

GTR #13 (Phase 2)

Recommendations for Test Procedures Task Force 3 Status

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TF 3 Objectives

- To correct editorial and technical errors in the original draft
- To make modifications to the test procedures based on industry experience
- To incorporate requirements for medium and heavy-duty vehicles
- To incorporate requirements for new storage technologies
 - **Conformable Tank Sub Group activities are complete**

Table of Test Parameter Tolerances

- Sub Group established to review Chapter 5 & 6 test parameter tolerances
 - Text of the regulation will maintain \leq and \geq parameter values, e.g. $\leq -40^{\circ}\text{C}$, $\geq +85^{\circ}\text{C}$
 - Section 6.2.1: Unless otherwise specified, the tolerances above the stated minimum and/or below the stated maximum may be recommended by the manufacturer or requesting party. Alternatively, the recommended tolerances table in Annex XX may be used.
 - New annex will include a table specifying “suggested” tolerances that have been validated by test agencies and that could be used by Technical Services, etc.
 - Tolerances include up to 10°C and 5% pressure tolerances
 - New task to move all test requirements formerly in Chapter 5 to Chapter 6
 - Chapter 5 will specify the test and requirement(s)
 - Chapter 6 will specify the test procedure and pass/fail criteria

Table of Test Parameter Tolerances

Clause	Variable	Target Value	Original Phase 1 tolerance	Current tolerance per TF3	PLI	TestNet	JARI	Comment
6.2.1	"Unless otherwise specified, the tolerances above the stated minimum and/or below the stated maximum may be recommended by the manufacturer. Alternatively, the recommended tolerances table in Appendix XX may be used."							
6.2.2.1	Temperature	20°C	± 5°C	none	n/a (since tolerance range is stated in par	ok		no tolerance needed
6.2.2.1	Rate of pressurization	1.4 MPa/s	less than or equal to	≤	n/a	ok		no tolerance needed
6.2.2.2	Pressure	2 MPa	±1 MPa	≤	1.5 MPa		±1 MPa	JARI comment: Should be same as UNR134(+1/-1MPa) PLI comment: agree as per the other table (keep separate tolerances for hydraulic and pneumatic)
6.2.2.2	Cycle rate	10 cycles per minute	not exceeding	not exceeding	n/a	ok		no tolerance needed
6.2.3.2	Drop height	1.8 m	none	≤	0.02 m	ok		
6.2.3.2	Energy	488 J	not less than	≥	see powerpoint	+50 J		calculated value, tolerance is on the variable used for the calculation (drop height), based on 1cm and 500kg JARI comment: If the cylinder is heavier, it'll must be difficult to do vertical drop testing. Is it OK? Ex. 48.8kg(1.0 to 1.1m), 488kg(0.1 to 0.11)
6.2.3.2	Drop height	1.8 m	no greater than	≤	0.02 m	ok		JARI comment: Vertical drop maximum height shouldn't need tolerance. PLI comment: agree, but again, this was NHTSA's request
6.2.3.2	Angle	45°	none	none	±5°	+5°	±2°	tank surface is not perfectly level and tank can sway while making the measurement JARI comment: too big to call "tolerance". How about "+2°/-2°"?
6.2.3.3 a	Cut depth	1.25 mm	at least	at least	1 mm	+1 mm		need large depth tolerance as sometimes very rough surface profile to measure from
6.2.3.3 a	Cut length	25 mm	none	at least	1 mm	+1 mm		
6.2.3.3 a	Cut depth	0.75 mm	at least	at least	1 mm	+1 mm		need large depth tolerance as sometimes very rough surface profile to measure from
6.2.3.3 a	Cut length	200 mm	none	at least	5 mm	+5 mm		
6.2.3.3 b	Diameter	100 mm	none	none	+20 mm	+20 mm	+5 mm	no "at least" in text, add? Or use +/- what if the tank is really small? JARI comment: too big compared to Cut length. How about "+5mm"?
6.2.3.3 b	Time	12 hours	none	minimum of	12 hr	+12 hr	+2 hr	JARI comment: too big to call "tolerance". "Minimum of" is enough or how about "+2hr"?
6.2.3.3 b	Temperature	-40 °C	none	≤	10°C	-10°C		
6.2.3.3 b	Radius	3 mm	none	none	± 1 mm	± 1mm		
6.2.3.3 b	Energy	30 J	none	none	+5/-0 J	+5 J		assume worst case (230J), no "2" or "at least" in text
6.2.3.4	Concentration	19 vol%	none	none	± 2%	± 2%		for volumetric (not gravimetric) measurements using small containers, need larger tolerance JARI comment: is seems to be too severe. Is it OK for testing company?
6.2.3.4	Concentration	25 wt%	none	none	± 2%	± 2%		for volumetric (not gravimetric) measurements using small containers, need larger tolerance JARI comment: is seems to be too severe. Is it OK for testing company?
6.2.3.4	Concentration	5 vol%	none	none	± 2%	± 2%		for volumetric (not gravimetric) measurements using small containers, need larger tolerance JARI comment: is seems to be too severe. Is it OK for testing company?
6.2.3.4	Concentration	28 wt%	none	none	± 2%	± 2%		for volumetric (not gravimetric) measurements using small containers, need larger tolerance JARI comment: is seems to be too severe. Is it OK for testing company?
6.2.3.4	Concentration	50 vol%	none	none	± 2%	± 2%		for volumetric (not gravimetric) measurements using small containers, need larger tolerance JARI comment: is seems to be too severe. Is it OK for testing company?
6.2.3.4	Time	18 hours	none	none	+25 hr	+25 hr	+2 hr	add "at least"? or use ±?

Section 5 Section 6 Pressure Tolerance

TF 3 Open Items – CP Feedback Required

- Section 5.1(b): The primary closure devices shall be mounted directly on or within each container. Additional TPRDs may be mounted remotely from the primary closure devices but shall remain in direct fluid contact with the container.
- TPRD high pressure activation and flow test (Section 6.2.6.1.12 new)
 - Test confirms flow capacity of TPRDs but redundant with fire test
 - Harmonized with ANSI/CSA HPRD 1
 - CP option or keep in?

Additional TF 3 Open Items

- CSA Group copyright required for test language and figures in Sections 5 & 6.
- Review of comments received from CSA TAG for HGV 3.1 for harmonization.
- Miscellaneous editorial and minor technical changes
- Next meeting Oct. 21, 2021 (06:00 PDT)