## 6. CONCLUSIONS

Through the theoretical analysis and case study, the proposed liquid $CO_2$ transport system was proved as feasible under the control of pipe pressure. The results show that the pressure of 2.2MPa is applicable for liquid $CO_2$ transport system. By this system, the temperature of liquid $CO_2$ could be controlled as low as -15ºC. Besides, the pressure at liquid $CO_2$ tank, vertical depth and pipe length directly bear on the pressure change in the pipe. The research findings provide valuable insights on the application of liquid $CO_2$ in fire control in underground coal mines.

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## NOMENCLATURE

| | |
|---|---|
| F | flow, $m^3 \cdot h^{-1}$ |
| P | pressure, Pa |
| T | temperature, ºC |
| t | time |

### Greek symbols

| | |
|---|---|
| ρ | density, $kg \cdot m^{-3}$ |