

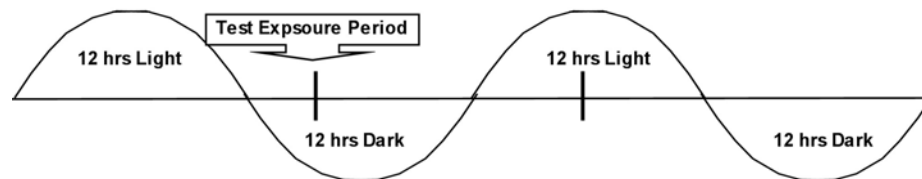
Handling of the Live Test Organisms

Storage Temperature

Place the live organisms in an area where the temperature range is between 18°C (65°F) and 29°C (85°F). For brief periods, this range can be expanded, but temperatures outside these ranges are harmful.

Circadian Rhythms

A circadian rhythm is a roughly-24-hour cycle in that is used by thousands living things. Circadian rhythms can guide or control physiological processes. Based on its circadian rhythm to the day and night cycle in nature, the biological test species used in the QwikLite 200 Biosensor System (*Pyrocystis lunula*) maximize their natural bioluminescence approximately 2 to 4 hours after dark, when stimulated, this is when they will react (glow) the best. Therefore, this is the optimal time for performing the tests.



Light Cycling

Immediately Upon Receipt - Open the shipment and expose the cells to indirect light (since they have been in a dark environment during shipment).

Do NOT place the cultures in direct sunlight – expose the plankton cells to moderate indirect and/or artificial light only.

Upon receipt, the new shipment of sensitive plankton need to remain in the light for 4 to 12 hours. This is called a Light cycle. After the initial Light cycle, the cultures need rest and enter the Dark cycle. In general, the Light and the Dark cycles should approximately be 12 hours, but this can vary 1 to 2 hours.

NOTE: the plankton must complete a full Light/Dark cycle prior to any testing!

Repeat the Light/Dark Cycle: Throughout the time you have your plankton; from receipt through final testing; it is important to establish a Light/Dark cycle so that the sensitive cells remain healthy and ready to be used in bioluminescence testing.

Best Time to Dose: Typical experimental designs involves a 24 hour exposure cycle of the organism to the water sample. For best bioluminescence, the ideal testing time is 3 hours after start of the Dark cycle, when they are the brightest. So when you consider when to “dose” your samples, it is best to determine when you want to perform your final testing, and then dose 24 hours earlier.

Best Time to Test: Approximately 3 hours after start of the Dark cycle. Bioluminescent response in the test culture is optimized approximately 3 hours after they are in the darkness.

Simply calculate backwards from the time you want to test, and this will determine when you will want the Light/Dark cycle to be established.

Light/Dark cycling and testing example: *If you would like to perform a 24 hour exposure test on Friday at 12noon, you need to dose your samples on Thursday at 12noon.*

This testing plan would have this appropriate Light/Dark schedule:

Tuesday - Receive a shipment of live cultures at 2 pm, provide light and air immediately
 Wednesday 9 am - start Dark cycle (12 hours)
 Wednesday 9 pm - start Light cycle (12 hours)
 Thursday 9 am - start Dark cycle (12 hours)
 Thursday 12 noon – Dose samples and put back into Dark cycle
 Thursday 9 pm – start Light cycle (12 hours)
 Friday 9 am – start Dark cycle (12 hours)
 Friday 12 noon – Test (this is optimum: 3 hours after the Dark cycle has started)