



PSI Heavy-Duty Technical Standard 56300002B – PSI Heavy-Duty Fuel Standard

PSI Heavy-Duty engines are designed and certified on commercially available pipeline quality gas. This standard is intended to further define pipeline quality gas.

Fuel Constituent		Natural Gas			Propane		
		Low	High	Average	Low	High	Average
Methane	CH <sub>4</sub>	92	94.5	93.25	0	1.23	0.615
Ethane	C <sub>2</sub> H <sub>6</sub>	1	4.5	2.75	2.22	10.12	6.17
Propylene	C <sub>3</sub> H <sub>6</sub>			0			0
Propane	C <sub>3</sub> H <sub>8</sub>	0.09	0.44	0.265	87.68	96.7	92.19
i-Butane	C <sub>4</sub> H <sub>10</sub>	0	0.06	0.03	0.56	1.87	1.215
n-Butane	C <sub>4</sub> H <sub>10</sub>	0	0.12	0.06	0.04	1.28	0.66
i-Pentane	C <sub>5</sub> H <sub>12</sub>	0	0.02	0.01	0	0	0
n-Pentane	C <sub>5</sub> H <sub>12</sub>	0	0.01	0.005	0	0	0
Hexane+	C <sub>6</sub> H <sub>14</sub>	0	0.02	0.01	0	0	0
n-Heptane	C <sub>7</sub> H <sub>16</sub>						
n-Octane	C <sub>8</sub> H <sub>18</sub>						
n-Nonane	C <sub>9</sub> H <sub>20</sub>						
n-Decane	C <sub>10</sub> H <sub>22</sub>						
Hydrogen Sulfide	H <sub>2</sub> S						
Carbon Dioxide	CO <sub>2</sub>	0.05	0.25	0.15	0.11	0.01	0.06
Nitrogen	N <sub>2</sub>	1.5	1.5	1.5	0.76	0.17	0.465
Oxygen	O <sub>2</sub>						
Water (gas)	H <sub>2</sub> O						
Specific Gravity ( $S_g = M_{gas} / M_{air}$ where $M_{air} = 28.964g/mol$ )		0.537	0.600	0.568	1.379	1.649	1.514
<b>Wobbe index (<math>lw = HHV / \sqrt{Sg}</math> where <math>HHV = BTU/SCF</math>)</b>		<b>1295</b>	<b>1359</b>	<b>1328</b>	<b>1930</b>	<b>2125</b>	<b>2030</b>
<b>Wobbe index (<math>MJ/Sm^3</math> <math>1000Btu/scf = 37.3MJ/Sm^3</math>)</b>		<b>47.92</b>	<b>50.28</b>	<b>49.12</b>	<b>71.40</b>	<b>78.61</b>	<b>75.09</b>
LHV (Btu/cubic ft.)		857	952	904	2116	2563	2338
HHV (Btu/cubic ft.)		949	1053	1001	2266	2728	2497

If the gas is not commercially available pipe line quality gas that meets the above specification, it is the end user's responsibility to understand and comply with the certification regulations.