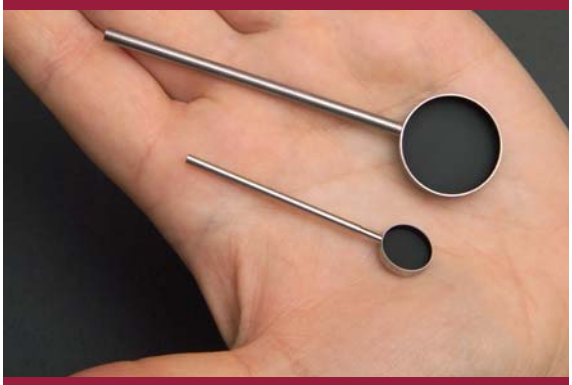
binding&kinetics

Now Get More With Less...

Seven-fold Reduction in Sample Cell Volume (200 µl)

Introducing the new iTC_{200} from MicroCal

An evolution in ITC instrumentation, the iTC_{200} is more sensitive, faster, and easier to use than the VP-ITC, which has been the industry standard.



Advantages of the iTC_{200} vs. the VP-ITC:

- Sample Usage: The iTC_{200} requires up to 7x less sample material than the VP-ITC.
- Volume Usage: The iTC_{200} requires 7x less sample volume than the VP-ITC while providing the same great results. The sample cell volume of the iTC_{200} is only 200 µl and the syringe volume is 40 µl.
- Throughput: With faster equilibration times, the iTC_{200} is two to four times faster than the VP-ITC. The iTC_{200} can also be upgraded to provide sample throughput of up to 50 samples per day with a capacity to process as many as 384 samples unattended.
- Improved sample loading and cell cleaning.
- The iTC_{200} is controlled by a new intelligent user interface that facilitates experimental design and automatically processes data at the end of sample runs. Data is presented in Excel format for further analysis or data transfer.

MicroCal®

While sample and volume usage are reduced, the iTC$_{200}$ still provides the same great data you have come to expect with the VP-ITC.

As can be seen in Table 1, the results for K and ΔH are in good agreement between the VP-ITC and iTC$_{200}$. However, the iTC$_{200}$ requires up to 7x less protein.

Table 1. RNAse Quantity Requirements Based on *c* value Requirements

Values	VP-ITC (1,400 μL cell volume)				iTC$_{200}$ (200 μL cell volume)			
c value	50	25	10	5	50	25	10	5
Protein Concentration (mM)	0.035	0.018	0.0070	0.0035	0.035	0.018	0.0070	0.0035
μg of Protein	685	343	137	69	98	49	20	10
Experimental Results								
K_A x 10^6 (M^{-1})	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.9
K_D (μM)	0.66	0.66	0.62	0.60	0.62	0.59	0.61	0.52
Δ*H* (kcal/mol)	-18	-17	-16	-16	-17	-17	-15	-15

Quantities calculated for the ITC titration of RNAse-2'CMP assuming K_A = 1.4 x 10^6, ΔH = -15 kcal/mol, MW = 13,700. Twelve injections were done per experiment.

The iTC$_{200}$ is much faster than the VP-ITC with faster equilibration times.

As can be seen in Table 2, two runs per hour can be accomplished with the iTC$_{200}$ compared to the VP-ITC which takes over an hour to complete a single run. Sample rates are doubled with the iTC$_{200}$ and can be doubled again by reducing the number of injections from the traditional 24 to 12. By implementing a reduced injection strategy, up to four runs per hour can be accomplished with the iTC$_{200}$.

Table 2. ITC Sample Processing Time

Function	VP-ITC		iTC$_{200}$	
# of injections	24	12	24	12
Cleaning (minutes)	8	8	8	8
Loading (minutes)	2	2	2	2
Equilibration (minutes)	20	20	4	4
Titration (minutes)	96	48	36	18
TOTAL (minutes)	126	78	50	32

MicroCal, LLC
22 Industrial Drive East, Northampton, MA 01060
United States of America
T +1 413-586-7720 / 1-800-633-3115
F +1 413-586-0149
E info@microcal.com
www.microcal.com

MicroCal, LLC Europe
2 Warren Yard, Warren Farm Office Village
Wolverton Mill, Milton Keynes MK12 5NW, United Kingdom
T +44 1908 576330
F +44 1908 576339
E info@microcal.eu.com
www.microcal.com

MicroCal®