

Hg-O (Mercury-Oxygen)

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The Hg-O system was evaluated by [1999Gum], but no phase diagram was provided.

Figure 1 shows the Hg-O phase diagram redrawn from a schematic diagram given in [2004Gum].

HgO exists in several crystalline forms, but the orthorhombic form is the most stable [1999Gum]. Two crystalline forms of HgO₂ were quoted in [1999Gum] as stable phases, but they are missing in [2004Gum]. These phases may be metastable because they were reported to be very reactive.

In the diagram of [1999Gum], a horizontal line is drawn at 375 °C between 0 and 50 at.% O, corresponding to boiling of Hg. This line has been removed in Fig. 1 because, if it exists, it causes immiscibility in the gas phase at high

temperatures. Accordingly, Fig. 1 is a phase diagram for condensed phases under pressures.

Table 1 shows Hg-O crystal structure data taken from [1999Gum] for phases quoted above.

References

1999Gum: C. Guminski, The Hg-O (Mercury-Oxygen) System, *J. Phase Equil.*, 1999, **14**(3), p 85-88

2004Gum: C. Guminski, Contribution of Electrochemistry to the Knowledge on Structure and Properties of Amalgams, *Polish J. Chem.*, 2004, **78**, p 1733-1751

Table 1 Hg-O crystal structure data

Phase	Composition, at.% O	Pearson symbol	Space group	Strukturbericht designation	Prototype
(Hg)	0	<i>hR1</i>	<i>R$\bar{3}m$</i>	<i>A10</i>	α Hg
HgO	50	<i>oP8</i>	<i>Pnma</i>
β HgO ₂ *	66.7	<i>oP12</i>	<i>Pbca</i>	...	HgO ₂
α HgO ₂ *	66.7	<i>mC6</i>	<i>C2/m</i>

* Not shown in Fig. 1. Metastable?

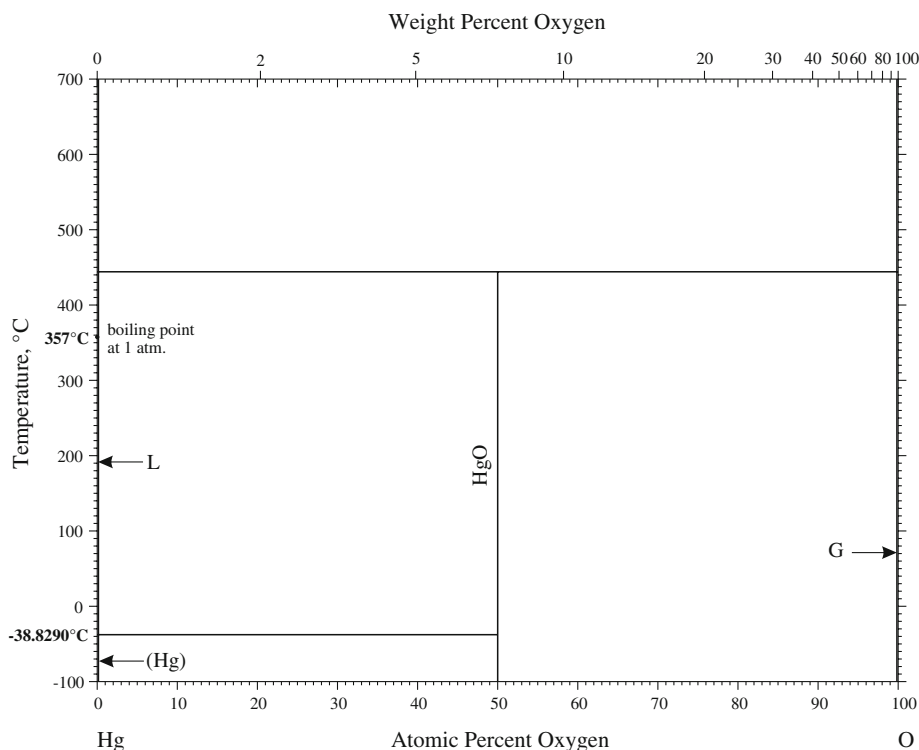


Fig. 1 Hg-O phase diagram