



- **→** CO2 + \* -> CO2\*
- → H2 + 2 \* -> 2 H\*

- → CO2\* + OH\* -> COOH\* + O\*
- ★ CO2\* + H2O\* -> COOH\* + OH\*
- \* CO2\* + OH\* -> HCOO\* + O\*
- --- CO2\* + H2O\* -> HCOO\* + OH\*
- --- COOH\* + \* -> CO\* + OH\*
- --- COOH\* + \* -> COH\* + O\*
- --- HCOO\* + \* -> O\* + HCO\*
- --- CO\* + \* -> C\* + O\*
- --- HCO\* + \* -> CO\* + H\*
- --- HCO\* + \* -> CH\* + O\*
- --- COH\* + \* -> CO\* + H\*
- --- COH\* + \* -> C\* + OH\*
- --- C\* + H\* -> CH\* + \*
- --- CH\* + H\* -> CH2\* + \*
- --- CH2\* + H\* -> CH3\* + \*
- --- HCO\* + H\* -> CH2O\* + \*
- --- HCO\* + H\* -> HCOH\* + \*
- --- COH\* + H\* -> HCOH\* + \*
- --- HCOH\* + \* -> CH\* + OH\*
- --- HCOH\* + H\* -> CH2OH\* + \*
- --- CH2OH\* + \* -> CH2\* + OH\*
- --- CH2OH\* + H\* -> CH3OH\* + \*
- --- CH2O\* + H\* -> CH2OH\* + \*
- --- CH2O\* + \* -> CH2\* + O\*
- --- CH2O\* + H\* -> CH3O\* + \*
- --- CH3O\* + \* -> CH3\* + O\*
- --- CH3O\* + H\* -> CH3OH\* + \*
- --- CH3OH\* + \* -> CH3\* + OH\*
- --- O\* + H\* -> OH\* + \*
- --- OH\* + H\* -> H2O\* + \*
- --- OH\* + OH\* -> O\* + H2O\*
- --- H2O + \* -> H2O\*
- **--** CH4 + 2 \* -> CH3\* + H\*
- --- CH3OH + \* -> CH3OH\*
- --- CH2O + \* -> CH2O\*

- **─**CO2 + \* <- CO2\*
- H2 + 2 \* <- 2 H\*

- → CO2\* + H\* <- COOH\* + \*
  </p>
- ★ CO2\* + H2O\* <- COOH\* + OH\*
  </p>
- --- CO2\* + OH\* <- HCOO\* + O\*

★ CO2\* + OH\* <- COOH\* + O\*

- --- CO2\* + H2O\* <- HCOO\* + OH\*
- --- COOH\* + \* <- CO\* + OH\*
- --- COOH\* + \* <- COH\* + O\*
- --- HCOO\* + \* <- O\* + HCO\*
- --- CO\* + \* <- C\* + O\*
- → HCO\* + \* <- CO\* + H\*</p>
- --- HCO\* + \* <- CH\* + O\*
- COH\* + \* <- CO\* + H\*</p>
- --- COH\* + \* <- C\* + OH\*
- --- C\* + H\* <- CH\* + \*
- CH2\* + H\* <- CH3\* + \*</p>
- --- HCO\* + H\* <- CH2O\* + \*
- --- HCO\* + H\* <- HCOH\* + \*
- --- COH\* + H\* <- HCOH\* + \*
- --- HCOH\* + \* <- CH\* + OH\*
- → HCOH\* + H\* <- CH2OH\* + \*</p>
- --- CH2OH\* + \* <- CH2\* + OH\*
- --- CH2OH\* + H\* <- CH3OH\* + \*
- --- CH2O\* + H\* <- CH2OH\* + \*
- --- CH2O\* + \* <- CH2\* + O\*
- --- CH2O\* + H\* <- CH3O\* + \*
- --- CH3O\* + \* <- CH3\* + O\*
- --- CH3O\* + H\* <- CH3OH\* + \*
- --- CH3OH\* + \* <- CH3\* + OH\*
- --- O\* + H\* <- OH\* + \*
- --- OH\* + H\* <- H2O\* + \*
- OH\* + OH\* <- O\* + H2O\*</p>
- -- H2O + \* <- H2O\*
- --- CH3OH + \* <- CH3OH\*
- --- CH2O + \* <- CH2O\*