

Informal document **No. GRSG-93-18**
(93rd GRSG, 23-26 October 2007,
agenda item 19)

ISO Roundtable on global harmonization of regulations,
codes and standards for gaseous fuels and vehicles
held in Geneva on 10 January 2007,

List of items for study and actions
(Note from François Abram)

1 Introduction

The results of the above roundtable were presented and briefly discussed at following meetings:

- ECE Working Party on Pollution and Energy (GRPE) session held in Geneva on 11 and 12 January 2007
- ECE Working Party on Gas (WP3) session held in Geneva on 24 and 25 January 2007
- ISO/TMB meeting held in Geneva on 7-8 February 2007
- World Forum For Harmonization of Vehicle Regulations One-hundred-forty-first session, Geneva, 13-16 March 2007 (See Informal document N° WP.29-142-12)
- ISO/TC58 and SC meetings held in Washington from 27 March to 4 April 2007
- ISO/TC220 meeting held in Paris on 11 May 2007
- ISO/TC22 meeting held in Berlin from 4 to 6 June 2007
- ISO/TC22/SC25 meeting held in Troy, MI, USA, from 28 to 29 June 2007

A final set of recommendations was uploaded onto ISO online for the participants.

The concerned ISO/TC Chairmen and Secretaries of ISO/TC22 "Road vehicles", ISO/TC28 "Petroleum products and lubricants", ISO/TC58 "Gas cylinders", ISO/TC193 "Natural gas", ISO/TC197 "Hydrogen technologies" and ISO/TC220 "Cryogenic vessels" have received the ISO/CS mail dated 2007-05-08

2 Review of detailed technical items

The Roundtable proposed a list of technical items for review by responsible ISO/TCs. Current status on these proposals is summarized in the following table.

NG and H2 fuel <i>automotive</i> subject items for consideration		
<u>Subjects (1)</u>	<u>WIs</u>	<u>Status</u>
LNG and dual fuel standards and regulations for vehicles and fuels	<p>LNG standards</p> <ul style="list-style-type: none"> • for vehicles <ul style="list-style-type: none"> ○ vehicles components ○ reservoir ○ connector • for fuels <p>Dual fuel standards</p> <ul style="list-style-type: none"> • for vehicles <ul style="list-style-type: none"> ○ vehicle components ○ reservoir ○ connector • for fuels 	<p>Concerning LNG fuel vehicles, the IANGV and ENGVA have been requested to submit NWIP for the reservoir, the connector and vehicles components. It is agreed that the NWIP for the reservoir will be initiated in ISO/TC220 and the NWIPs for the connector and vehicle equipment will be initiated in ISO/TC22/SC25. Garth Harris for the IANGV and ENGVA has recently provided TC220 and TC22 with the two proposals.</p> <p>Concerning the quality of LNG fuel, the subject has been referred to ISO/TC193 for review by a mail dated 2007-05-14.</p> <p>Concerning dual fuel standards, ISO/TC22 should review what kind of standards would be necessary. A decision on this item is still pending.</p>
Specification for natural gas hydrogen mixtures and components	<p>Specification for natural gas hydrogen mixtures -- quality</p> <p>Specification for natural gas hydrogen mixtures -- components</p>	<p>Concerning the quality of natural gas hydrogen mixture, the matter is referred to ISO/TC193 and ISO/TC197 for review and submission of NWIs. Re mails to ISO/TC193 dated 2007-05-14 and mail to ISO/TC197 dated 2007-05-14.</p> <p>Concerning vehicle components and connectors, the matter is to be reviewed by ISO/TC22/SC25. This item will be discussed between TC197 and TC22/SC25 Chairmen on Nov 8th in Montecatini.</p>
Interchangeable components such as high pressure, low volume fuel containers and interfaces	<p>Interchangeability for high pressure</p> <ul style="list-style-type: none"> • vehicle components • low volume containers • connectors 	<p>ISO/TC22 is requested to advise on this subject.</p>

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<p>Pressure units and temperature references</p>	<p>Compressed natural gas -- Harmonization of pressure units and temperature references for filling</p>	<p>This matter is referred to ISO/TC193 by mail dated 2007-05-14</p>
<p>Fuel quality and vehicle safety</p>	<p>Fuel quality and vehicle safety</p> <ul style="list-style-type: none"> • CNG • LNG • Compressed H2 • Liquefied H2 • H2 for hydrogen fuel cells • NG and H2 mixtures • Others 	<p>Concerning natural gas ISO 15403-1 & 2 from ISO/TC193 are available. Are these standards valid for LNG fuels. To be reviewed by ISO/TC193. Refer to mail 2007-05-14.</p> <p>Concerning hydrogen quality, ISO 14687-1 from ISO/TC197 is available. For fuel cells, AWI 14687-2 is under preparation.</p> <p>Concerning NG and H2 mixtures, ISO/TC193 and ISO/TC197 have been requested to advise.</p>
<p>Material compatibility for hydrogen operation</p>	<p>Material compatibility for hydrogen operation</p> <ul style="list-style-type: none"> • compatibility with metals • compatibility with non metallic materials 	<p>Compatibility matter mainly relates to metals. ISO 11114-4 from ISO/TC58 is available at present. ISO/TC58 at its last meeting in Washington agreed to reactive its Working Group 7 and to register a preliminary Work Item aimed at undertaking further tests and studies relating to that matter.</p>
<p><i>Note: examine opportunities for harmonisation of European Regulation R110 with relevant ISO standards (eg, based on prioritization by relevant ISO TCs)</i></p>	<p>ISO-ECE harmonisation matters are under way</p>	<p>As it concerns the construction of the reservoir, ISO/TC58 agreed to look into the possibility of an harmonization between ISO 11439 and ECE/R110. A meeting of ISO/TC58/SC3/WG17 took place in Washington on 4 April. A draft revision of that standard is envisaged before submitting any request to the GRSG.</p> <p>Concerning vehicle equipment, the ISO/ECE harmonisation matter is to be reviewed and dealt with by ISO/TC22/SC25. See ISO 14469-1 to 3 on connectors and ISO 15500-1 to 20 and ISO 15501-1 and 2 on vehicle equipment.</p>

NG and H2 fuel <i>infrastructure</i> subject items for consideration		
<u>Subjects (1)</u>	<u>WIs</u>	<u>Status</u>
Safety standards for fuelling stations	Safety standards for fuelling stations <ul style="list-style-type: none"> • CNG • LNG • CH2 • LH2 • NG and H2 mixtures 	Concerning NG fuelling station, the matter has been referred to ISO/TC193 by mail dated 2007-05-14 Concerning hydrogen fuelling station, the subject has been referred to ISO/TC197 by mail dated 2007-05-14. See also ISO/PAS 15594.2004 and ISO/AWI TS20012 under preparation.
Safety standards for Cylinders	Safety standards for LNG cylinders Safety standards for NG and H2 mixture cylinders	Concerning LNG cylinders, ISO/TC220 has recently received a NWIP from IANGV and ENGVA (Mr Garth Harris). That subject will be reviewed by ISO/TC58 and ISO/TC197 when these fuels will be defined
Safety standards for Pressure levels		See "safety standards for cylinders. Are some additional standards needed?"
Safety standards for periodic inspection	Safety standards for periodic inspection <ul style="list-style-type: none"> • <u>LNG reservoir</u> • <u>Hydrogen</u> 	Concerning LNG reservoir, ISO/TC220 has recently received a NWIP from IANGV and ENGVA (Mr Garth Harris). Concerning H2 reservoir the matter is referred to ISO/TC197 for study.
Safety standards for fuel quality	<u>Quality for biofuels</u>	Concerning biofuels the matter is referred to ISO/TC28 by mail dated 2007-05-14. Moreover, a WP29 roundtable is being organized in Geneva possibly in November 2007.
(1) Subjects listed in Table 1 of the roundtable document.		