

# Signatrol.com

## Data Logging Solutions

### Thermal Barrier Instruction Sheet

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#### Achieving Temperature

Remember that if the process takes time to heat up and if the logger is in the process then this time must be added on to the total exposure time. If different temperatures are encountered during the test, it is prudent to select a barrier based on the maximum temperature.

#### Remove Logger

As the barrier retains heat, the logger should be removed from the barrier as soon as the process is over. **Do not leave the logger inside the barrier after the test run as the internal space will continue to heat up and may take the logger over its design limit.**

#### Multiple Runs

If you are doing multiple runs then it is important to allow the barrier to return to its 'start temperature' before starting another test run. Barriers are normally specified at a start temperature of 25°C however, in some applications the barrier must first be cooled down prior to the test in order to achieve extended exposure.

#### Typical Exposure Times

The table below show typical exposure times for barriers with different heights. Please remember, your particular barrier may have been built for different requirements.

°C	TB50/TB60	TB70/TB80	TB90/TB100	TB110/TB120	TB130/TB140
70	240	360	480	600	720
80	185	273	361	450	538
90	130	186	243	300	356
100	75	100	125	150	175
110	71	95	119	143	166
120	68	90	113	135	158
130	64	85	106	128	149
140	60	80	100	120	140
150	56	75	94	113	131
160	53	70	88	105	123
170	49	65	81	98	114
180	45	60	75	90	105
190	42	57	71	85	100
200	39	53	67	80	94
210	36	50	62	76	89
220	33	46	58	71	83
230	30	43	54	66	78
240	27	39	50	61	73
250	24	36	45	56	67
260	21	32	41	52	62
270	18	29	37	47	56
280	15	25	33	42	51
290	12	22	28	37	46
300	9	18	24	32	40
310	7	14	21	28	35
320	6	12	18	24	30
330	5	10	15	20	25
340	4	8	12	16	20
350	3	6	9	12	15

#### Use of Thermal Barriers

##### How they work

Thermal barriers are devices with a high thermal lag which contain a data logger and enable it to pass through a process that would otherwise be too hot for the logger to stand.

The simple analogy is that when you cook your roast beef in the oven, the beef remains pink in the middle as the oven temperature has not had time to penetrate to the centre of the joint. Obviously if you leave the joint in longer, then the inside will become cooked and the same is true for a thermal barrier.

There are several precautions that you must take in order to ensure that the temperature inside the barrier does not rise above the maximum specified logger temperature ( Normally 80°C)

The rules are as follows:

##### Correct Sized Barrier:

Make sure that you have selected the right thermal barrier for the job. Barriers are selected by the oven or process temperature that the barrier is likely to experience, and the time that the logger is in the oven or process. (See Table below). If in doubt contact our support team for advice.

##### Correct Assembly

Make sure that the lid is securely fitted to the box. Gaps between the box and the lid can allow heat to enter the barrier causing damage to the logger.