

Major differences between homogeneous and heterogeneous catalysts

	Homogeneous	Heterogeneous
Form	Soluble metal complexes, usually mononuclear	Metals, usually supported, or metal oxides
Active site	well-defined, discrete molecules	poorly defined
Phase	Liquid	Gas/solid
Temperature	Low (<250°C)	High (250 – 500°C)
Activity	Moderate	High
Selectivity	High	Low
Diffusion	Facile	Can be very important
Heat transfer	Facile	Can be problematic
Product separation	Generally problematic	Facile
Catalyst recycle	Expensive	Simple
Catalyst modification	Easy	Difficult
Reaction mechanisms	Reasonably well understood	Poorly understood