

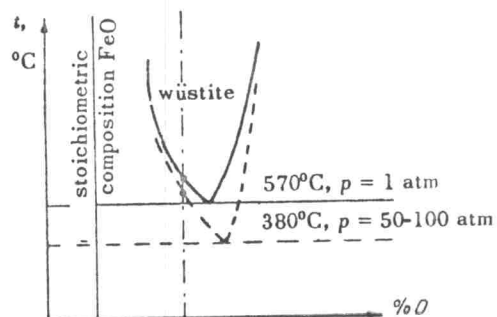


FIG. 3. Change in equilibrium diagram of Fe-O (in wüstite region with increased pressure).

570°C is essentially the same as in the case of oxidation at normal pressure in the temperature range well above 570°C. This is manifested by a considerable increase in the rate of oxidation of iron in air when pressure is increased at constant temperature, and results in a substantial increase of the gain in weight of specimens.

(4) If it is assumed that in the tests described there was no local increase in temperature within the scale, and that the temperature measured by the thermocouple corresponded to the temperature of the inner scale layer, it must follow that an increase of exterior pressure to 50-100 atm lowers the lower temperature limit of wüstite stability from 570°C down to 450-400°C.

that process), indicates that the mechanism of iron oxidation at high pressure at temperatures below

Translated by Z. Michalewicz

REFERENCES

1. V.I. Arkharov and D.K. Bulychev, *Dokl. Akad. Nauk SSSR* 113, 791 (1957).
2. G. Chaudron, *Ann. de Chemie* 13, 5 (1921).
3. V.I. Arkharov, *Zh. fiz. khim.* 2, 102, 674 (1931).
4. V.I. Arkharov and F.P. Butra, *Zh. tekhn. fiz.* 10, 1691 (1940).
5. V.I. Arkharov and F.P. Butra, *Zh. tekhn. fiz.* 18, 211 (1948).
6. V.I. Arkharov and Z.P. Kichigina, *Fiz. metal. metalloved.* 3, 269 (1956).
7. V.I. Arkharov and B.S. Borisov, *Fiz. metal. metalloved.* 4, 76 (1957).