

Table A1. Gas Chromatography configuration and instrument conditions.

Instrument	Separation column	Detector	Conditions	Compounds detected
Shimadzu GC-2014	Gaskuropack 54	FID		Methane, Ethane, Ethene+Ethyne, Propane, Propene, Propyne, Benzene, Methanol, Ethanol
	Length: 4 m (Packed column, GL Sciences)		Injector; 473 K Detector; 493 K TCD current; 110 mA	
	Gaskuropack 54	TCD	Temperature program; 10 min hold at 313 K, then heated at 5 K min <sup>-1</sup> to 473 K, and 30 min hold at 473 K.	Carbon monoxide, Carbon dioxide, Water (vapor)
	VZN-1	TCD	Injector; 333 K Detector; 333 K TCD current; 110 mA Temperature program; isothermal at 313 K.	Ethyne, Propadiene, Hydrogen
Shimadzu GC-2010	PoraBOND	FID	Injector; 618 K Detector; 573 K Temperature program; 10 min hold at 313 K, then heated at 5 K min <sup>-1</sup> to 573 K, and 30 min hold at 573 K.	Butane, But-1-ene, But-2-ene, 1,3-Butadiene, 1-Buten-3-yn, Cyclopentadiene, 1,4-Pentadiene, 1,2-Pentadiene, Hexadiene, Benzene, Toluene, Xylenes, Styrene, Ethylbenzene, Naphthalene, Anthracene Phenanthrene, 2-Furaldehyde, Furan, Acetone, Acetic acid, Acetaldehyde, Phenol, Cresols.