



The Esco Group of Companies

Worldwide Headquarters

Esco Micro Pte. Ltd.
21 Changi South Street 1, Singapore 486777
Tel: +65 65420833 Fax: +65 65426920
Email: mail@escoglobal.com
WWW Site: <http://www.escoglobal.com>

Cleanability test on the 4 feet Labculture® Class II Type A2 Biohazard Safety Cabinets

Purpose of Experiment

Biological Safety Cabinets have been designed to give many years' trouble-free efficient service and to keep maintenance to a minimum. However, to ensure this, it must be regularly cleaned and checked. Through this experiment, it will demonstrate that Esco's BSC was easily cleanable even with its other parts.

Experiment Method

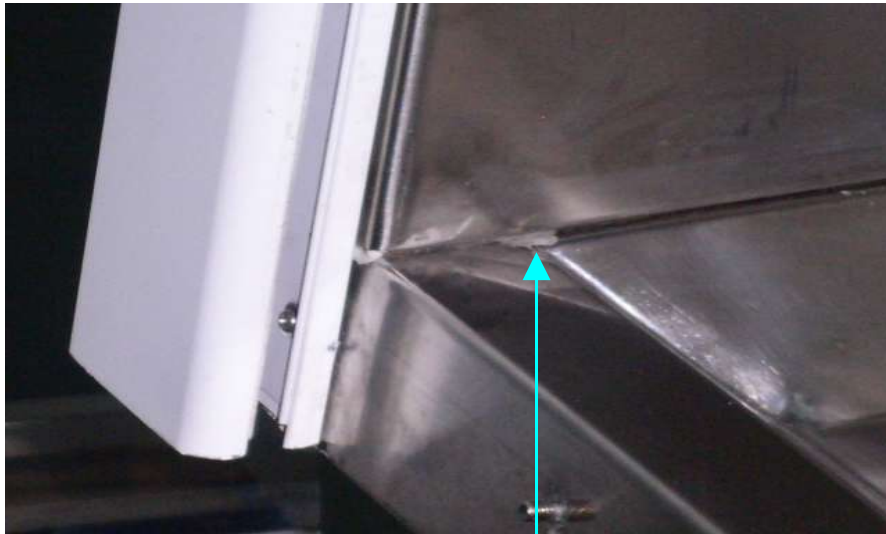
A. The following area (inside the work area of the cabinet) was tested by pouring with 2 ml of fresh milk:

1. Drain pan 45°, front left corner.
2. Bolt and capped nut of tray handle
3. Front right corner joint
4. Middle of drain pan
5. Front plain stud (to hold tray support bars)
6. Front bend on drain pan
7. Silicon around drain valve cover plate
8. Front threaded stud (to hold arm rest)
9. Front flange (right corner)
10. Back L bracket on inner liner (to support tray)
11. Tray: 45° corner

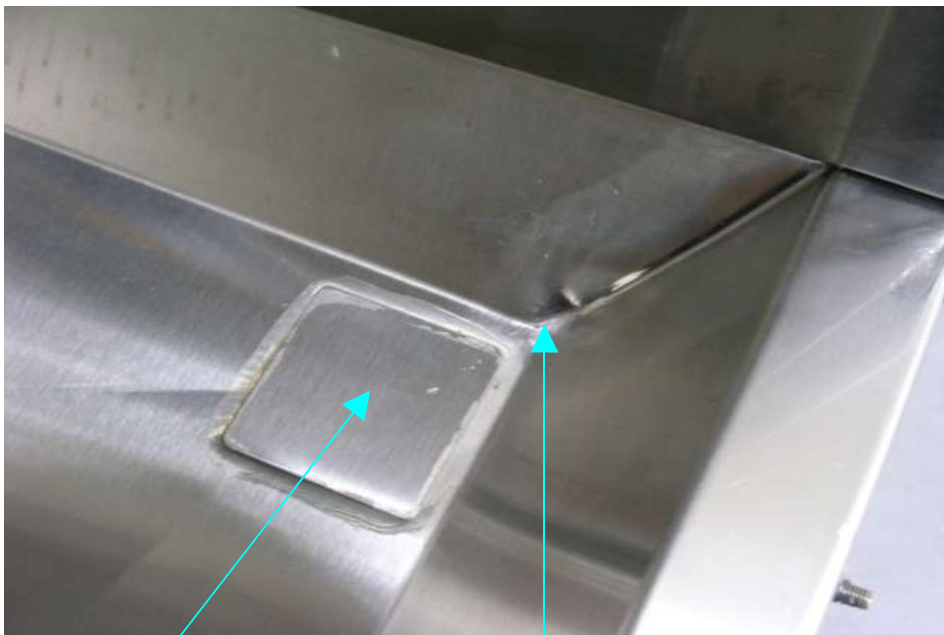
B. **Milk** was used in this experiment because milk is rich in protein, and bacteria is composed largely of proteins. This challenges microbial growth to simulate contamination.

C. **Swab 'N' Check kit** is a chemical based test which is based on the detection of protein and reducing substances such as sugars and vitamins. If cleaning procedures are not effective, milk residues will be removed. If cleaning procedures are not effective, both milk and bacteria will remain on a surface.

Illustrations:



Drain pan 45°, front left corner

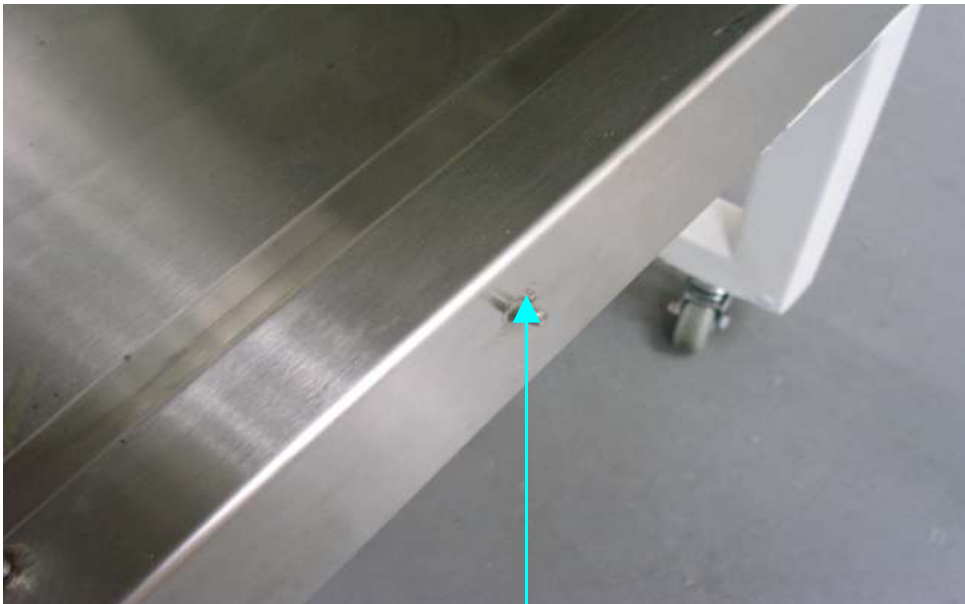


Drain valve plug

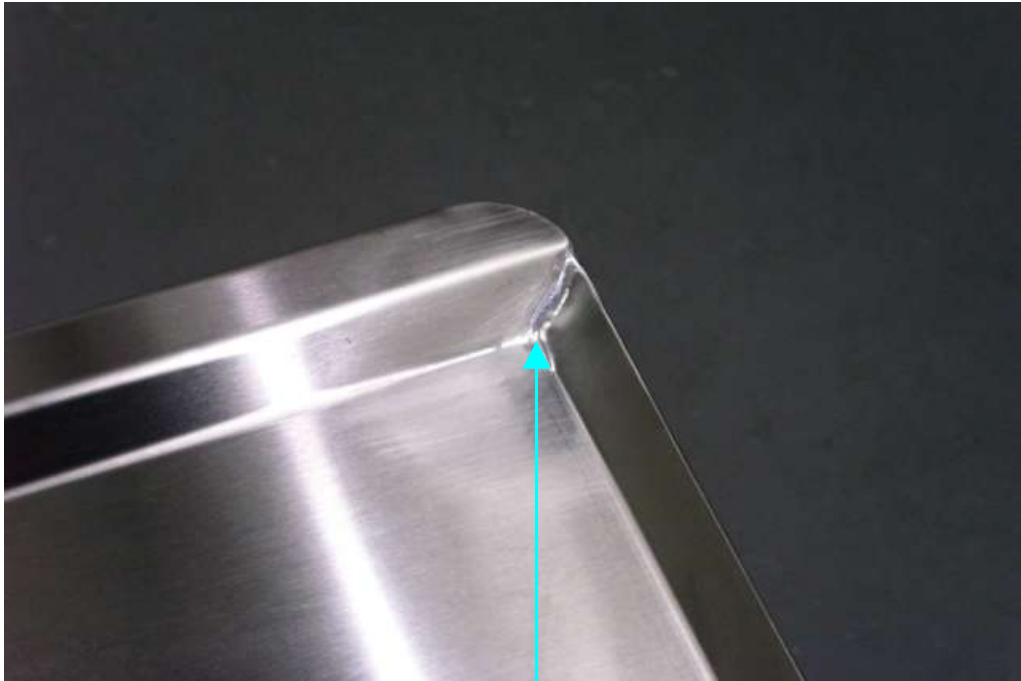
Drain pan 45° corner



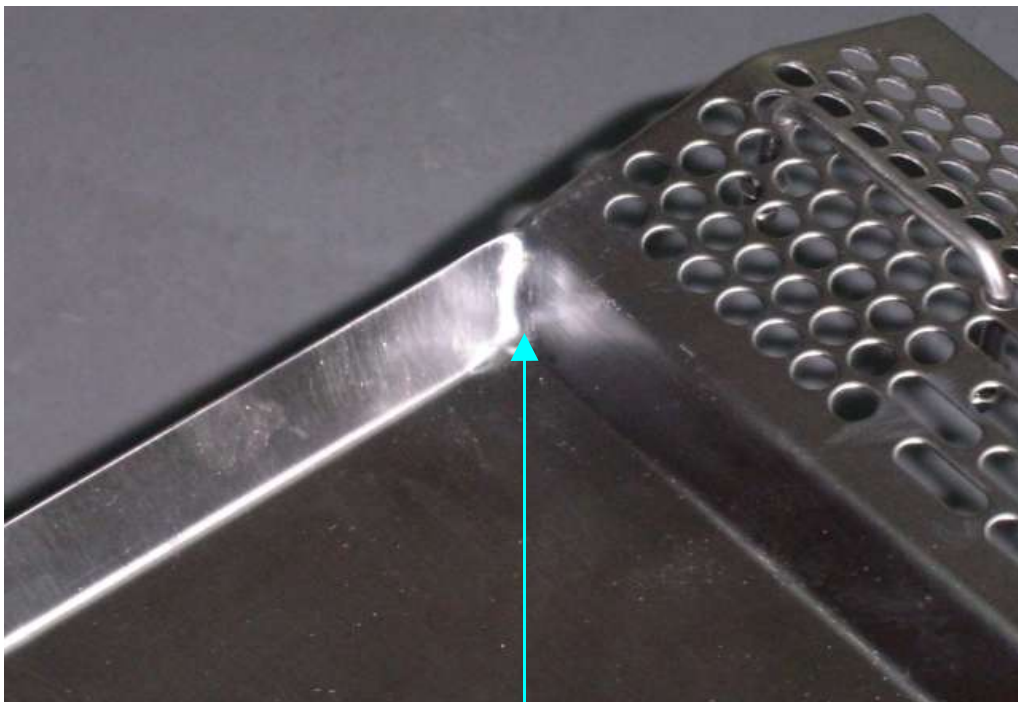
Front plain stud (to hold tray support bars)



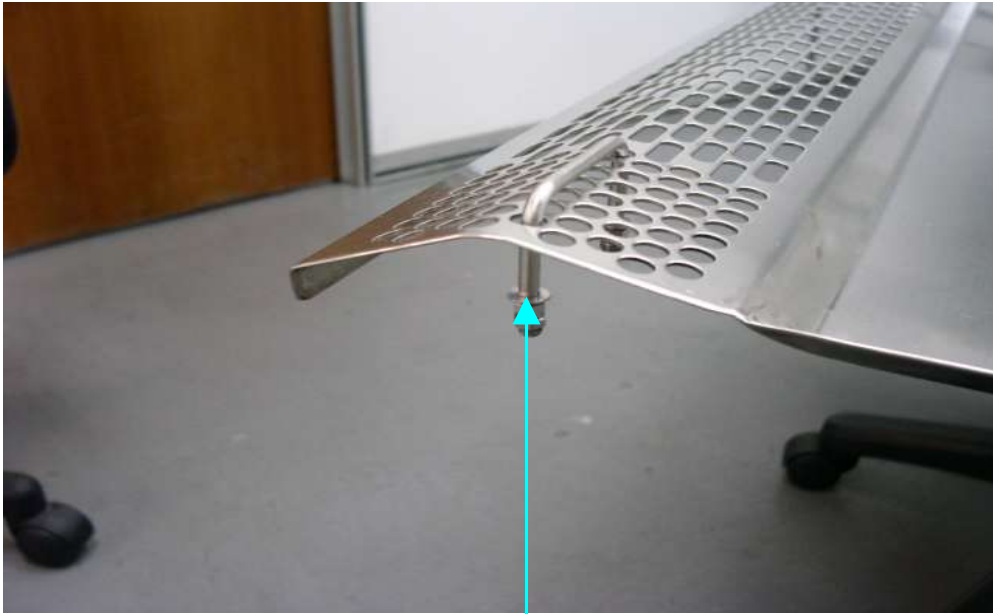
Front threaded stud (to hold arm rest)



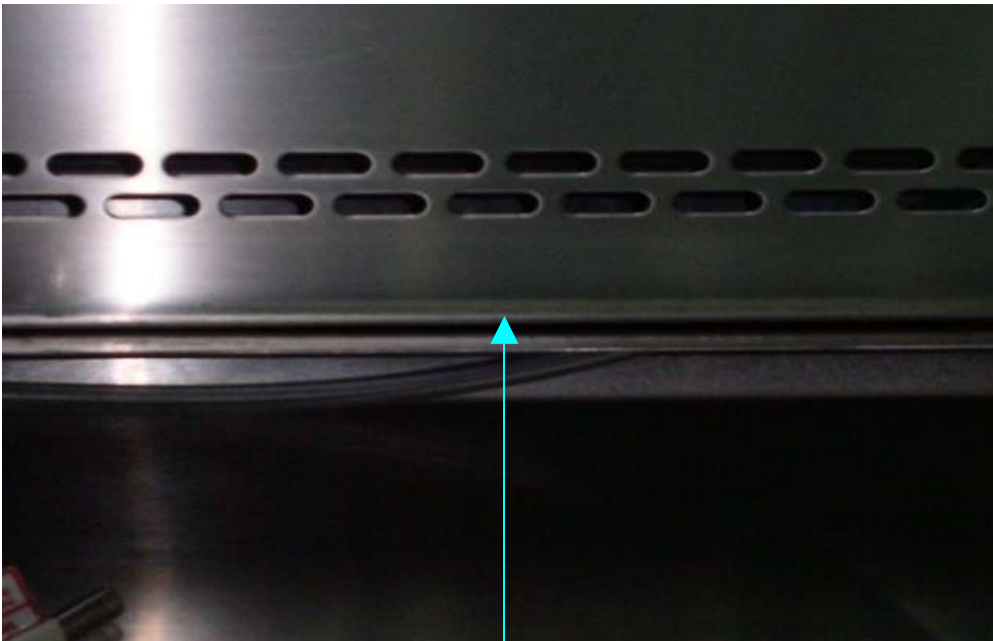
Tray 45° - back corner



Tray 45° - front corner



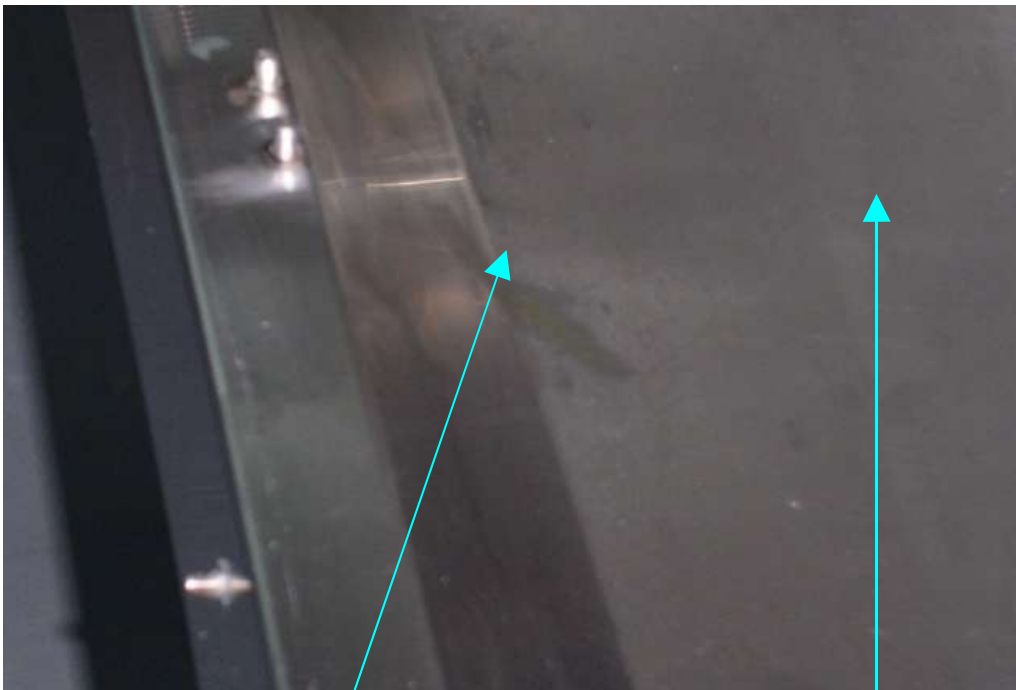
Nut on tray handle



Tray support flange on the back wall



Tray 45° - front corner



Drain pan – front bent

Middle of drain pan

Procedure

A. *The cleaning procedure was as follows:*

1. First, the surface was washed with clean wipes. Followed by water and detergent.
2. Rinsing with water (the cleaning process entailed rubbing the clean wipes left to right over the surface, rinsing it out, then rubbing up and down and rinsing it out) until there's no traces of detergent left.
3. Following the wash and rinse, the surfaces were wiped with 70% alcohol. The surfaces were allowed to dry for 5 minutes.

B. *Sampling the surface area:*

1. Using Swab 'N' Check kit. Carefully remove a new test swab from the packet taking care not to touch the cloth end of the swab. Moisten the cloth end of the swab with 1-2 drops of moisturiser.
2. Using even firm pressure, rub the cloth end of the swab over the entire surface of the area being evaluated.
3. Place the test swab into the test tube containing the reagent A and B.
4. Mix gently and observe for the colour change.

Interpretation

- Level 1 (colour unchange) – Clean
- Level 2 (slightly purple) – Satisfactory
- Level 3 (purple) – Poor
- Level 4 (dark purple) – Unsatisfactory

Results

The result is shown in Table below:

<i>Area</i>	<i>Results</i>
Drain pan 45°, front left corner.	Colour unchange (Clean)
Bolt and capped nut of tray handle	Colour unchange (Clean)
Front right corner joint	Colour unchange (Clean)
Middle of drain pan	Colour unchange (Clean)
Front plain stud (to hold tray support bars)	Colour unchange (Clean)
Front bend on drain pan	Colour unchange (Clean)
Silicon around drain valve cover plate	Colour unchange (Clean)
Front threaded stud (to hold arm rest)	Colour unchange (Clean)

<i>Area</i>	<i>Results</i>
Front flange (right corner)	Colour unchange (Clean)
Back L bracket on inner liner (to support tray)	Colour unchange (Clean)
Tray: 45° corner	Colour unchange (Clean)

Conclusion

From the data above, the results indicate that there is no colour change, meaning that the simple cleaning procedure was effective and the milk deposited on the surfaces even on the areas that seems to be hardly removed was easily cleaned using the common antibacterial soap and warm water. This shows that Esco's cabinets can easily be maintained so as to ensure that the cabinet is always in first-class working order.