**ISO/TC22 N 2809_Form 04_Annex A_Detailed purposes and justification**
**(ISO/TC197 N 391_Form 04_Annex A_Detailed purposes and justification)**

*(= ISO/TC 22* ***N 2525 Update*** *Form 4 – ANNEX A*)

**NWI Proposal : Detailed purposes and justification**

***Foreword***

The present proposal is an update of the NWIP Proposal ISO /TC22 N 2525 that was issued in November 2004 and obtained favourable votes from 7 members. However only 3 members (it, de, se) nominated their experts, so that in the whole the NWIP was not accepted.

With letter 2005-03-31 CUNA, the Proposer, asked the other 4 members (be, br, kr, es) to reconsider the matter and to nominate an expert, but the letter got no answers.

The ISO roundtable on global harmonisation (2007-01-10) has stressed the importance of these standards.

In fact, on the ISO internet site www.iso.org/iso/events_roundtable.htm the document "Recommendations resulting from the roundtable" is quoted, that contains the table hereafter reported

***Table 1 Summary of priority areas for standardization identified by participants at the ISO Roundtable.***

| | |
|---|---|
| *H2 and NG fuel automotive subjects for considerations*<br>*• LNG and dual fuel standards and regulations for vehicles and fuels*<br>***• Specification for natural gas hydrogen mixtures and components***<br>*• Interchangeable components such as high pressure, low volume fuel containers and interfaces*<br>*• Pressure units and temperature references*<br>*• Fuel quality and vehicle safety*<br>*• Material compatibility for hydrogen operation*<br>*Note: examine opportunities for harmonisation of European Regulation R110 with relevant ISO standards (eg, based on prioritization by relevant ISO TCs)* | *H2 and NG fuel infrastructure subjects for consideration*<br>*Safety standards for:*<br>*• Fuelling stations*<br>*• Cylinders*<br>*• Pressure levels*<br>*• Periodic inspection*<br>*• Fuel quality* |

From the table it can be seen that the components considered in this NWI are included in the priorities indicated by the ISO Roundtable.

All the above suggests to submit again to ballotting this NWIP.

**Detailed purposes and justification**

*A) Road Vehicles-Compressed Gaseous Hydrogen (CGH2) and Hydrogen Blends fuel system components -* ***Part 1 :General requirements and definitions***

**Scope** :

Specify general requirements and definitions of compressed gaseous hydrogen and hydrogen blends fuel system components, intended for use on the types of motor vehicles defined in ISO 3833. Provide general design principles and specific requirements for instructions and markings of the components itself.

**Purpose and justification** :

The use of hydrogen as energy carrier that is presently under advanced research by national Laboratories in several countries both for use in combustion engines (pure or blended with natural gas) and in fuel cells (as a mean to feed electric motors), will have in a near future a practical application and a diffusion also in the automotive field: then this technology is of particular interest of the motor vehicles manufacturers and of their components manufacturers.

It is then considered of valuable interest to list in this proposed standard the terms and the definitions in use, in order to characterize all the necessary gaseous hydrogen and hydrogen blend fuel system components to be installed in vehicles. At the same time the proposed standard provides general design principles for the construction and assembly of the components, concise statements for the instructions to be delivered to the manufacturers and information to be marked on each component.

It is our intention to present for approval future standards proposals in the field of CGH2 and hydrogen blends components to be used in the automotive sector. These will comprise the "fuel system" in terms of safety requirements and test methods, and the tests and the requirements of the various components that are to be used on a vehicle burning H2 or having on board an H2 cylinder for feeding a fuel cell.

TC 22/SC 25 has in the past already elaborated 22 standards comprising generalities, definitions and performance evaluation of each of the components to be used in CNG (compressed natural gas) for automotive application, and these standards can to day constitute a valuable guide line for the proposed standardisation work on hydrogen components .

*B) Road Vehicles - Compressed Gaseous Hydrogen (CGH2) and Hydrogen Blends fuel system components -* ***Part 2 : Performance and general test methods*** *.*

**Scope** :

Specify performance and general test methods for compressed gaseous hydrogen and hydrogen blends fuel system components intended for use on the types of motor vehicles defined in ISO 3833. It is applicable to vehicles using hydrogen in accordance to ISO 14687:1999 (monofuel, bi-fuel or dual fuel applications) .

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**Purpose and justification** :

The future mass production of motor vehicles whose engines uses H2 as fuel (pure or blended with natural gas) or of electric vehicles using fuel cells feeded by H2, needs of standardised methods for testing the CGH2 components installed on the fuel line.

This proposed standards follows the proposed Part 1 (General requirements and definitions), and comprises general test methods to be used in designing compressed hydrogen fuel system components for the automotive sector .

Il leaves the particular tests, other then those listed in this proposed standard, to the

appropriate standards that in future
will be elaborated for each CGH2 component .

*C) Road Vehicles - Compressed Gaseous Hydrogen (CGH2) and Hydrogen Blends fuel system components -* ***Part 3 : Pressure Regulator***

**Scope** :

Specify tests and requirements for the pressure regulator, a compressed gaseous hydrogen or hydrogen blends fuel system component, to be used on the types of vehicles defined in ISO 3833. It is applicable to vehicles using hydrogen in accordance to ISO 14687:1999 (mono fuel, bi-fuel or dual-fuel applications).

**Purpose and justification** :

This component, on which this proposed standard will be based, is a CGH2 (pure or blended with natural gas) fuel system device used to control the delivery pressure of the gaseous fuel to the conventional engine or to the fuel cell, following the type of vehicle on which will be installed.
The proposed standard "Part 2 : Performance and general test methods" (mentioned in the previous NWIP) lists the tests methods to which in general terms are subject all the components present on the fuel line. This proposal mentions the additional requirements and the specific tests that are to be carried out when designing such a component .