

Substrates	Products	Typical species	Optimum growth conditions		Shape	Motility*	Gram reaction
			pH	Temperature, °C			
Acetate	CH ₄ , CO ₂	<i>Methanotherix soehngenii</i>	7.4–7.8	35–40	Sheathed rod	N	–
		<i>Methanosaeta concilii</i>	7.1–7.5	35–40	Sheathed rod	N	–
		<i>Methanosarcina acetivorans</i>	6.5–7.5	35–40	Coccoid	N	–
H ₂ , CO ₂	CH ₄	<i>Methanobacterium bryantii</i>	6.9–7.2	37–39	Rod	N	+
		<i>M. thermoautotrophicum</i>	7.2–7.6	65–70 [†]	Rod	N	+
		<i>M. alcaliphilum</i>	8.1–9.1 [‡]	37	Rod	N	–
		<i>Methanobrevibacter arboriphilus</i>	7.8–8.0	30–37	Coccobacillus	N	+
		<i>Methanococcus jannaschii</i>	5.0–7.0	85 [§]	Irregular coccus	M	
		<i>Methanolacinia paynteri</i>	6.6–7.2	40	Irregular rod	N	–
		<i>Methanospirillum hungatei</i>		30–37	Sheathed spiral	M	–
		<i>Methanoplanus endosymbiosus</i>	6.6–7.2	40	Irregular disk	N	–
		<i>M. olentangyi</i>		30–40			
		<i>Methanothermus fervidus</i>	6.5	83 [§]	Rod	M	+
		<i>Methanobacterium formicicum</i>	6.6–7.8	37–45	Rod	N	+
		<i>Methanobrevibacter smithii</i>	7.0	37–39	Rod	N	+
		<i>M. ruminantium</i>	7.0	37–39	Coccobacillus	N	+
Formate, H ₂ , CO ₂	CH ₄ , CO ₂	<i>Methanococcus voltae</i>	6.5–8.0	35–40	Irregular coccus	M	
		<i>M. deltae</i>		37	Irregular coccus	N	
		<i>M. maripaludis</i>	6.5–8.0	35–40	Irregular coccus	M	
		<i>M. thermolithoautotrophicus</i>	6.5–8.0	65 [†]	Irregular coccus	M	–
		<i>Methanoplanus limicola</i>	7.0	40	Plate	M	–
		<i>Methanogenium cariaci</i>	6.2–6.6	20–25	Irregular coccus	N	–
		<i>M. marisnigri</i>	6.8–7.3	20–25	Irregular coccus	N	–
		<i>M. olentangyi</i>		37	Irregular coccus	N	–
		<i>M. tatii</i>	7.0	37–40	Irregular coccus	N	–
		<i>M. thermophilicum</i>	6.5–7.2	55–60 [†]	Irregular coccus	N	–
		<i>M. bourgense</i>	6.3–6.8	35–42	Irregular coccus	N	–
		<i>Methanocorpusculum aggregans</i>	6.4–7.2	35–37	Irregular coccus	N	–

*M, motile; N, non-motile.

[†]Thermophilic methanogens.

[‡]Alkaliphilic methanogens.

[§]Hyper-thermophilic methanogens.