

3b

METABOLIC CAGE for MICE



 **TECNIPLAST®**

Tecniplast Gazzada S.a r.l.
Via 1° Maggio, 6
21020 Buguggiate - Va - Italy
Tel. +39 0332 80 97 11
Fax +39 0332 45 83 15
www.tecniplast.it
E-mail: tecnicom@tecniplast.it



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 **TECNIPLAST®**

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THE FIRST METABOLIC CAGE FOR SINGLE MOUSE

Following many years success of Cat. No. 3700M/3701M (for groups ≥ 3 mice and rats), the development of a new single mouse metabolic cage has become necessary primarily due to certain functional limitations of the existing model and also to conform to the demands of International Guidelines.

The result is the only cage on the market with simple user-friendly features, and absolute and immediate separation of faeces and urine.

The usable floor area is 200cm² with an internal height of 130mm. Floor area and height comply fully with the EEC Recommendations (180cm²), UK Recommendations (Home Office 200cm²) and USA Recommendations (96,78cm²).

Each cage can be positioned on freestanding mobile racking. If used in groups of 12 cages, existing standard racks Cat. 3M12B100* for cage type 3700M can be utilized but a support plate will be needed for each cage.

The cage can also be used with the single cage stand Cat. No. 3M01D100*.

The cage consists of 11 parts made from carefully selected plastic materials. These are:

- The cone, the separation cone, the urine collection ring, the two collection tubes (for faeces and urine). The above all being produced from Polymethylpentene (PMP).
- The upper chamber with lid, the lower chamber with closure, the water bottle, the tube for water spillage. The above all being produced from Polycarbonate.

The bottle holder, feeder and the supporting grid are made from stainless steel.

Various studies and tests have been carried out which have indicated the correct inclination of the specially treated separation cone to allow the complete collection of urine during a 24-hour period. (It should be noted that only 1,5 ml to a maximum of 5 ml will be collected). A key design feature is the lack of evaporation due to the positioning of the collection tubes inside the lower chamber, which is closed at the beginning of the test.

Another important point was to ensure that faeces could not stick to the separation cone with subsequent wash-over and contamination of the urine. The inclination and the treatment of the walls of the separation cone result in greater than 90% of faeces produced being collected in the proper tube.

It is obvious that with soft faeces it will not be possible to avoid urine contamination.

Before starting metabolism tests it is important to let the animal acclimatize on the grid for at least 48 hours.

* Please refer to Catalogue 3 "Metabolic and Diuresis Cage" on pages 14, 15, 16 and 17 for detailed information on racks and single cage stands.

METABOLIC CAGE AND COMPONENTS

3600M021

Metabolic cage,
all included with single chamber feeder

- ① **3600M024** (PC)
Cage cover
- ② **3600M001** (PC)
Upper chamber
- ③ **3600M317** (S/S)
Support grid for mice
- ④ **3600M011** (PC)
Lower chamber
- ⑤ **3600M012** (PMP)
Collection funnel
- ⑥ **3600M027** (PMP)
Separation cone
- ⑦ **3600M014** (PMP)
Urine ring
- ⑧ **3600M016** (PMP)
Faeces collection tube
- ⑨ **3600M018** (PMP)
Urine collection tube for mice - 6 ml
- ⑩ **3600M009** (PC)
Closure for lower chamber
- ⑪ **3700M921** (S/S - PC)
Feeder assembly for mice
- ⑫ **3600M301** (S/S)
Drinking water bottle support
- ⑬ **ACBT0050** (PC)
Drinking water bottle - 50 ml
- ⑭ **ACCP2521** (S/S)
Drinking water bottle cap
- ⑮ **3700M018**
Fluid collection tube - 15 ml
- ⑯ **3700M025**
Fluid collection funnel
- ⑰ **3700M721** (S/S)
Feed chamber - single station



- ⑱ **3700M821** (PC)
Feed drawer - for Cat. 3700M721
- ⑳ **3700M308** (S/S)
Solid feeder/bottle gate plate
for Cat. 3600M001
- ㉑ **3600M020** (PC)
Cage support plate
- ㉒ **3M01D100**
Single cage stand

If required, the stand and cage support plate
can be ordered separately.

PC= Polycarbonate
PMP= Polymethylpentene
S/S= Stainless Steel

CLEANING GUIDELINES, PHYSICAL PROPERTIES

Thermal Properties

| Material | Code | Suggested Autoclaving Temp. °C | HDT °C ⁽¹⁾ | Water Absorption ⁽²⁾ | Transparency | Rigidity | Sterilisation ⁽³⁾ | | | | |
|-------------------|------|--------------------------------|-----------------------|---------------------------------|--------------|----------|------------------------------|-----------|-----|----------|--------------|
| | | | | | | | Autoclave | Radiation | Gas | Dry-Heat | Disinfection |
| Polycarbonate | PC | 121 | 138 | 0,35 | Clear | Rigid | Yes | Yes | Yes | No | Yes |
| Polymethylpentene | PMP | 134 | 175 | 0,30 | Clear | Rigid | Yes | Yes | Yes | Yes | Yes |

Chemical Resistance

Chemical Resistance Classification:

| | |
|-------------------|--|
| E=Excellent | 30 days of constant exposure cause no damage. Plastic may even tolerate for years. |
| G=Good | Little or no damage after 30 days of constant exposure to the reagent. |
| F=Fair | Some effect after 7 days of constant exposure to the reagent. |
| N=Not Recommended | Not for continuous use. Immediate damage may occur. The effect will be a more severe crazing, cracking, loss of strength, discolouration, deformation. |

This Chemical Resistance Summary Chart is a general guide only. As so many factors can affect the chemical properties of a given product, you should test under your own conditions. If any doubt exists about specific applications of TECNIPLAST products, please contact TECNIPLAST Technical Service at tecnicom@tecniplast.it.

| Classes of Substance at 20°C | Polycarbonate PC | Polymethylpentene PMP | Stainless Steel SS |
|------------------------------|------------------|-----------------------|--------------------|
| Acids, diluted or weak | E | E | E |
| Acids, conc. and strong | N | E | E |
| Alcohol, aliphatic | G | E | E |
| Aldehydes | F | G | F |
| Bases | N | E | E |
| Esters | N | G | E |
| Hydrocarbons, aliphatic | F | F | G |
| Hydrocarbons, aromatic | N | G | G |
| Hydrocarbons, halogenated | N | N | F |
| Ketones | N | F | F |
| Oxidant agents, strong | N | F | E |

- (1) Heat Deflection Temperature is the temperature at which a bar of the thermoplastic will deflect 0.01" under 66 psi. Due to stress influences, rigid plastics should NOT be exposed to such heat levels.
- (2) Water absorption: the % of water absorbed by a 3.175 mm (1/8") sample over 24 hours exposure.
- (3) Sterilisation:
- Autoclaving: 121°C (250°F) for 20 minutes - clean and rinse items with softened water before autoclaving. Certain chemicals which have no appreciable effect on plastics at room temperature may cause deterioration at

autoclaving temperatures unless removed with softened water before.

- Gas: Ethylene Oxide, Formaldehyde, Hydrogen Peroxide.
- Dry Heat: 160°C for 120 minutes.
- Radiation: gamma irradiation at 25 kGy (2.5 Mrad) with non-stabilised plastic.
- Disinfectants: Benzalkonium Chloride, Formalin, Formaldehyde, Ethanol.

WASHING, AUTOCLAVING AND DISINFECTION GUIDELINES

A. Washing

- In order to reduce the effects of hard water (≥ 20 F°), e.g. milky-grey discolouration of cages that are washed frequently, a softener should ideally be used in the supply to the cage washer.
- 55°C is the optimum temperature at which to wash plastic cages (60°C max). Higher temperatures (80 to 85°C) may be used for short contact periods to neutralise and rinse cages.
- Alkaline detergents are more effective in the removal of organic residues from surfaces and as such they are the choice for machine washing of animal cages. However, if in contact with Polycarbonate at medium to high strength or for extended periods of time, alkaline detergents will cause corrosion or hydrolysis. They must therefore be thoroughly neutralised using a short acid rinse cycle before rinsing with fresh water. Regular checks should be made to ensure that any water remaining on cages is either neutral or slightly acidic.
- Acid detergents can be used where urine or hard water scaling is a problem without the need to neutralise them but they are generally less effective in removing organic soiling.
- Rinse aids used to speed up the drying of the cage surfaces should be avoided. Consult the manufacturer of your cage washer in order to establish that the cycle programmes being used are correct for the care of plastic materials. There should be a gradual increase in temperature during the wash cycle rather than exposing the cages to thermal shock.
- In case of hand washing, do NOT use alkaline detergents, especially if sinking the cages in a pre-soak tank.

B. Autoclaving

- Although considered autoclavable, PC parts will gradually weaken after repeated autoclaving. We recommend autoclaving PC parts only when necessary.
- If cages are washed prior to autoclaving, it is important to be certain there are no detergent and rinse aids residues on the surface since the extreme heat and pressure of the autoclave will cause the residue to be baked on, producing a loss in clarity or chemical damage to the plastic surface.
- Effective steam sterilisation depends upon proper temperature controls and an appropriate steam supply. Alkaline corrosion inhibitors from boiler feed water may destroy plastic materials or dull the cage surface.
- It is possible to use 10-minute cycles at 134° C for PMP parts. Use as short an autoclave cycle as possible (exposure of 20 minutes at 121° C) for PC parts. Take care to avoid cycles which incorporate thermal pulsing.
- Parts must be put together evenly to avoid permanent cage wall warping.
- Although complete cages, including diet, can be autoclaved together, be aware that the heating of these materials may release potentially damaging substances which can attack plastics, causing clouding or cracking.
- If, for any reason, cages have to be autoclaved in a protective covering (sterile package, cotton, plastic bags, etc.) make sure that the package is sufficiently permeable to avoid damages to the equipment. Contact our customer service for advices on the choice of the most suitable bags for autoclaving.

C. Disinfection

- Check with the disinfectant manufacturer regarding the use of their product on plastic cages.
- Never heat cages and bottles that contain disinfectant residue.

Stainless Steel

TECNIPLAST use the highest quality certified Stainless Steel. When properly cared for, Stainless Steel is less likely to discolour, rust or corrode than other type of Steel.

AISI 304

Stainless Steel - EURONORM - UNI - X5CrNi1810
Applications: lids, racks, card holders and wire work.

AISI 316

Stainless Steel - EURONORM - UNI - X5CrMo17122
Applications: bottle caps, valves and accessories for autowatering systems.