

Report on Compatibility of GAMA Healthcare Clinell® Sporidical  
wipes with GIPskins PPE Dartex™ fabric



## Contents

1. Background
  - 1.1 Review of chemical components
  - 1.2 Standard Dartex™ Cleaning and Care
2. Methodology
  - 2.1 Protocol Description
  - 2.2 Materials selection
  - 2.3 Assessment Criteria
3. Results
  - 3.1 Table of results
4. Conclusion

## 1. Background

Following previous work done for Gama Healthcare; Dartex Coatings Ltd were approached by Dr. Guy Braverman on 19<sup>th</sup> December, 2010

to request that the impact of Gama Healthcare’s Clinell® Sporicidal wipes on the GIPskins PPE fabric produced by Dartex be assessed. This report outlines the nature of the testing that has been carried out and gives recommendations for the suitability of this sanitising system for GIPskins PPE material.

Dartex Coatings Ltd. provides a minimum performance warranty for their coated textiles. This can range from 1 year in use to 4 years. The length of this warranty is determined by the precise nature of the product end use. As such it is important that the physical effects of the Clinell® wipes be assessed for any adverse interaction with the polyurethane coated textiles. The test procedure was designed to address this concern (see section 2.3).

### 1.1 Review of chemical components

The list of component materials in the wipes was reviewed and is summarised in Table 1. The effects are at the concentration range quoted and may worsen with build up. The build up of the components on the surface is to be expected with multiple wipes.

<b>Component</b>	<b>Conc<sup>n</sup> (%w/v)</b>	<b>CAS</b>	<b>Dartex comment</b>
Sodium carbonate peroxyhydrate	25-50	1563089-4	Inorganic peroxygen generator, addition of water produces hydrogen peroxide, peracetic acid and acetic acid.
Tetra acetyl ethylene diamine	10-25	1054357-4	Activator for ‘active oxygen’ bleaching and similar systems

Table 1- component analysis

Water will cause a slight swelling of the polyurethane surface, this is due to the slight to medium adsorption into the polyurethane. This is a temporary change as on removal of the water through drying the polyurethane will revert to its original volume.

### 1.2 Dartex Coatings Standard Cleaning and Care

For completeness this has been included to indicate that current recommended cleaning and disinfection methods. See Figure 1 Please note that this states that proprietary agent should be rinsed

and dried prior to the re use/ storage of the item. With preimpregnated wipes this is unlikely to occur and thus although the component list did not look to be a problem to the surface of the GIPskins PPE textile further analysis was required.

#### **THE CLEANING AND CARE OF POLYURETHANE COATED GIPskins PPE FABRIC FROM DARTEX COATINGS**

##### **General Guidance**

- ◆ Attention must be paid to the properties of any other materials, which may be combined with GIPskins PPE Dartex fabric in the final article (eg dimensional stability, colour fastness, washing instructions).
- ◆ Some surface wrinkling may result from cleaning procedures. This has no adverse effect on the fabric's properties.
- ◆ In washing machines, it may be difficult to wet out full GIPskins PPE. Correspondingly, spinning and tumbling may not remove water trapped between layers. It may be helpful to interrupt the washing or drying cycles to alleviate this.
- ◆ Abrasive cleaning agents should not be used.
- ◆ In addition, because of the variety of laundry equipment and conditions in use, customers should satisfy themselves that any Dartex Coating fabric, does perform as expected, in any given situation
- ◆ Customers with special requirements not covered in these notes should consult Dartex Coatings.

##### **Washing and Disinfection**

- ◆ Superficial dirt on the coating may be removed by wiping with a soft cloth moistened with water containing a neutral detergent. More persistent contamination may be treated by wiping with alcohols or turpentine substitute, followed by hot water and detergent.
  - ◆ Cleaning and disinfection in situ may be carried out on the coating with hand hot water and a neutral detergent or with a sodium hypochlorite solution (0.1% or 1000 parts per million available chlorine).
  - ◆ Proprietary disinfectants may be used provided manufacturer's instructions are followed.
  - ◆ All cleaning agents, and disinfectants, must be thoroughly rinsed off and the item dried before storage. Failure to do this may result in the accumulation of reagent that could damage the polyurethane coating, or negate the biocompatibility results of the Dartex® fabric.
- Undyed fabrics may be washed at temperatures up to 95°C (203°F), dyed up to 71° C (160°F), using normal detergents.
- ◆ However, due to the bonding in GIPskins we do not recommend this.

##### **Drying**

- ◆ It is essential that articles be thoroughly dried after all cleaning procedures and before storage.
- ◆ Drying may be effected by hanging out, spinning or tumbling at temperatures up to 130 °C (266°F). Do not mangle.

##### **Storage**

- ◆ Store in a cool, dry area. Avoid excessive pressure and contact with non-colourfast materials

Figure 1 – Standard Cleaning and Care instructions

## 2. Methodology

### 2.1 Protocol Description

In order to replicate the intended use of the wipes for the sanitising of GIPskins PPE the Clinell® wipes were applied to a range of Dartex products (see 2.2) a number of times. The test samples were wiped whilst supported on a horizontal plane using a hand applied wipe action. Each wipe was used on each of the samples, and then disposed of. After the application of each wipe the sample was allowed to dry in ambient conditions (20-25°C and 50-65% RH).

Each sample type was wiped 100 and 200 times.

The appearance of each sample was noted after the completed number of wipes.

A number of physical tests were then carried out on each sample (see section 2.3).

### 2.2 Materials Selection

The range of GIPskins PPE material supplied by Dartex was reviewed and a representative sample of each of the main product types was selected. Only products that are used polyurethane face out were included in this analysis. Products were selected for inclusion to cover the range of polymer types and gloss levels used by Dartex Coatings Ltd. P202S-0402 silver, Silver3®

P062C-0137 storm blue

Q416S-0467 dark blue

Q401S-0146 deep purple

The last two of these are supermatte and can be expected to wet differently and show any build up of residue on the surface more easily.

### 2.3 Assessment Criteria

The physical properties key in the continued performance of the GIPskins PPE Dartex fabric are

- Resistance to water penetration
- Stretch and recovery

It is also important that the aesthetic of the cover is not altered by the use of the cleaning medium.

In order to quantify the physical properties the resistance to water penetration was measured in accordance with BS3424:1990 Part 26; method 29C, and wiped samples were also made to undergo 30,000 stretch / recovery cycles at 60% extension (an internal test method), assessed optically and then re-tested for resistance to water penetration (as above).

### 3. Results

#### 3.1 Table of results

Table 2, and Table 3 show the measured results.

Quality	P202S	P062C	Q416S	Q401S
<b>Colour</b>	Silver3®	Storm blue 0137	Dark blue 0467	Deep Purple 0146
<b>Number of wipes</b>	100	100	100	100
<b>Appearance pre flex</b>	White flecks, yellower tone	White smears, slightly more matt	White smears, very slightly paler	White smears, slight blue tone
<b>Hydro on Shirley (kPa)</b>	120	120	120	120
<b>Appearance Post flex</b>	No change	No change	No change	No change
<b>Hydro on Shirley (kPa) after 30000 @ 60% flex</b>	120	120	120	120

Table 2- 100 wipe cycles

Quality	P202S	P062C	Q416S	Q401S
<b>Colour</b>	Silver3®	Storm blue 0137	Dark blue 0467	Deep Purple 0146

<b>Number of wipes</b>	200	200	200	200
<b>Appearance pre flex</b>	White flecks, yellower tone	White smears, slightly more matt	White smears, slightly paler	White smears, slightly more blue tone
<b>Hydro on Shirley (kPa)</b>	120	120	120	120
<b>Appearance Post flex</b>	No change	No change	No change	No change
<b>Hydro on Shirley (kPa) after 30000 @ 60% flex</b>	120	120	120	120

Table 3- 200 wipe cycles

The samples were dried at 110°C after the resistance to water penetration test, no colour change was noticeable

#### 4. Conclusions

- The results show that the Clinell® Sporocidal Wipes have minimal effect on the physical properties of the GIPskins PPE Dartex fabric.
- The product builds up on the coating over repeated applications. The GIPskins will require rinsing, in line with the Dartex standard Cleaning and Care instructions, at intervals to reduce the build up of the active chemicals. We are unable to comment on the impact of such materials on the biocompatibility of the GIPskins PPE Dartex fabric.
- The repeated application of the wipes altered the shade of the coating.
- During the application of the wipes, a slight swelling of the coating occurred; this was removed once the samples were dried.
- Overall the Clinell® Sporocidal Wipes can be used on GIPskins PPE Dartex fabric provided the conclusions above are noted.