A few conversions are needed to calculate the calorespirometric ratio in KJ/mol O2 based on your respiration and calorimetric data. For example, you measured 25 μW per one million cells in the calorimeter and the respiration rate was 40 pmol per second per one million cells in the respirometer:

A. The output unit of the calorimeter is μW: 10-9 kJ s-1

B. Respiration is in pmol per second: 10-12 mol-1

C. The CR ratio is in kJ/mol O2

1) 25 x 10-9 kJ s-1million cells = 2.5 x 10-8 kJ s-1 per million cells.

2) 40 x 10-12 mol O2 s-1 per million cells = 4 x 10-11 mol O2 s-1 per million cells.

3) (2.5 x 10-8 kJ s-1 per million cells) / (4 x 10-11 mol O2 s-1 per million cells) = 625 kJ/mol O2