SAE J2719:2020 Hydrogen Fuel Quality for Fuel Cell Vehicles
ISO 14687: 2019 Hydrogen quality requirements for PEM fuel cell road vehicle application

Comparison of SAE J2719: 2020 and ISO 14687: 2019	J2719 2020 Table 1	ISO 14687 2019 Table 2	Notes from both standards
Units	**µmol/mol**	**µmol/mol**	
Hydrogen fuel index (minimum mole fraction)	0.9997	0.9997	The hydrogen fuel index is determined by subtracting the "total non-hydrogen gases" in this table, expressed in mole percent, from 100 mole percent.
Total non-hydrogen gases (maximum)	300	300	
Water (H2O)	5	5	
Total hydrocarbons except methane (C1 equivalent)	2	2	Total hydrocarbons except methane include oxygenated organic species. Total hydrocarbons except methane shall be measured on a C1 equivalent (µmol/mol).
Methane (CH4)	100	100	
Oxygen (O2)	5	5	
Helium (He)	300	300	
Argon (Ar)	300	300	
Nitrogen (N2)	300	300	
Carbon dioxide (CO2)	2	2	
Carbon monoxide (CO)	0.2	0.2	The sum of measured CO, HCHO and HCOOH shall not exceed 0.2 µmol/mol.
Total sulphur compounds	0.004	0.004	As a minimum, total sulphur compounds include H2S, COS, CS2 and mercaptans, which are typically found in natural gas.
Formaldehyde (HCHO)	0.2	0.2	The sum of measured CO, HCHO and HCOOH shall not exceed 0.2 µmol/mol.
Formic acid (HCOOH)	0.2	0.2	The sum of measured CO, HCHO and HCOOH shall not exceed 0.2 µmol/mol.
Ammonia (NH3)	0.1	0.1	
Halogenated compounds (Halogen ion equivalent)	0.05	0.05	All halogenated compounds which could potentially be in the hydrogen gas [for example, hydrogen chloride (HCl) and organic chlorides (R-Cl)] should be determined by the hydrogen quality control plan discussed in ISO 19880-8. Halogenated compounds shall be measured on a halogen ion equivalent (µmol/mol).
Particulate Concentration (mg/kg)	1	1	Particulate includes solid and liquid particulates comprises of oil mist. Large particulates can cause issues with vehicle components and should be limited by using filter as specified in ISO 19880-1. No visible oil shall be found in fuel at a nozzle.
Additional notes from SAE J2719			• Units are µmol/mol, unless otherwise specified. • All limits are subject to revision after additional testing under operational conditions and improved standardized analytical procedures. • Limits are upper limits except for the hydrogen which is a lower limit.
Additional notes from ISO 14687			For the constituents that are additive, such as total hydrocarbons and total sulphur compounds, the sum of the constituents shall be less than or equal to the acceptable limit.