





PRODUCT ID

Formula	CH ₄	CAS nr.	74-82-8
Molecular weight (g/mol)	16.04	EC nr.	200-812-7

VISUAL CLASSIFICATIONS

Market	Energy demand	Maturity	Price
			

KEY MARKET DATA

Market size (ton/year)	1.1 Gt	
Product price (€/ton)	330	
CO ₂ uptake potential (ton/ton product)	2.75	stoichiometric
CO ₂ uptake potential (ton/year)	3 Gt	3560 reference plants >100% capture target 1.05Gt/year = 34% CH ₄ market
State-of-the-art production technology	Processing of natural gas	

TECHNOLOGY ROUTE #1: CATALYTIC HYDROGENATION

TRL = 9	Example of commercial application: ETOGAS/Audi e-gas plant in Wertle, Germany (6 MWe)	
Reactions		
$CO_2 + 4H_2 = CH_4 + H_2O$ $\Delta H_{298.15}^0 = -164.747 \text{ kJ/mol}$ Sabatier reaction		
Reaction conditions		
Temperature	150-700°C	Typically ca. 400°C
Pressure	Up to 20bara	Typically below 8 bar
Catalysts	Ni-based Ni-MOFs	Commercial option Under development
CO ₂ :H ₂ molar ratio	4	stoichiometric
By-products	CO	

For sources and definitions, please consult the original report at the [CEMCAP WEBSITE](#)

