

DRAFT

6th Meeting of the Informal Working Group on Hydrogen and Fuel Cell Vehicles

Global Technical Regulation No. 13 (Phase 2)

June 18-20, 2019 – Tianjin, China

	Agenda Items	Presenters	Documents
1	Welcome Welcome remarks by CATARC; Group welcomes new co-Chairman (Mr. Martin Koubek) and co- Vice-Chair (Dr. Siwoo Kim)	M. Koubek	--
2	Agenda approved	M. Koubek	GTR13-6-01
3	Approval of the meeting minutes of the 5th meeting <ul style="list-style-type: none"> Meeting minutes approved 		GTR13-5-27
4	GTR13 Phase 2 timeline <ul style="list-style-type: none"> Secretary explained the processes and timeline of each outstanding items for phase 2. A major milestone is a formal amendment to GTR.13 submitted for GRSP Session in December 2020. A drafting team will be organized at the 7th IWG meeting. 	Y. Fujimoto	GTR13-6-08
5	Country Reports	Contracting Parties	GTR13-6-17 GTR13-6-22
	<ul style="list-style-type: none"> a. China presented an update on hydrogen related activities: As of 2018, 86 HFCV were registered; MIIT and SAC standards and regulations development flowchart; ISO and WP.29 harmonization activities; current list of China regulations on HFCV. b. Korea gave a presentation on R&D on safety assessment technology and test device for HFC buses: need for safety regulations for HFC buses, periodic inspection and development of safety assessment technology. c. No updates from EC, US and Japan. 		
6	Industry and Standard Development Organizations Report	Industry	GTR13-6-16
	<ul style="list-style-type: none"> a. ISO: 6 standards in consensus; Livio Gambone is leading the work on nozzle and receptacle hardware standards; SC 41 agreed to establish a joint working group with TC 197 to work on natural gas and hydrogen blends under SC41 responsibility. b. CSA: Verbal update from Jeff Clarke. Various NGV standards related to fueling station are open for revision (NGV 4.4, 4.6, 4.7, 4.8) c. SAE: no update. 		
Taskforce Team Update			
7	Taskforce #1: Heavy Duty Vehicles	S. Kwon (KATRI)	GTR13-6-19 GTR13-6-20 GTR13-6-21
	<p>Korea presented a progress report:</p> <ul style="list-style-type: none"> a. Scope to include heavy duty vehicles: US, Korea, Japan, and China support the proposal; Canada and EC were absence. b. Baseline initial pressure cycle life: TF generally agreed with 11,000 cycles/15yrs for HD; need rationale. Nikola and Toyota will draft a proposal for discussion to extend the useful life at the 7th IWG meeting. c. Sled test: Reasoning of this requirement or test procedure is under discussion. 		

	<p>d. Installation: TF did not agree with the installation requirement citing design specific constraints; NHTSA is working with NREL to look at CNG and HFCV overall technical issues and recommendations. They will provide an update at the next IWG meeting. No opposition to the TF proposal except Japan who put its decision on hold.</p> <p>e. TPRD direction: TF agreed that the TPRD direction might have to be studied and updated for HDV. Current term “horizontal” might not be applicable for HDV because of its height. Nikola and NHTSA will draft modification for discussion at the 7th IWG meeting.</p> <p>f. Permeation criteria: Rationale for permeation was updated to include HDV. Korea, Japan and US agreed. Canada, China and EU are to be confirmed.</p> <p>g. Hydrogen leakage criteria: The TF proposed the criteria of hydrogen leakage during in-use are also applicable for HDV.</p>		
8	Taskforce #2: Receptacle	L. Gambone (Nikola)	GTR13-6-15
	<ul style="list-style-type: none"> The TF proposal was discussed and requested to revise until the next IWG. The inclusion of 70HF and the derived shape in Fig. 5 are to be discussed. 		
9	Taskforce #3: Test Procedures	L. Gambone (Nikola)	GTR13-6-26 GTR13-6-03
	<p>a. Presented progress of TF in working through comments. The TF needs additional discussions to complete the all listed items. IWG members are requested to review the newest document as shown in the right column.</p> <p>b. The amendments for the conformable / smaller diameter tanks are proposed and listed in discussions.</p>		
10	Taskforce #4: Fire Test	Japan	GTR13-6-12
	<p>a. On behalf of G. Scheffler (SAE) Japan presented an update of the team activity, highlighting the variability of JARI test results due to fire and environment parameters (flame height, width and uniformity) and test conditions (wind and type of burner).</p> <p>b. ISO suggests burners should be standardized for consistency. ISO is working on this issue and would be able to share its work for consideration.</p> <p>c. The draft proposal was expected at the next IWG.</p>		
11	Taskforce #5: ISO Recommendations	A.Tchouvelev (TC197)	GTR13-6-09 GTR13-6-10 GTR13-6-11
	<ul style="list-style-type: none"> ISO updated the write-up on the “Interoperability between fueling station and vehicles” based on some suggestions. This write-up (document GTR-13-6-11) will be added to part I of GTR #13. 		
12	Material Compatibility	Japan	GTR13-6-04 GTR13-6-05 GTR13-6-06 GTR13-6-27
	<p>a. SAE material compatibility: On behalf of G. Scheffler (SAE), Japan presented a summary of SAE work including Japan's comments and suggestions.</p> <p>b. Currently, a few items need to be discussed among the SAE expert team:</p> <ul style="list-style-type: none"> Elongation requirement and SSRT test: China stated that it has 16% elongation requirement. Further discussion needed on the necessity of the SSRT test. Japan informed that SAE continues discussions and to propose in the next IWG. Japan gave an update of the round robin test (document GTR13-6-06). Korea questioned whether the number of fatigue cycles is sufficient. Korea shared current status and plan of the round robin test (document GTR13-6-27). 		
13	Aluminum Stress Corrosion	Japan	GTR13-6-07
	<p>a. This is a separate proposal from the material compatibility proposal. The purpose is to evaluate aluminum material that would be suitable in a high humid environment (less susceptible to stress corrosion).</p> <p>b. Questions were raised regarding the appropriateness of this requirement for the GTR – would this requirement</p>		

	be more suitable for industry standards; test parameters – why only test in high humidity? Should low humidity test be required? Japan provided answers and investigation results.		
14	Initial Burst Pressure Requirement (BP0)	Japan	GTR13-3-03 GTR13-6-18
	<ul style="list-style-type: none"> a. Japan presented a previous presentation on burst pressure that was given at the 3rd GTR meeting (GTR13-03-02). Japan and US are agreed. China and Korea need more time. The two CPs were absent, but Canada requested more time and EU agreed in the 5th IWG. b. CEA and BAM opposed this proposal, citing the safety margin would be reduced. c. Hexagon, Nikola and Japan cited the safety margin should be discussed on the EOL requirement which is not changed. d. Korea and China: Planning to conduct tank testing (no other details regarding the test parameters were given). On the other hand, there were opinions that sufficient data had already been provided to judge this issue. 		
15	Other Business	Korea	GTR13-6-24 GTR13-6-25
	<ul style="list-style-type: none"> • Korea gave 2 presentations on (1) material compatibility test of polymer, (2) status on material compatibility (steel) fatigue testing. 		
16	Action Items	Secretary	GTR13-6-28
	<ul style="list-style-type: none"> • See referenced document. 		
17	Next IWG		GTR13-7-01
	<ul style="list-style-type: none"> • Nov 5-7 2019: Daimler Headquarters (Stuttgart). General information in referenced document. 		
28	APPENDIX: Attendees List		
	AIST Andong National University BAM Bosch CEA CATARC Faurecia Hexagon Composites Hexagon Purus GmbH ILLJIN Composites	ISO TC197 JARI Japan JASIC KATRI KHK/Japan KRISS Linamar MAXIMATOR METI/ Japan Nikola Motors	OICA/Audi OICA/BMW OICA/ Daimler AG OICA/GM OICA/ Honda R&D OICA/Hyundai R&D Korea OICA/Toyota OICA/Volkswagen AG Plastic Omnium Tokyo University Ulster University US/NHTSA Zhejiang University