

## REACH Regulation Analysis

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## 1. Definitions

- ★ **Mixture:** means a mixture or solution composed of two or more substances.
- ★ **Registrant:** means the manufacturer or the importer of a substance or the producer or importer of an article submitting a registration for a substance.
- ★ **Substance:** means a chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.
- ★ **Substances which occur in nature:** means a naturally occurring substance as such, unprocessed or processed only by manual, mechanical or gravitational means, by dissolution in water, by flotation, by extraction with water, by steam distillation or by heating solely to remove water, or which is extracted from air by any means.

## 2. Introduction

The purpose of this document is to summarize the requirements from “*Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)*” which apply to Natural Gas (fossil and manufactured) and its mixture with hydrogen (H<sub>2</sub>).

In the framework of the European Energy Transition, new renewable gases are emerging and MARCOGAZ is in favor to inject them in the existing natural gas network. However, the Gas Industry has the responsibility to check first the technical feasibility together with the regulatory aspects.

REACH Regulation (<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2007:136:FULL&from=EN>) is based on the principle that it is for manufacturers, importers and downstream users to ensure that they manufacture, place on the market or use such substances that do not adversely affect human health or the environment. Its provisions are underpinned by the precautionary principle.

With that aim it lays down provisions on substances and mixtures which shall apply to the manufacturer, placing on the market or use of such substances on their own, in mixtures or in articles.

REACH Regulation is structured in XV Titles and XVIII Annexes.

Among requirements included in the Regulation are the following:

- Title II: Registration of substances. For any manufacturer or importer of a substance, either on its own or in one or more mixture(s), in quantities of one tonne or more per year.
  - o Article 10 specifies the information required for the registration.
  - o When a substance is intended to be manufactured in the Community by one or more manufacturers, Article 11 allows for a joint submission, in which a lead registrant will act with the agreement of the other assenting registrants.
  - o A Technical Dossier and Chemical safety report, as part of the information submitted with the registration information.
- Title IV: Information in the Supply chain. The supplier of a substance or a mixture shall provide the recipient of the substance or mixture with a Safety Data Sheet.
- Title VI: Authorisation: for substances of very high concern (included in Annex XIV). This is not the case for any of the substances or mixtures considered in this analysis.

The Regulation establishes in its Title X a European Chemicals Agency for the purposes of managing and in some cases carrying out the technical, scientific and administrative aspects of the Regulation and to ensure consistency at Community level in relation to these aspects.

After considering all these requirements, MARCOGAZ Health and Labour Safety Working Group focused the scope of the analysis in the application of the Regulation as a whole and the exemption of Title II (Registration) to the following substances and mixtures:

- [Natural Gas \(without odorant\)](#) [§3]
- [Hydrogen](#) [§4]

- [Biomethane](#) [§5]
- [Natural Gas \(with odorant\)](#) [§6]
- [Natural Gas \(without odorant\) + Hydrogen](#) [§7]
- [Natural Gas \(with odorant\) + Hydrogen](#) [§8]
- [Natural Gas + Manufactured Methane](#) [§9]

REACH Regulation applies to substances and mixtures as defined in Article 3:

- Substance: means a chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition
- Mixture: means a mixture or solution composed of two or more substances.

All substances and mixtures in the scope of this analysis follow these definitions and are not included in the exemptions to the whole Regulation included in Article 2 paragraph 1, so all of them are affected by the REACH Regulation.

Apart from that, Article 2 includes possible partial exemptions to specific Titles of the Regulation, and these exemptions will be analysed for the substances and mixtures object of this study.

### 3. Natural Gas (without odorant)

Natural Gas without added odorant is a substance according to REACH Regulation definition. But, as it is included in Article 2 paragraph 7b, it is exempted from:

- Title II (Registration of Substances),
- Title V (Downstream users),
- Title VI (Evaluation)

Article 2 paragraph 7b states that:

*"the following shall be exempted from Titles II, V and VI:*

*(b) Substances covered by Annex V, as registration is deemed inappropriate or unnecessary for these substances and their exemption from these Titles does not prejudice the objectives of this Regulation;"*

Annex V includes in its paragraph 7:

*"the following substances which occur in nature, if they are not chemically modified: minerals, ores, ore concentrates, raw and processed natural gas, crude oil, coal".*

### 4. Hydrogen (H<sub>2</sub>)

Hydrogen without added odorant is a substance according to REACH Regulation definition. But, as it is included in Article 2 paragraph 7b, it is exempted from:

- Title II (Registration of Substances),
- Title V (Downstream users),
- Title VI (Evaluation)

Article 2 paragraph 7b states that:

*"the following shall be exempted from Titles II, V and VI:*

*(b) substances covered by Annex V, as registration is deemed inappropriate or unnecessary for these substances and their exemption from these Titles does not prejudice the objectives of this Regulation;"*

Annex V includes in its paragraph 13:

*"hydrogen and oxygen".*

## 5. Biomethane

Biomethane is a substance according to REACH Regulation definition. But, even if its composition could be the same as Natural Gas, the same exemption which applies to Natural Gas would not apply here as according to [Draft guidance for Annex V](#):

*"It has to be emphasised that only methane which is processed from raw natural gas can be regarded as natural gas. Methane processed from other sources than fossil, e.g. biogas, is not regarded as natural gas."*

According to the definition above, Biomethane, being processed from biogas, is not regarded as natural gas.

Biogas is also considered in Annex V point 12 "Compost and biogas", and the definition of biogas according to "[Draft guidance for Annex V](#)" can be applied like for Biomethane. So, it is exempted from:

- Title II (Registration of Substances),
- Title V (Downstream users),
- Title VI (Evaluation)

## 6. Natural Gas (with odorant)

Natural Gas (with odorant) is a mixture of substances Natural Gas and an Odorant.

Natural Gas, as explained above, is partially exempted from REACH (Titles II, V and VI).

The Odorant itself is covered by all titles of REACH. Regarding registration and as an example Tetrahydrothiophene (THT) has already been registered by two active suppliers/registrants with reference numbers 01-2119489799-07-0000 and 01-2119489799-07-0001.

Natural Gas with odorant is a mixture and registration doesn't apply to mixtures.

If the odorant is purchased from a supplier who registered the product, the REACH registration obligations are fulfilled.

If the odorant is purchased from a new supplier or imported from outside the EU, registration should be done in that supply chain (producer or importer).

## **7. Natural Gas (without odorant) + Hydrogen (H<sub>2</sub>)**

Natural Gas + Hydrogen is a mixture of two substances which, as already explained, are partially exempted from REACH (Titles II, V and VI).

As a mixture, registration doesn't apply.

## **8. Natural Gas (with odorant) + Hydrogen (H<sub>2</sub>)**

Natural Gas (with odorant) + Hydrogen is a mixture of three substances of which two (Natural Gas and Hydrogen) are partially exempted from REACH (Titles II, V and VI), and one (odorant) is affected by the whole Regulation.

As a mixture, registration doesn't apply.

## **9. Natural Gas + Manufactured Methane (H<sub>2</sub> + CO<sub>2</sub> → CH<sub>4</sub>)**

Natural Gas + Manufactured Methane is a mixture of two substances of which Natural Gas is partially exempted from REACH (Titles II, V and VI), and manufactured methane is affected by the whole Regulation.

Manufactured methane has already been registered by several active suppliers/registrants.

However, registration of manufactured methane applies to any manufacturer/importer into the EU of synthetic methane above 1 ton/year. The registration numbers already provided for other active registrants cannot be used by another manufacturer/importer. Registration numbers can only be used further down the same supply chain.

## 10. Conclusions

Substances not exempted from Title II of REACH Regulation and produced in quantities above 1 ton per year shall be registered by each new manufacturer/importer.

Table 1 below summarizes, for the substances analysed in this document, to what extent REACH regulation applies, which substances require a registration number and which ones are already registered by one or more manufacturers.

Substance	Partial exemptions	Registration	Registration number
Natural Gas (without odorant)	Exempted from Title II, V, VI	Not required	Not required
Hydrogen	Exempted from Title II, V, VI	Not required	Not required
Biomethane	Exempted from Title II, V, VI	Not required	Not required
Natural Gas with odorant	Odorant not exempted from Title II, V, VI	Required for Odorant	Odorants already registered
Natural Gas (without odorant) + Hydrogen	Exempted from Title II, V, VI	Not required	Not required
Natural Gas (with odorant) + Hydrogen	Odorant not exempted from Title II, V, VI	Required for Odorant	Odorant already registered. Comment see above
Natural Gas + Manufactured methane	Manufactured methane not exempted from Titles II, V, VI	Required for manufactured methane	Manufactured methane already registered. Any new manufacturer > 1 ton/year needs to register

Table 1

A joint submission is allowed when more than one manufacturer intend to manufacture the same substance. In this joint submission, a lead registrant will act with the agreement of the other assenting registrants.

Registration information includes a Technical Dossier and a Chemical Safety Report (if manufactured in quantities above 10 tons per year). The contents of these documents are specified in Article 10 of the Regulation.

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