



HYGenius Lab Worktops

Semen production labs have to fulfill a high hygienic standard

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The work in a semen production laboratory has to meet an increasingly high hygienic standard. Selecting the right material for worktops is of utmost importance in an environment where any kind of contamination of the product has to be avoided. Therefore Minitube has developed a new generation of laboratory worktops out of a material which has been especially developed according to ISO Standards¹⁾. The concept is based on individually customized layouts for the special needs of every lab.



Figure 1: Customized concept

Optimal design for the daily disinfection routine

To ensure optimal conditions for the daily disinfection routine the worktops are designed without 90° angles and edges where bacteria often create a biofilm allowing their persistence and reproduction. For the same reason, heated plates, displays and equipment bases are integrated in the surface of the worktops. Cables are hidden in cable channels which is also an important precondition to complete and most efficient disinfection.

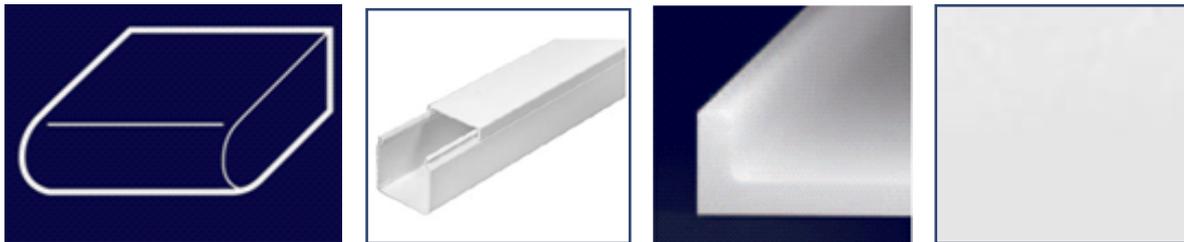


Figure 2: Round edges, cable channel, fillet and a non porous material simplify the daily disinfection routine

Surface Structure

The unique surface structure of the HYGenius Lab Worktops is a non-porous and sealed white material (Figure 2). In order to stand the high demands of the daily work in a laboratory the material is very sturdy and durable. The different pieces of the worktops can be glued together without leaving any gaps or seams (Figure 3). Bacteria and other microorganisms are unable to grow on or to penetrate the surface (Figure 4). Table 1 shows the minimal water absorption of the material.

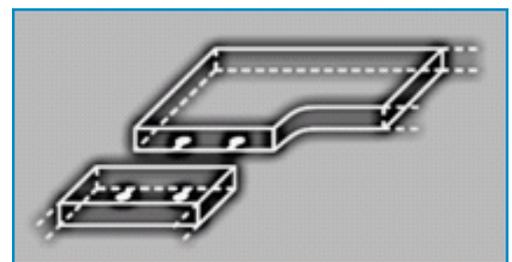


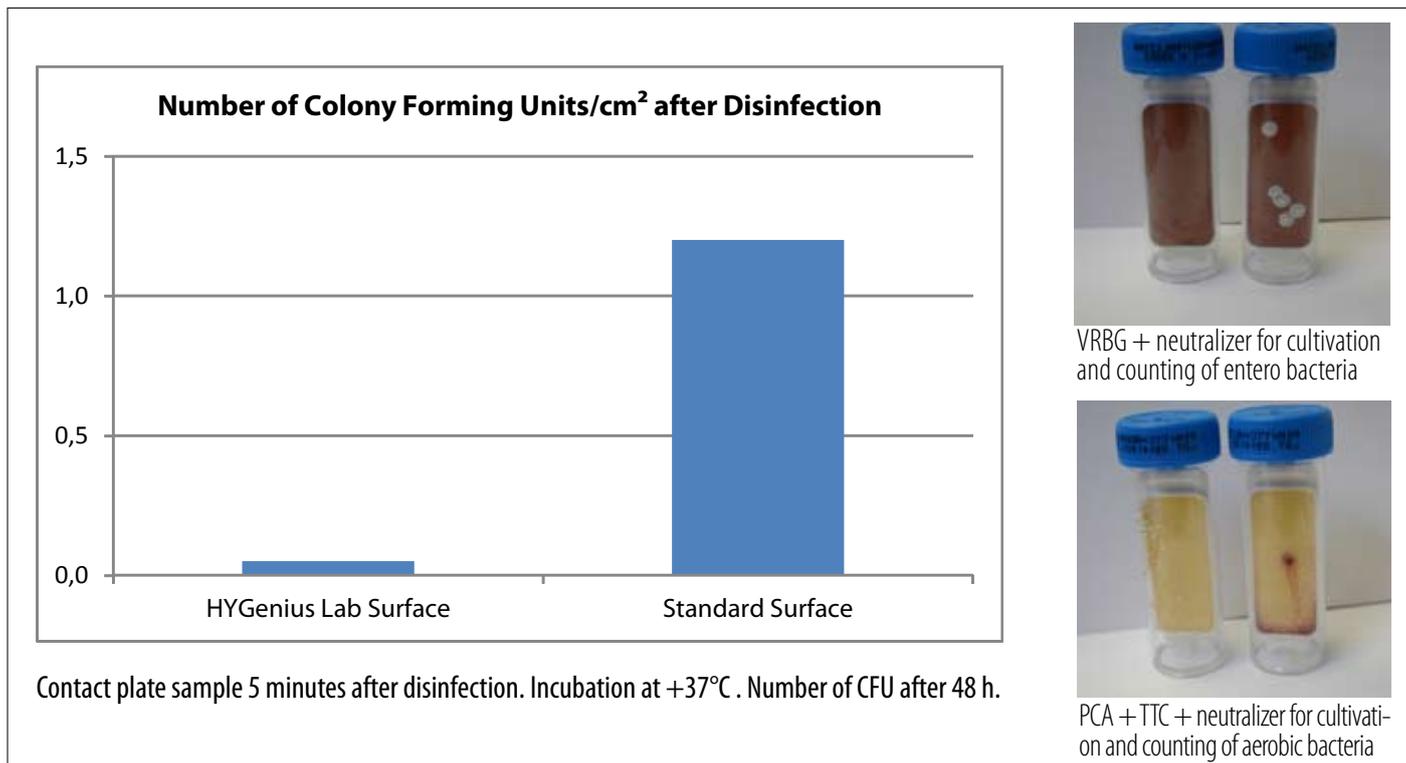
Figure 3: Seamless combination of worktop units

Table 1: Water absorption

Water absorption in %	24 h	60 d
6 mm	0.04	0.30
12.3 mm	0.03	0.21
19 mm	0.03	0.17

1) e.g. DIN EN ISO 846:1997-10 - Plastics - Evaluation of the action of microorganisms and DIN 53 495 - Waterabsorption

Figure 4: Number of CFU on HYGenius Lab surface compared to standard worktops with formica coating (Resopal)



Chemical resistance of HYGenius Lab Worktops

All disinfection agents offered by Minitube (Table 2) can be used.

Table 2: Minitube cleaning and disinfection agents

Cleaning and disinfection agents
Gigasept FF 2 – 8 %
Hexaquart S 1.5 %/60 min, 1 %/4 hours
Meliseptol

The chemical substances listed in Table 3 were tested on HYGenius Worktops at a contact time of 16 hours. No permanent marks were detected. Residues could be removed with a damp sponge and bleaching agents. With five of the tested substances, minimal impairments were noted, which are specified in footnotes (*).

It is not recommended to keep high concentrations of acids or alkalines for longer periods (more than 16 hours) on the surface. The substances listed in Table 4 are not recommended because they may impair the surface of the worktops.

Table 3: Chemical resistance

Chemicals	
Acetone**, CH ₃ COCH ₃	Hydrochloric acid (< 30 %), HCl
Acetic acid 10 %, CH ₃ COOH	Methanol**, CH ₃ OH
Sulphuric acid (< 60 %), H ₂ SO ₄	Perchloric acid, KClO ₄
Nitric acid (< 20 %), HNO ₃	Silver nitrate 10 %, AgNO ₃
Ethanol**, C ₂ H ₆ O	Soap free detergents
Ethyl ether**, C ₂ H ₅ O	Sodium hydroxide (< 40 %***), NaOH
Formaldehyde, CH ₂ O	Rinsing agents

** After 16 hours exposure slight lightening of the material possible

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Table 4: Not recommended chemicals

Glacial acetic acid
Acetic acid > 90 %
Phosphoric acid > 75 %

Conclusion

HYGenius worktops are specially designed to offer an optimal hygiene environment for semen processing laboratories. The variable shape and the durable surface provide a high hygienic standard and the precondition for an effective disinfection routine. Each worktop layout is individually customized for the special needs of the lab.