

SYSTEM AND METHOD FOR A MICROFLUIDIC CALORIMETER

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Description

Macro scale calorimetry has been commonly used in the prior art, and many commercial instruments are available. However, the miniaturized calorimetry is an upcoming field, especially for pharmaceutical applications. Some of the existing technologies in this domain involve the combination of known/fixed volume (in microlitres) of reagents, and resulting temperature changes are measured using solid state sensors. However, a high cost associated with some of these reagents makes microfluidic calorimetric analysis highly desirable. At the same time, reduction in volume of reagents beyond certain levels make related reagent delivery and calorimetric sensing extremely challenging and problematic. **This novel system comprises a microfluidic calorimeter for measurement of thermodynamic changes, as associated with biochemical reactions involving low volume of reagents.**

Value Proposition

The system:

- Uses an arbitrary volume of reagents as compared to fixed volumes used in prior art techniques
- Enables the use of reduced reagent volume with faster measurements as compared to conventional approaches
- Allows for the elimination of precise control and knowledge of injected fluid volumes, as mandatorily required for prior art techniques
- Enables extraction of the entire thermodynamic data at a single instant rather than sequential
- Allows for the measurement of temperature at multiple locations across a reaction zone, discerning the overall heat of reaction
- Comprises use of an optical temperature sensor which detects a transmitted light to measure the corresponding temperature with high sensitivity
- Is effectively used for calorimetric analysis related to drug development, and for providing information regarding potential efficacy of proposed drugs
- Is further useful in biochemistry and molecular biology research based applications

Intellectual Property Status

PCT Application PCT/US2012/021198
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License Status

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