Ellingham Diagrams
Stanley M. Howard, SD School of Mines and Technology

Standard Gibb's Energies of Formation for
- Bromides
- Chlorides
- Fluorides
- Hydrides
- Iodides
- Nitrides
- Oxides
- Sulfides
- Selenides
- Tellurides

The figures include nomographs for equilibrium partial pressures.

Data sources:

This is an Internet Resource for MET 320 - Metallurgical Thermodynamics.

Disclaimer: These diagrams are provided for educational purposes only and should not be relied on for design or analysis. There may be errors in some data. The user assumes all liability associated with the use of the diagrams.
Ellingham Diagram for Selected Bromides: Part-1

\[ \Delta G_f^0 \text{ of Carbides (per gmole of C)} \]

Gibbs Energies of Formation for Selected Carbides per gmole of C

Compiled by Stanley M Howard using ThermoCalc Data assembled by Bharat Jastri. (c) 2006
Gibb Energies of Formation for Selected Carbides per gmole of C

- C + 2W = W₂C
- C + 1.5Cr = 0.5Cr₃C₂
- C + 2Mo = Mo₂C
- C + Si = SiC
- C + Ta = TaC
- C + 2V = V₂C
- C + Ti = TiC
- C + 2Ta = Ta₂C
- C + Mo = MoC

Compiled by Stanley M Howard using ThermoCalc Data assembled by Bharat Jastri. (c) 2006
Ellingham Diagram for Selected Chlorides: Part-2

Ellingham Diagram for Selected Chlorides: Part-3

Ellingham Diagram for Selected Chlorides: Part-4

\[
\begin{align*}
\text{Cl}_2 + \text{P} &\rightarrow 2\text{PCl}_5 \\
\text{Hg} + \text{Cl}_2 &\rightarrow \text{HgCl}_2 \\
2\text{Cu} + \text{Cl}_2 &\rightarrow 2\text{CuCl}_2 \\
\text{Pb} + \text{Cl}_2 &\rightarrow \text{PbCl}_2 \\
\text{Zn} + \text{Cl}_2 &\rightarrow \text{ZnCl}_2 \\
2\text{Na} + \text{Cl}_2 &\rightarrow 2\text{NaCl} \\
2\text{K} + \text{Cl}_2 &\rightarrow 2\text{KCl} \\
\end{align*}
\]
Ellingham Diagram for Selected Fluorides: Part-1

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Ellingham Diagram for Selected Fluorides: Part-2

Ellingham Diagram for Selected Fluorides: Part-3

Ellingham Diagram for Selected Fluorides: Part-4

Ellingham Diagram for Selected Hydrides: Part-1

Ellingham Diagram for Selected Hydrides: Part-2

Ellingham Diagram for Selected Hydrides: Part-3

Ellingham Diagram for Selected Hydrides: Part-4

Ellingham Diagram for Selected Hydrides: Part-5


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Ellingham Diagram for Selected Iodides: Part-1

Ellingham Diagram for Selected Iodides: Part-2

Ellingham Diagram for Selected Nitrides: Part-1

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Ellingham Diagram for Selected Nitrides: Part-2

Ellingham Diagram for Selected Oxides: Part-1  © 2006 Stanley. M. Howard

Ellingham Diagram for Selected Oxides: Part-2

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Ellingham Diagram for Selected Oxides: Part-3


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Ellingham Diagram for Selected Oxides: Part-4


\[ 
\begin{align*}
VM_2O_3 + O_2 & = V_2O_5 \\
2C + O_2 & = 2CO \\
M_4VO_2 + O_2 & = 2V_2O_5 \\
M_2V_2O_3 + O_2 & = 4VO_2 \\
3/2FeO + O_2 & = 1/2Fe_3O_4 \\
2H_2 + O_2 & = 2H_2O \\
\end{align*}
\]
Ellingham Diagram for Selected Oxides: Part-5

Ellingham Diagram for Selected Oxides: Part-7

Ellingham Diagram for Selected Sulfides: Part-2

Ellingham Diagram for Selected Sulfides: Part-3

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Ellingham Diagram for Selected Selenides: Part-1

Ellingham Diagram for Selected Tellurides: Part-1