEW TERMINOLOGY AND SOME AMENDMENTS

Unreasonable costs and technically not feasible remain the criteria stated in the MRR under which deviations from the required uncertainty thresholds may be accepted. MRR Article 18 largely retains the existing definition of unreasonable costs.

The costs of a measure are considered unreasonable where the cost estimation exceeds the benefit. To that end, the benefit shall be calculated by multiplying an improvement factor with a reference price of 20 euro per allowance and costs shall include an appropriate depreciation period based on the economic lifetime of the equipment (MR Article 18 Section 1).

When assessing the unreasonable nature of the costs with regard to the choice of tier levels for activity data, the improvement factor is the difference between the uncertainty currently achieved and the uncertainty threshold of the tier which would be achieved by the improvement multiplied by the average annual emissions caused by that source stream over the three most recent years. (MRR Article 18 Section 2). In the absence of the average annual emissions caused by that source stream over the three most recent years, the operator or aircraft operator shall provide a conservative estimate of the annual average emissions, with the exclusion of CO₂ stemming from biomass and before subtraction of transferred CO₂. It was stated that for measuring instruments under national legal metrological control, the uncertainty currently achieved may be substituted by the maximum permissible error in service allowed by the relevant national legislation.

For measures increasing the quality of reported emissions but without direct impact on the accuracy of activity data, an improvement factor of 1% of the average annual emissions of the respective source streams of the three most recent reporting periods will be applied (Article 18 Section 3).

MRR Article 18 Section 4 adds that measures relating to the improvement of an installation's monitoring methodology in accordance with Article 69 shall not be deemed to incur unreasonable costs up to an accumulated amount of 2,000 Euros per reporting period. For installations with low emissions that threshold shall be 500 Euros per reporting period (see Chapter 8).

6 ACTIVITY DATA AND CALCULATION FACTORS

6.1 DETERMINATION OF ACTIVITY DATA: QUALITY OF MEASUREMENT IS IMPORTANT

When it comes to providing evidence of compliance with the required tiers for every source streams, the MRR focuses on quality of measurement (MRR Articles 27-29). Comprehensive individual uncertainty assessments are to become the exception, provided certain criteria regarding quality and control of measuring equipment are met.

As it was practice in Germany during the first and second trading period, operators may determine their activity data using their own measuring instruments or on the basis of invoiced amounts of fuel or material. In any case, however, operators are responsible for providing the evidence and, where applicable, must obtain documentation from suppliers running the measurement instrument (MRR Article 29 Section 2 MVO).

In order to assess overall uncertainty when determining the annual quantities used, not only uncertainty thresholds of the measuring equipment, but also other uncertainty factors must be taken into account where applicable. Uncertainty related to stock changes shall be included in the uncertainty assessment where the storage facilities are capable of containing at least 5% of the annual used quantity of the fuel or material considered (MRR Article 28 Section 2). Always to be taken into account are uncertainties arising from the distribution of the source stream between installations and activities inside and outside the emissions trading scheme (calculation of the difference to determine the annual quantity).

Individual uncertainty assessment

The assessment shall comprise the specified uncertainty of the applied measuring instrument, uncertainty associated with the calibration, and any additional uncertainty connected to how the measuring instrument is used in practice.

Simplified uncertainty assessment according to the specifications of installed measuring equipment

If evidence is provided that the measuring instrument has been installed in an environment complying with the manufacturer's specifications, the individual uncertainty assessment may be simplified. In that case, operators must base their uncertainty assessment on the maximum permissible error specified for the measuring instrument in practical use. Alternatively, the measuring uncertainty (as determined during calibration), multiplied by a conservative adjustment factor, can be used as documentation for the overall uncertainty in the reporting period to show that the required tier has been applied (MRR Article 28 Sections 2 and 3). At least once per year, and after each calibration of measuring instruments, the operator must compare the determined overall uncertainty with the relevant uncertainty thresholds to provide evidence that the thresholds are met (MRR Article 28 Section 1 b).

For quality assurance purposes, installation operators must establish a procedure that ensures the calibration, adjustment and checking of measuring equipment at regular intervals, using international standards wherever possible (MRR Article 58 Section 3 in connection with MRR Article 59 Section 1).

Simplified uncertainty assessment in measuring equipment subject to national legal metrological control

The requirement for an individual uncertainty assessment can be waived if the operator provides evidence that the measuring instruments applied are subject to relevant national legal metrological control. In that case, the maximum permissible error set by the metrological control is used as uncertainty and compared with the relevant tier requirement. No further uncertainty contributions concerning the measurement instrument need to be considered (MR Article 28 Section 3).

6.2 INDIVIDUAL DETERMINATION OF CALCULATION FACTORS: CLARIFICATION OF REQUIREMENTS FOR LABORATORIES, SAMPLING, ANALYSIS AND THE APPLICATION OF STANDARDS

In MRR Articles 32-35, requirements for the individual determination of calculation factors have been explained in greater detail. As in the second trading period, a hierarchy of standards applies to sampling, analysis, calibration and validation. CEN standards should be used wherever available. If no relevant CEN standards are available, suitable ISO or national standards must be applied. If no valid standards exist, other suitable and scientifically proven procedures can be applied that conform to existing draft standards or industrial best practice guidelines.

Requirements for sampling

A separate sampling plan must be compiled for each source stream to be sampled. It must give a reproducible description of the method, including preparations, the locations where the samples are taken, frequency of sampling and quantities sampled as well as information on the storage and transport of samples plus respective responsibilities.

These sampling plans are part of the monitoring plan and must be approved by the DEHSt. Installations operators must ensure that the samples are representative and free of systematic errors. The relevant components of the sampling plan must be agreed upon with the laboratory carrying out the analyses of the source streams in question. Evidence of consultation with the lab must be provided in the sampling plan. If analyses show that the actual heterogeneity of the source stream deviates substantially from the assumed heterogeneity in the sampling plan, the sampling plan must be adapted in consultation with the analysis lab and subject to approval by the DEHSt (MRR Article 33).

Requirements for Laboratories

Generally, analyses for the determination of calculation factors must be carried out by laboratories accredited for the relevant analytical methods according to the EN ISO 17025 standard. According to MRR Article 34 Section 2, the use of non-accredited laboratories is restricted to cases in which the operator can provide evidence to the DEHSt that access to an accredited laboratory was technically not feasible or would have incurred unreasonable cost. In these cases, it must be ensured that the alternative laboratory meets requirements equivalent to EN ISO 17025:2005 standards.

Evidence of equivalence regarding quality management must be provided by certification of the laboratory according to EN ISO 9001:2000 standards or a different certified quality management system. If no certified quality management system is used, the installation operator must provide evidence in another form to show that the laboratory applies reliable quality control regarding staff, procedures, documents and tasks in hand.

Furthermore, evidence must be supplied that the non-accredited laboratory has the technical competence to carry out the relevant analysis and obtain technically valid results. Such evidence must cover at least the following aspects:

- management of the personnel's competence for the specific tasks assigned;
- suitability of accommodation and environmental conditions;
- selection of analytical methods and relevant standards;
- where applicable, management of sampling and sample preparation, including control of sample integrity;
- where applicable, development and validation of new analytical methods or application of methods not covered by international or national standards;
- uncertainty estimation;
- management of equipment, including procedures for calibration, adjustment, maintenance and repair of equipment, and record keeping thereof;
- management and control of data, documents and software;
- management of calibration items and reference materials;
- quality assurance for calibration and test results, including regular participation in proficiency testing schemes, applying analytical methods to certified reference materials, or inter-comparison with an accredited laboratory;
- management of outsourced processes;
- management of assignments, customer complaints, and ensuring timely corrective action.

If the proficiency test results in discrepancies that put in doubt the suitability of the procedure used by the non-accredited lab, the operator must take corrective action and ensure that emissions for the relevant calendar year(s) are not under-estimated (see MRR Article 63 Section 1 MVO).

Requirements for the Analysis

The rules regarding analysis are preceded by two premises: When calculation factors are determined individually, all available analysis results regarding the calculation factor must be included. All analytical results can be used for the delivery period or batch of the fuel or material only, for which the samples were taken and are representative. (MRR Article 32 Section 3).

In contrast to Section 13.6 of the MRG, where compliance with the "1/3 uncertainty" is required, the MRR specifies minimum frequencies for analyses in Annex VII as highest tiers. Minimum frequencies must be reviewed by the EU Commission at regular intervals – for the first time within two years after the regulation has come into force. (MRR Article 35 Section 1).

The DEHSt can decide to approve frequencies for analyses deviating from that table if

- the table in MRR Annex VII does not give a minimum frequency for the analysis of the material in question,
- the installation operator can show that the variation in the analytical values (based on historical analytic data of the relevant source stream, including analytical data of the previous reporting year) does not exceed one third of the uncertainty permitted for the activity data of the source stream in question or
- the frequency required in the table of MRR Annex VII would involve unreasonable costs.

6.3 OXIDATION FACTOR: STANDARD VALUE 1 RETAINED

According to MRR Article 37 Section 1 MVO in connection with German Greenhouse Gas Emissions Trading Act (TEHG) Appendix 2 Part 2 an oxidation factor of 1 must be applied in Germany.

7 CO₂ EMISSIONS STEMMING FROM BIOMASS AND DETERMINATION OF BIOMASS FRACTIONS

As in the second trading period, the biomass fraction of a fuel or material must generally be determined using relevant analytic methods. A new rule has been introduced that if analytic determination of the biomass fraction incurs unreasonable costs or is technically not feasible, the installation operator may base calculations on standard emission factors, biomass fraction values and calculation methods yet to be published by the Commission. If such standard factors and values are not available, the installation operator must either set the biomass fraction at 0 % or submit a conservative estimation method to the DEHSt for approval (MRR Article 39 Section 2).

It has been specified that for source streams consisting exclusively of biomass (biomass fraction = 100%), where the installation operator ensures that they are not contaminated, activity data and relevant source stream parameters may be determined without using tiers (i.e. no analytical evidence required) (MRR Article 38 Section 1).

For source streams with a biomass fraction of at least 97% of where the CO₂ emissions of the fossil fraction fall in the de minimis category, operators may also choose a tier-independent approach, unless the value determined is to be used to subtract CO₂ emissions stemming from biomass from CO₂ emissions determined through continuous emission measurement. CO₂ emissions from fossil contamination in fuels and materials are reported as part of the biomass source stream and may be estimated using a tier-independent method. (MRR Article 38 Section 4).

MRR Article 38 Section 3 clarifies some misconceptions of the past, stating that peat, xylite and other fossil fractions of mixed fuel or materials are not considered to be biomass.

The MRR contains new definitions of biomass, bioliquids and biofuels, as used in the 2009/28/EC Renewable Energy Directive (RED)).

Another change concerns biogas fed into natural gas grids. It will no longer be allowed to determine the biomass fraction through analyses at the point of supply, but evidence of purchase of biogas must be provided and its origin identified according to RED Article 15 Section 2 if it is to be taken into account (MR Article 39 Section 3).

8 INSTALLATIONS WITH LOW EMISSIONS

MRR Article 47 specifies various simplifying exemptions for the monitoring of installations with low emissions. These do not include installations that have been included in emissions trading on the grounds of their N₂O emissions.

Installations with low emissions are installations

- that reported verified emissions below 25 kt CO_{2(e)} as an annual average in the previous trading period (before subtraction of transferred CO₂, after subtraction of CO₂ stemming from biomass) or
- whose conservatively anticipated fossil emissions for the coming five years are below 25 kt CO_{2(e)} per annum (before subtraction of transferred CO₂, after subtraction of CO₂ stemming from biomass) once the annual emissions reported under the first bullet point are no longer valid because of changes of installation's boundaries or operation conditions in an installation

It is new that an installation operator must notify the DEHSt without delay if the threshold above has been exceeded. The operator must also immediately change the monitoring plan and submit it for approval or provide evidence that conditions for simplified monitoring still apply.

These conditions are met if the installation operator can demonstrate that the threshold of 25 kt CO_{2(e)}/a was not exceeded during the past five reporting years and will not be exceeded in the future.

Installations with low emissions are under no obligation to submit supporting documentation according to MRR Article 12 Section 1 b) (proof of adhering to the uncertainty threshold, results of risk analysis) with the monitoring plan. There is also no obligation to submit an improvement report in line with MRR Article 69 Section 4.

Furthermore, the MRR provides for the following exemptions, most of which are already known:

- The consumption of fuel and/or material can be determined using purchasing records and estimations of stock changes without the need for an uncertainty assessment.
- Operators may apply tier 1 to all source streams and relevant parameters if not otherwise higher accuracy can be achieved without additional effort. Proof of technical infeasibility or unreasonable costs is no longer required (new).
- For the analysis of source stream parameters, installation operators may commission any laboratory (no EN ISO 17025:2005 accreditation required) as long as the relevant laboratory
 - can provide convincing evidence of technical competence and the ability to use the appropriate analytical methods to obtain technically relevant results.
 - can provide convincing evidence that quality assurance measures are carried out in compliance with MRR Article 34 Section 3.

9 TRANSFERRED CO₂

Another new rule in the MRR says that transferred CO₂ will be subtracted from the CO₂ emissions of the transferring installation only if it is transferred to a CCS installation for permanent storage (MRR Article 49 Section 1). No other transferred CO₂ may be subtracted from actual CO₂ emissions. In its emission report, the transferring installation must name the installation receiving the transferred CO₂ and vice versa.

10 INHERENT CO₂

Inherent CO₂ that is transferred to another installation subject to emissions trading as a part of a fuel may be subtracted from the CO₂ emissions of the transferring installation. In contrast to the MRG, the MRR does not allow inherent CO₂ to be subtracted from CO₂ emissions of the transferring installation if transferred to an installation not subject to EU-ETS. Instead, the quantity transferred must be reported as own emission and covered by the surrendering a corresponding number of emission allowances (MRR Article 48).

If the inherent CO₂ is determined at the transferring as well as at the receiving installation, the arithmetic average of both measuring results is used as the calculation base for both reports.

If the two values diverge by more than can be explained by the approved uncertainty for the measuring equipment used, both values have to be adjusted conservatively. The adjustment must be approved by the DEHSt (MRR Article 48 Section 3).

11 WHAT IS NEW FOR AIRCRAFT OPERATORS?

The following sums up major changes between MRG and MRR for aviation.

The Monitoring Plan 2013-2020 (MR Article 12)

Regarding the content of the monitoring plans, requirements set out in Chapter 4.1 apply, with the exception that explanations on monitoring and notification of operational changes as laid down in MRR Article 12 Section 3 are not required in aviation.

The circumstances leading to changes of a monitoring plan for aircraft operators (MRR Article 14) are the same as for stationary installations, see Chapter 4.2. As in the stationary sector, the competent authority must be notified of any intended or necessary change of the monitoring plan without undue delay. Significant modifications to monitoring plans for aircraft operators requiring notification and approval are listed in MRR Article 15 Section 4. These include:

- a change of chosen tier related to the determination of fuel consumption;
- a change of emission factor laid down in the monitoring plan;
- a change between calculation methods for fuel consumption
- the introduction of a new source streams;
- changes in the status of the aircraft operator (commercial/non-commercial, small emitter yes/no)

The principle of continuous improvement of monitoring explained in Chapter 4.3 and laid down in MRR Article 69 also applies to aviation. Aircraft operators must assess their monitoring methods at regular intervals if the verifiers point out monitoring flaws in their verification report enclosed to the annual emissions report or recommend improvements to the monitoring method.

Unreasonable costs

Unreasonable cost and technical non-feasibility are the prerequisites for deviation from the MRR uncertainty requirements in the aviation as well as in the stationary sectors. The comments given in Chapter 5.5 regarding “unreasonable costs” apply accordingly, apart from the reasonability thresholds given in MRR Art. 18 Section 4.

Determination of density (MRR Article 52 Section 6)

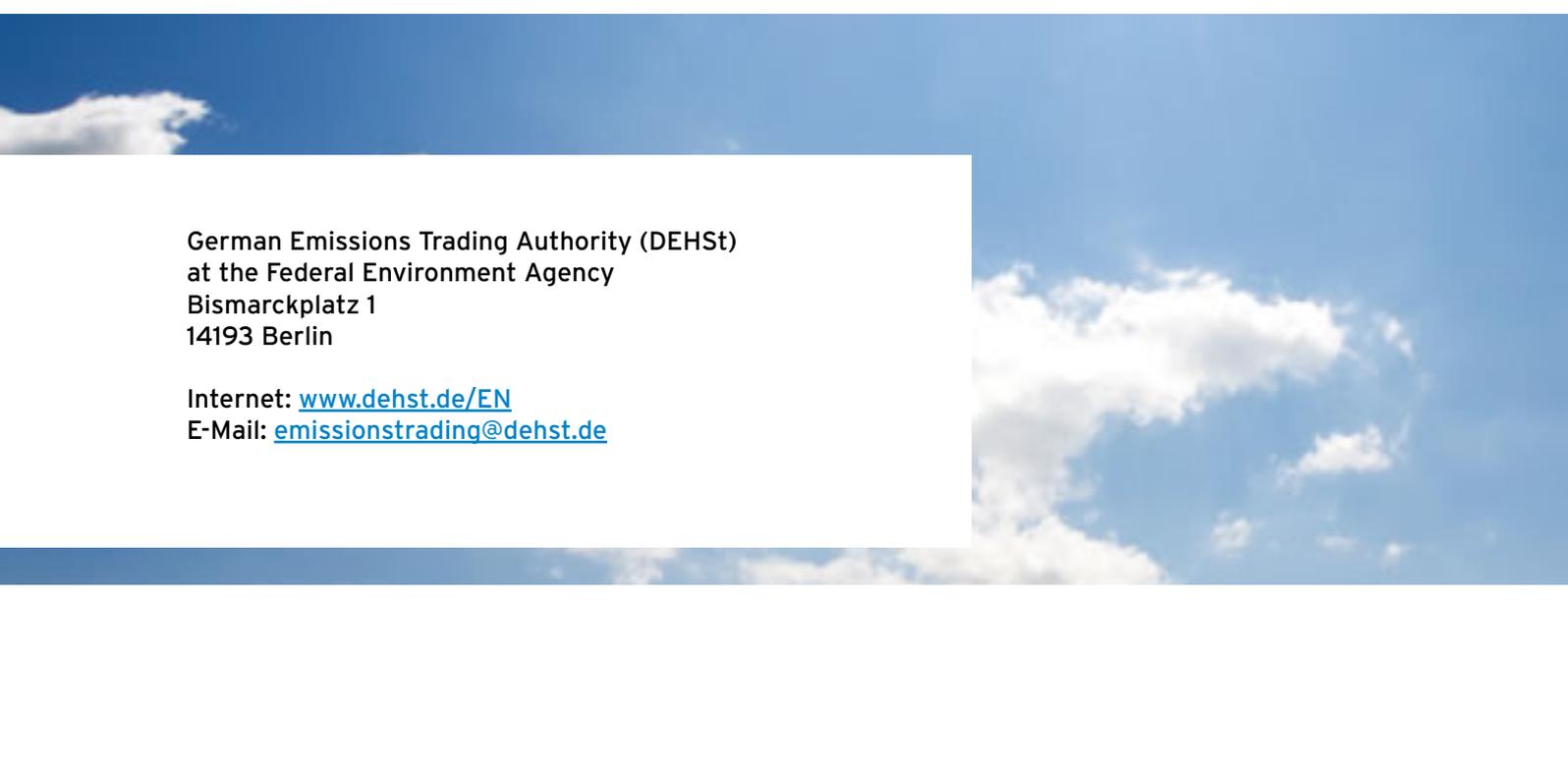
In contrast to the MRG, the MRR no longer gives operators the option of determining the actual density of the fuel used via density temperature correlation tables.

Small emitters (MRR Article 54 Section 1)

The small emitters’ threshold has been modified. Easements for small emitters can thus be applied by non-commercial aircraft operators carrying out less than 243 flights within three subsequent four-month periods and whose total annual emissions are below 25,000 tonnes of CO₂ (the threshold in the MRG was 10,000 tonnes of CO₂).

Biofuels (MR Article 53)

The biomass fraction of a fuel must be determined by analysis, as in the stationary sector. The regulations in Article 39 apply according to MRR Article 53 (see Chapter 7). The biomass fraction can also be determined by the supplier if demonstrably complying with the MRR requirements. In the new MRR, the method for the determination of relevant parameters must be based on a guideline yet to be published by the Commission in order to ensure uniform implementation in all Member States.



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