



2024/2620

4.10.2024

COMMISSION DELEGATED REGULATION (EU) 2024/2620

of 30 July 2024

supplementing Directive 2003/87/EC of the European Parliament and of the Council as regards the requirements for considering that greenhouse gases have become permanently chemically bound in a product

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union and amending Council Directive 96/61/EC ⁽¹⁾, and in particular Article 12(3b), second subparagraph thereof,

Whereas:

- (1) Directive 2003/87/EC was amended by Directive (EU) 2023/959 of the European Parliament and of the Council ⁽²⁾ in order to align it with Regulation (EU) 2021/1119 of the European Parliament and of the Council ⁽³⁾, which sets a target of at least 55 % net emission reductions by 2030 compared to 1990.
- (2) The criteria and requirements necessary for greenhouse gases to be considered permanently chemically bound in a product should be established.
- (3) Current capture and utilisation processes for permanent storage apply only to CO₂ emissions, as other greenhouse gases, such as CH₄ or N₂O, do not require permanent storage for the mitigation of such emissions. As the chemical reactions during the utilisation process may lead to the chemical transformation of the CO₂ molecule, carbon atoms that have become chemically bound should also be considered.
- (4) It is necessary to ensure that CO₂ emissions that have become permanently chemically bound in a product provide a similar climate benefit as geological storage, while taking into account the different nature of these different approaches. Therefore, that CO₂ should remain permanently chemically bound in a product for at least a period of several centuries or longer, based on the type of chemical bond and the normal use and the likely end-of-life treatment of the respective product.
- (5) Different normal use and end-of-life pathways for products made from captured CO₂ will result in different likelihoods that the stored carbon embedded in a product is released. Releases can occur due to combustion, either as an integral part of product use, as is the case for synthetic fuels, or upon disposal, such as through waste incineration. In order to ensure that the carbon stored in a product remains permanently chemically bound and does not enter the atmosphere for a period of at least several centuries, the CO₂ should be bound in products that are long-lived under any normal use and, under any normal end-of-life activity, are disposed of in a manner other than incineration, which would release the stored carbon in the atmosphere.

⁽¹⁾ Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union and amending Council Directive 96/61/EC (OJ L 275, 25.10.2003, p. 32).

⁽²⁾ Directive (EU) 2023/959 of the European Parliament and of the Council of 10 May 2023 amending Directive 2003/87/EC establishing a system for greenhouse gas emission allowance trading within the Union and Decision (EU) 2015/1814 concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading system (OJ L 130, 16.5.2023, p. 134).

⁽³⁾ Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law') (OJ L 243, 9.7.2021, p. 1).

- (6) The chemical properties of mineral carbonates, such as calcium carbonate or magnesium carbonate, ensure strong chemical bonds that, unless exposed to elevated temperatures or strong acids, provide the possibility for the carbon to be considered permanently chemically bound. Therefore, mineral carbonation would result in the retention of carbon for exceptionally long times in carbonate rock, which would not be released to the atmosphere under normal conditions ⁽⁴⁾.
- (7) The conditions present in waste incinerators are sufficient for the decarbonation reaction to start. Therefore, carbon captured and utilised in products that have a significant share of end-of-life treatment through incineration should not be considered as permanently chemically bound.
- (8) Products based on mineral carbonates and used for construction products, such as aggregates, cement, concrete, bricks or tiles, are long-lived and may remain in use for decades to centuries. At the end-of-life stage, such products fall into the category of construction and demolition waste, in accordance with the List of Waste ⁽⁵⁾. According to the latest assessment by the Joint Research Centre of the European Commission ⁽⁶⁾, the Union average end-of-life treatment for the mineral fraction of construction and demolition waste consists of recycling (79 %), backfilling (10 %) and landfilling (11 %). Therefore, the captured CO₂ that is utilised in the manufacture of mineral carbonates and used in construction products should be considered as permanently chemically bound in a product.
- (9) The list of products considered to meet the criteria laid out in Article 12(3b) of Directive 2003/87/EC should be reviewed and, if necessary, updated as necessary based on any relevant technological developments and innovation in the field of permanent carbon storage in products, improvements in monitoring, reporting and verification practices able to certify the permanence of storage, as well as the experience in implementing this Regulation,

HAS ADOPTED THIS REGULATION:

Article 1

Subject matter

This Regulation lays down the requirements for considering that CO₂ has become permanently chemically bound in a product.

Article 2

Definitions

For the purposes of this Regulation, the following definitions apply:

- (1) 'capture' means any technological process or procedure required to capture, and, if necessary, process or purify prior to utilisation, CO₂ resulting from activities within the scope of Directive 2003/87/EC;
- (2) 'utilisation' means any technological process or practice that makes use of captured CO₂ as a feedstock for the manufacture of products;

⁽⁴⁾ IPCC 2005. Special Report on Carbon Dioxide Capture and Storage. [Metz, B, Davidson, O., de Coninck, H. C., Loos, M., and Meyer, L. A. (eds.)]. Prepared by Working Group III of the Intergovernmental Panel on Climate Change Cambridge and New York: Cambridge University Press.

⁽⁵⁾ Commission Decision 2014/955/EU of 18 December 2014 amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament and of the Council (OJ L 370, 30.12.2014, p. 44).

⁽⁶⁾ Cristobal Garcia, J., Caro, D., Foster, G., Pristera, G., Gallo, F. and Tonini, D., Techno-economic and environmental assessment of construction and demolition waste management in the European Union, Publications Office of the European Union, Luxembourg, 2024, doi:10.2760/721895, JRC135470.

- (3) 'chemically bound' means that CO₂ is chemically transformed so that the carbon atom is chemically fixated by strong bonds in a manner that prevents its global warming impact from occurring;
- (4) 'product' means goods or materials, including intermediates and derivatives thereof, that utilise by chemically binding CO₂ or carbon atoms derived from CO₂;
- (5) 'construction product' means any formed or formless physical item placed on the market for incorporation in a permanent manner into construction works or parts thereof;
- (6) 'normal use' means any manner in which a product is expected to be typically utilised by the end user based on the characteristics of the product;
- (7) 'normal activity taking place after the end of the life of the product' means any prevailing treatment of a product after it is discarded by the end user based on the relevant waste management practices and legislation in force.

Article 3

Requirements for permanent capture and utilisation in products

1. CO₂ shall be considered permanently chemically bound in a product where all of the following criteria are met:
 - (a) It has become chemically bound in a product through an active and controlled utilisation process, which allows for the measurement and determination of the amount of CO₂ equivalent bound in the product during the utilisation process, excluding any carbon present in the material before the utilisation process or naturally absorbed from the atmosphere or other sources after the utilisation process; and
 - (b) It remains permanently chemically bound in a product so as to not enter the atmosphere under normal use of the product, including any normal activity taking place after the end of the life of the product, for a period of at least several centuries. In case of products with multiple normal use and end of life pathways, all such pathways need to be taken into account for the purposes of this paragraph. Products that during normal use, including any normal activity taking place after the end of the life of the product, may be exposed to high temperature combustion, such as during waste incineration, shall not be considered to permanently chemically bind CO₂.
2. Products considered to meet the requirements of paragraph 1 are listed in the Annex.

Article 4

Review process

1. The Commission shall review the products listed in the Annex based on relevant technological developments and innovation in the field of permanent carbon storage in products, improvements in monitoring, reporting and verification practices, as well as the experience in implementing this Regulation and update the Annex, if necessary.
2. For the purposes of paragraph 1, the Commission shall take into account requests submitted by the competent authorities to update the list of products in the Annex, where duly supported by evidence of compliance with the requirements in Article 3(1).
3. The results and relevant documentation of any review of the products listed in the Annex shall be made publicly available.

*Article 5***Entry into force**

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 30 July 2024.

For the Commission
The President
Ursula VON DER LEYEN

ANNEX

PRODUCTS CONSIDERED TO PERMANENTLY CHEMICALLY BIND CO₂

Mineral carbonates used in the following construction products:

- (a) carbonated aggregates used unbound or bound in mineral based construction products;
 - (b) carbonated constituents of cement, lime, or other hydraulic binders used in construction products;
 - (c) carbonated concrete, including precast blocks, pavers or aerated concrete;
 - (d) carbonated bricks, tiles, or other masonry units.
-