

Research on Methods of Oxygen Delivery Applied in Deep-sea Human Occupied Vehicle(HOV)

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Summary

Ocean resources, for which the modern military and economy are competing, are the material sources for sustainable development. In order to keep our own rights in the competition of international resources, the project to develop a deep-sea HOV was started.

In this paper different requirements of O₂ concentration in the closed space of various underwater vehicles such as submarine and HOV is introduced. Based on that, from the aspects of power, space size, influence to the environment and O₂ concentration the particular demands for delivering O₂ are analyzed. Several O₂ delivering methods in the closed space such as the gaseous oxygen, the liquid oxygen, electrolyzing the water, the peroxide and the chlorate are compared and one appropriate method is selected for HOV. According to this absorbing mechanism, a suitable O₂ delivery technology and a sample model is developed to prove the effectiveness of this method. At last the model is fitted in the cabin of the "Jiao Long" and a series of experiments have been achieved in the South China Sea. The validity of the model was approved by these experiments.

