Call for market interest for a **hydrogen transport infrastructure between the Port of Dunkirk and Belgium**

16 October 2024

Call for market interest for the construction of a **hydrogen transport infrastructure between the port of Dunkirk and the Belgian border**

Hydrogen Specification Proposal Port of Dunkirk – Belgian Border

Disclaimer

The hydrogen specifications presented in this document (the " **Hydrogen Specification Proposal Port of Dunkerque - Belgian Border** ") reflect the best available knowledge at the time of publication. These gas quality specifications are subject to change, depending on the results of future testing and research programmes and the publication of European gas quality standards. The information contained in this document reflects the point of view of GRTgaz S.A. at this stage and is made public for information purposes only and without any commitment on the part of GRTgaz S.A., and must not be considered as giving rise to any contractual relationship between GRTgaz S.A. and any interested party.

Introduction

Hydrogen specifications, just as they exist for the transport of natural gas through pipelines, are necessary to ensure the safe operation of future hydrogen transport networks and to ensure their interoperability.

These hydrogen specifications must preserve the integrity of the transmission facilities from the risks of chemical reaction and modification of the physical characteristics of their constituent materials, and ensure that the hydrogen delivered to end consumers meets their needs.

Any gas introduced into the hydrogen transport network as proposed in this call for market interest will therefore have to comply with hydrogen specifications in terms of :

- Hydrogen quality ;
- Pressure and temperature conditions.

Hydrogen quality

Hydrogen quality specifications will apply to the production of hydrogen that will be injected into the transport infrastructure as well as to deliveries to end consumers.

The gas industry is currently working to propose standardised hydrogen specifications at European level. The European Committee for Standardisation (CEN) published a European technical specification in November 2023 (XP CEN/TS 17977), which makes now reference.

This specification defines the quality of gaseous hydrogen (i.e. its parameters and limit values) which is intended to be transported, injected into storage, extracted from storage, distributed and used in fully and/or partially converted gas infrastructures and in connected applications, all in complete safety. GRTgaz is a stakeholder in this work, enabling a French contribution to this European work.

To date, GRTgaz has selected these XP CEN/TS 17977 specifications, summarised in the table below, as those that will apply to the proposed transmission infrastructure.

They may change as a result of further work carried out by several working groups on the subject at European level (EASEE-gas, marcogas, GIE, CEN, ENTSOG), and of advances in technical knowledge of the sector. In particular, discussions are underway to determine the minimum hydrogen content for the sector, currently set at 98 mol-% in CEN/TS 17977. Stakeholders are considering setting this threshold at 99.5 mol-%.

Parameter	Unit	Value
Hydrogen	mol-%	≥ 98
Wobbe index	MJ/m³ (15°C/15°C)	42,0 - 46,0
The content and composition of the further quality parameter (e.g sum of inerts) shall satisfy the Wobbe Index value above.		
Water	µmol/mol	≤ 250 ≤ 60 (a)
Hydrocarbon dew point (HCDP) (b)	°C	< -2 °C at 1 < p < 70 bar
Sum of inerts (N_2, He, Ar)	mol-%	≤ 2
Gaseous hydrocarbons (b)	mol-%	≤ 2
Oxygen (O_2) (c)	mol-% µmol/mol	≤ 0,1 (d) ≤ 10
Carbon monoxide	µmol/mol	≤ 20
Carbon dioxide	µmol/mol	≤ 20
Total Sulfur (b)	µmol/mol	≤ 7 (e)
Ammonia	µmol/mol	≤ 13
Halogenated compounds	µmol/mol	≤ 0,05
Max particulate concentration (b)	mg/kg	Technically free
Contaminants	The gas shall not contain constituents other than listed in this table at levels that prevent its transportation, storage and/or utilization without quality adjustment or treatment	

(a) 250 µmol/mol at MOP less or equal to 10 bar, 60 µmol/mol at MOP over 10 bar.
(b) These components most likely have their source in the previous use of the pipework.
(c) Rolling 24h average.
(d) Max 0,1 mol-% in grids with no exit point to UGS or to sensitive customers, otherwise max 10 µmol/mol.
(e) Non-odorised hydrogen.

Summary table of technical specifications XP CEN/TS 17977

Pressure and temperature conditions

The operating conditions of the infrastructure, and in particular the minimum and maximum pressures and temperatures, will be defined at a later stage of the project in consultation with the players involved and according to the technical specifications collected from producers and consumers.

As a preliminary indication, GRTgaz plans to study a maximum operating pressure of 67.7 bar. This maximum operating pressure will be assessed in greater detail depending on the environment and the system's operating conditions, which will be defined in the subsequent stages of the infrastructure project.