PT INDOGEN INTERTAMA JI Raya Cilangkap No 111 JAKTIM 13870 www.indogen.id | sales.indogen@gmail.com WA: 081-293-185-185

> DATASHEET Version : UR-02/ZR-01/22042025

### **Metabolic Cage Series**

Item No. : BL-MC01/BL-MC01 ECO/BL-MC10+R Size: 1 Set



### Introduction

Metabolic cages serve as essential tools for gathering data on the metabolic functions of animals and understanding how various factors influence these processes. These specialized cages are equipped with a distinct system that facilitates the separate collection of feces and urine, thereby preventing contamination. The design effectively directs urine and feces into designated collection tubes located outside the cage, ensuring accurate measurements and analysis.

Metabolic cages were initially developed to evaluate the digestibility, composition, and nutritional value of various feeds for livestock, facilitating the formulation of optimal feed rations. Research utilizing metabolic cages has also yielded significant insights into the nutritional requirements of animals.

Biolabware Metabolic Cage is specially designed for experimental animals to separate urine and feces, providing an accurate and convenient animal excrement collection solution for scientific research experiments. It is made of high-quality polycarbonate (PC; BL-MC01 and BL-MC01 ECO) material and 304 stainless steel to ensure that the product is durable and easy to clean and maintain.

### Material

- Cage and water bottle: Made of high-quality polycarbonate (PC) material, resistant to high temperatures up to 121°C, the fully enclosed design effectively prevents feed contamination while ensuring that urine and feces separation is clearly visible.
- Support frame and accessories: Made of 304 stainless steel, strong and durable, not easy to rust, ensuring the hygiene and safety of the experimental environment.

### Specification

Biolabware is a trademark of PT Indogen Intertama and is protected by law.

Biolabware reserves the right to make changes to product specifications for the purpose of improvement, and such changes may occur without prior notice.

PT INDOGEN INTERTAMA JI Raya Cilangkap No 111 JAKTIM 13870 www.indogen.id | sales.indogen@gmail.com WA: 081-293-185-185

Product	Qty	Depiction
<ul> <li>BL-MC01</li> <li>Metabolic Cage, PC</li> <li>Dimension: 290*290*550mm</li> <li>Cage Material: PC with Stainless Steel Frame</li> <li>Other parts <i>(see packing list)</i></li> </ul>	1 set	
<ul> <li>BL-MC01 ECO</li> <li>Metabolic Cage, PC</li> <li>Dimension: 290*290*680mm</li> <li>Cage Material: PC with Stainless Steel Frame</li> <li>Other parts <i>(see packing list)</i></li> </ul>	1set	
<ul> <li>BL-MC10+R</li> <li>SS Metabolic Cage with Rack</li> <li>Cage Material: Stainless Steel</li> <li>Cage Dimension: 200*200*200mm</li> <li>Rack Dimension: 1430*350x1480mm</li> <li>Other parts (see packing list)</li> </ul>	1 set	

#### Feature

Biolabware is a trademark of PT Indogen Intertama and is protected by law.

Biolabware reserves the right to make changes to product specifications for the purpose of improvement, and such changes may occur without prior notice.

PT INDOGEN INTERTAMA JI Raya Cilangkap No 111 JAKTIM 13870 www.indogen.id | sales.indogen@gmail.com WA: 081-293-185-185

- Precise separation: The collection funnel and cone are cleverly designed with smooth inner walls, which effectively achieves precise separation of urine and feces, facilitating subsequent experimental analysis.
- Fully transparent observation: The cage and funnel are made of transparent polycarbonate (PC) material, which is convenient for researchers to observe the activity status and excretion of rat in real time, and collect and process excrement in time.
- Anti-pollution design: The feed box is located outside the cage and is equipped with a grille device to prevent animals from dragging out feed and a baffle to prevent perching, ensuring that the feed is clean and pollution-free. At the same time, it is easy to extract and fill food without disturbing the animals.
- Convenient operation: The feed device is designed in a drawer style, which is convenient for adding feed quickly; the 250ml water bottle meets the drinking water needs of rat, and the mesh and feces filter effectively intercept feces to keep the cage environment clean.

Main Components (BL-MC01 and BL-MC01 ECO)



- 1. Lower cage: houses components for separation of fecal material and urine during experiment.
- 2. Upper cage: protect the rodent from external interference while facilitating observation and operation.
- 3. Steel grid: serves as a floor for the rodent to stand and move around inside the upper cage.
- 4. Conical separation device: achieves precise separation of urine and feces.
- 5. Funnel system: to implement precise separation of urine and feces.
- 6. Metal frame: provides firm support for the cage, ensuring the safety and stability of the experiment.
- 7. Feces collection tube.
- 8. Urine collection tube.
- 9. Food box baffle & Feeder drawer: prevent the animal from dragging out food from the box and residing within the feed box, as well as allow for the easy addition of feed with minimal disturbance to the rodent.
- 10. Drinking bottle: metal support that holds the drinking bottle.

Biolabware is a trademark of PT Indogen Intertama and is protected by law. Biolabware reserves the right to make changes to product specifications for the purpose of improvement, and such changes may occur without prior notice.



PT INDOGEN INTERTAMA JI Raya Cilangkap No 111 JAKTIM 13870 www.indogen.id | sales.indogen@gmail.com WA: 081-293-185-185

- 11. Water spills collection tube.
- 12. Drinking bottle: 250ml water bottle ensures that rodent has access to water at all times.

#### Installation

- 1. Position the metal support frame on a stable surface.
- 2. Insert the main lower cage into the cavity of the metal frame, ensuring alignment with the hinges.



3. Place the funnel system inside the lower cage, ensuring that the sharp end of the funnel is directed into the urine collection tube, while the funnel itself is positioned above the feces collection tube.



4. Secure the conical separator device on top of the funnel system, securing it to the hinges.



5. Position the stainless steel grid atop the conical separator device to serve as a floor for the rodent to stand and move about.



6. Install the upper cage, ensuring it is securely locked to the lower cage by tightening the hinges.

Biolabware is a trademark of PT Indogen Intertama and is protected by law. Biolabware reserves the right to make changes to product specifications for the purpose of improvement, and such changes may occur without prior notice.

PT INDOGEN INTERTAMA JI Raya Cilangkap No 111 JAKTIM 13870 www.indogen.id | sales.indogen@gmail.com WA: 081-293-185-185



- 7. Once both the top and bottom cages are properly installed, insert the food box baffle and water bottle holder into their designated holes in the upper cage.
- 8. Beneath the water bottle holder, place a collection tube to capture any water that may leak or spill when the rodent drinks from the water bottle.



- 9. Metabolic cage is ready to be used for experiments.
- 10. For additional information and guidance on installing the metabolic cage, please visit the following YouTube link: <u>https://www.youtube.com/watch?v=5axLi8Sn9aY</u>

### Maintenance

- In the sterilization of polycarbonate cages, it is crucial to note that the material can be compromised if alkaline cleaner residues or dried softened water remain on the surface. Therefore, it is essential to thoroughly rinse these surfaces with fresh, alkali-free water to ensure the complete removal of any residues. Utilizing an acid rinse aid may also help prevent damage to the material. It is important to avoid autoclaving soiled/dirty cages prior to cleaning, as this can further harm the polycarbonate.
- For polycarbonate drinking bottles, an acid cleaning process is typically employed, followed by a thorough rinse. Since these bottles are generally filled with water immediately after cleaning, the use of rinse aids is typically unnecessary.
- It is highly recommended to use softened water for washing. Plastic cages should be cleaned at a maximum temperature of 55°C. Rinsing and neutralizing cleaning agents can be effectively performed at approximately 80°C.
- Strong alkaline detergents are particularly effective in removing organic residues; however, direct contact with polycarbonate materials can lead to corrosion or hydrolysis. Therefore, it is essential to neutralize alkaline detergents after use.
- Acidic detergents may be employed for cleaning urine or when dealing with hard water. Generally, there is no requirement to neutralize these detergents. Avoid using alkaline detergents for hand washing, particularly when submerging cages in a pre-soak container.

Biolabware is a trademark of PT Indogen Intertama and is protected by law.

Biolabware reserves the right to make changes to product specifications for the purpose of improvement, and such changes may occur without prior notice.

PT INDOGEN INTERTAMA JI Raya Cilangkap No 111 JAKTIM 13870 www.indogen.id | sales.indogen@gmail.com WA: 081-293-185-185

- For the autoclave process, ensure that no detergent or acid rinse remains on the surfaces of the cages, as the autoclaving process can cause residues to sinter (solidify), potentially resulting in chemical damage and loss of transparency in the plastic. It is advisable to autoclave for the shortest time necessary, with a recommended minimum cycle duration of 20 minutes at 121°C. Avoid stacking more than ten cages on top of one another during the process. **Note:** repeated autoclaving can weaken PC material.
- If you opt not to wash the cages prior to autoclaving, please be aware that food and bedding debris may release harmful substances when heated, which can compromise the integrity of the plastic. Should you need to autoclave the cages along with their bedding, it is essential to use high-quality bedding material.
- It is important not to heat cages or bottles that contain disinfectant. **Maximum Heat Levels:** At this temperature, a solid piece of plastic will deform under a pressure of 66 psi. Therefore, it is not advisable to expose animal cages to these temperatures. **Disinfectants:** Effective disinfectants include formalin, ethanol, formaldehyde, and benzalkonium chloride.
- Bases, esters, and oxidizing agents can cause immediate damage, resulting in severe crazing, cracking, loss of strength, discoloration, and deformation of polycarbonate (PC) material.

#### References

https://indogen.id/kandang-metabolik-untuk-tikus-dan-mencit/