

Composing Experimental Environment of PRIDE Argon cell

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1. Introduction

There is a facility named PRIDE in KAERI for developing Pyroprocessing technology. In PRIDE depleted Uranium feed material and a depleted Uranium mixed with some surrogate material are used for performing engineering scale Pyroprocessing.

PRIDE has to maintain inert atmosphere because of the characteristic of Electrolytic Reduction technology, Electro refining technology, Electrowinning technology. The impurity concentration of the Argon cell has to be under 50 ppm(Oxygen, moisture). Atmospheric pressure changes and temperature changes can affect the Argon cell's impurity concentration.

In this paper, how to compose the Argon cell impurity concentration under 50 ppm to make the exact optimal experimental environment(Oxygen, moisture) will be introduced.

2. Methods and Results

2.1 Adjusting Argon cell's impurity concentration

Supply the pure Argon gas in to the Argon cell through the cooling return line[Fig 1.] and cooling header[Fig 2.].

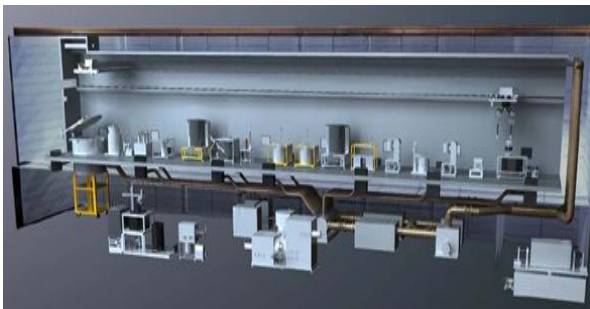


Fig 1. Cooling return line



Fig 2. Cooling Header line

Pure Argon which is supplied from the cooling return line and cooling Header line will be stacked in the Argon cell inside more and more. When the Argon cell's pressure gets over above a certain pressure, the air which is lighter than the Argon gas will be discharged through the High volume vent fan. With this method Argon cell impurity concentration gets lower. Fig 3 is the schematic of Argon gas supply.

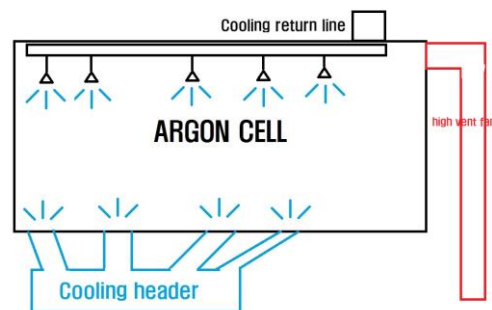


Fig 3. Schematic diagram of Argon gas supply

2.2 Results

Fig 4 is the Oxygen level graph of the Argon cell. The oxygen concentration becomes lower.



Fig 4. Oxygen level graph

3. Conclusions

Composing the exact optimal experimental environment by supplying Argon gas have been introduced in this paper. Continuously supplying Argon gas which is heavier than the Oxygen through the bottom of the Argon cell the oxygen eventually

discharged through the high vent fan and lower the impurity concentration of Oxygen.

There will be a beneficial useful in many process system which performs in inert gas atmosphere by operating and conduction a research in PRIDE

REFERENCES

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