

3-121-17T-H1F

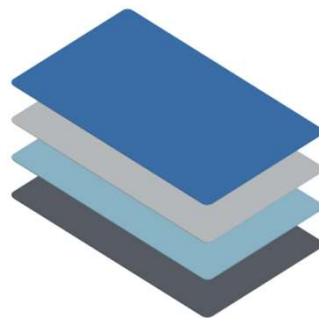
Antimicrobial Film

Product Description

3-121-17T-H1F is a 50 micron clear printable polyester material. This product incorporates PC-1000 antimicrobial topcoat which offers excellent protection against microbes and mould. The coating ensures microorganisms that cause contamination and infection, including those responsible for odours and staining are eradicated. This offers additional protection to pre-printed labels and working surfaces. The active ingredient used in the topcoat is EPA , EFSA and FDA approved and the coated product formulation conforms to all REACH requirements.

3-121-17T-H1F withstands abrasion, general cleaning agents and handling environments.

Product Construction



- 8µm PC-1000 Antimicrobial Gloss Topcoat
- 50µm Polyester Film
- 20µm Permanent Acrylic Adhesive
- 36µm Polyester Liner

Product Applications

CCL Design has created this product for use in a number of applications to help get people back to work, school and into a 'new normality'. 3-121-17T-H1F has the following key features:

- Approved by independent lab to BS EN ISO 22196 global antimicrobial standard
- Effective against a broad range of microorganisms – bacteria, virus, fungus- with reduction in microorganism of >99.9% over 24 hours
- Prevents staining from mould and algae
- Durable to cleaning chemicals and abrasion
- Acts as a complementary measure to routine cleaning by continuously killing microbial contaminants and resisting microbe growth
- Active substances used in PC-1000 topcoat has been successfully tested against fatty enveloped viruses, such as Influenza, Avian flu and SARS
- Can be used as an overlamine where printed images and text are required

3-121-17T-H1F is particularly suitable for applications where an antimicrobial laminate can enhance environmental protection from touching hard surfaces in communal areas. Examples of use can be on tables, trays, door push plates, screens, dividers and work surfaces.

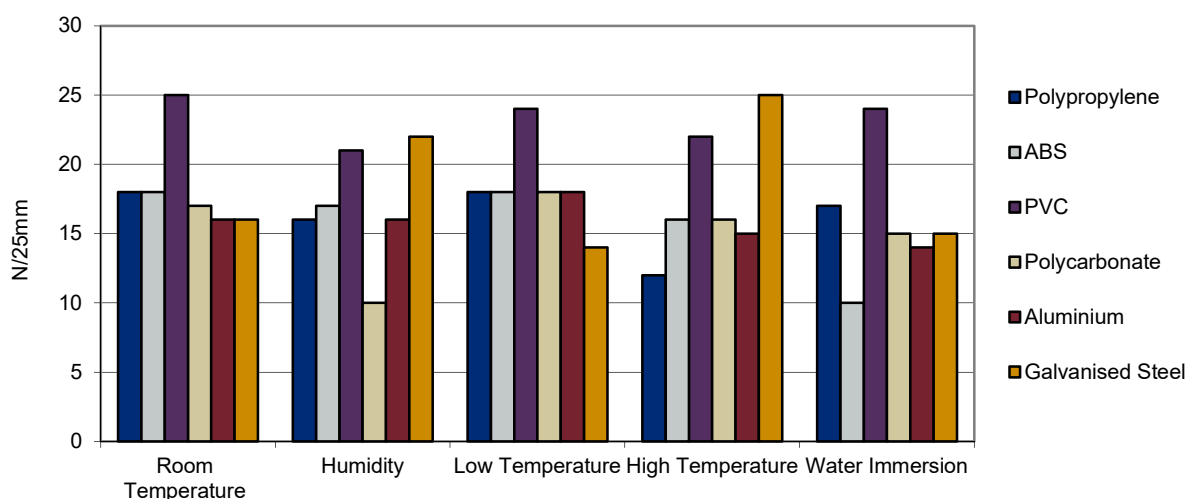
Typical Test Conditions

3-121-17T-H1F has been tested according to the following industry standards and relevant customer test specifications.

Test Type	Test Method
Normal Duty Abrasion	Taber abrader under 250g pressure for >1000 cycles using CS-8 wheels
Sutherland Rub Test	>5000 cycles using 1.8kg weight at speed 2 (42 cycles/min)
Chemical Resistance	<p>Hand rub: 30 seconds under 2kg pressure using a cloth soaked in:</p> <ul style="list-style-type: none"> - Oleic Acid - Nivea Hand Cream - Nivea Sun Cream - Vaseline Intensive Care - Johnson's Baby Oil <p>Hand rub: 500 cycles using a cloth soaked in:</p> <ul style="list-style-type: none"> - Bleach - Vinegar <p>500 cycles (50 cycles/min) under 250g weight using a cloth soaked in:</p> <ul style="list-style-type: none"> - Bleach - Vinegar
Defacement Test	10 rubs back and forth under 1kg pressure using a metal round edge
Tape Test	610 and 810 tape applied to sample. Removed after 30 seconds.
Cross-hatch Test	Etch 25 x 1mm by 1mm squares into the topcoat and apply 610 and 810 tape. Remove after 30 seconds.
Chemical Immersions	<p>>100 hours immersed in the following:</p> <ul style="list-style-type: none"> - Oleic Acid - Nivea Hand Cream - Nivea Sun Cream - Vaseline Intensive Care - Johnson's Baby Oil
Sweat Test	200,000 cycles under 500g weight in artificial sweat solution

Adhesive Performance

H1 20 micron Permanent Acrylic Adhesive
Typical properties based on 50 micron polyester



Test Condition

Room Temperature:	72 hours at standard atmosphere
Humidity:	72 hours at 40°C / 95% RH
Low Temperature:	72 hours at -40°C
High Temperature:	72 hours at 60°C
Water Immersion:	72 hours room temperature water immersion

Temperature Range

Recommended range: Up to 100°C (212°F).

Product Application The application surface should be clean and dry. In order to optimise performance, surface temperatures should be around room temperature.

Storage Conditions 3-121-17T-H1F label material and labels manufactured from this material must be stored between 20°C-28°C, below 75% RH and in sealed packaging.

Shelf Life If stored under recommended conditions, then this label material will retain it's specified performance criteria for 2 years.

RoHS Compliance This material meets European (EU) Directive 2011/65/EC on the restriction of the use of certain hazardous substances (RoHS) in electrical and electronic equipment. CCL Design can clearly state that our products do not contain halogens and heavy metals etc. in excess of the maximum concentrations stipulated.

NOTE: Product compliance is based upon information provided by independent laboratory testing of our products. CCL Design makes no independent representations or a warranty, express or implied, and assumes no liability in connection with the use of this information.

Due to EPA regulations, CCL Design makes no direct or implied claims of protecting users or providing other health benefits. The performance and suitability for use contained in this data sheet are guidelines only. The responsibility rests with the user to ensure the product performs to the desired standard to meet the specific conditions in which it will be used.

Warranty & Limited Liability Important Notice To Purchaser: All statements, technical information and recommendations herein are based on tests we believe to be reliable, but the accuracy or completeness thereof is not guaranteed, and the following is made in lieu of all warranties, expressed or implied, including the implied warranties, of merchantability and fitness for purpose: Seller's and manufacturer's only obligation shall be to replace such quantity of the product proved to be defective. Before using, user shall determine the suitability of the product for its intended use, and user assumes all risk and liability whatsoever in connection therewith. NEITHER SELLER NOR MANUFACTURER SHALL BE LIABLE EITHER IN TORT OR IN CONTRACT FOR ANY LOSS OR DAMAGE, DIRECT OR INDIRECT, INCIDENTAL, OR CONSEQUENTIAL, ARISING OUT OF THE USE OF OR THE INABILITY TO USE THE PRODUCT. No statement or recommendation not contained herein shall have any force or effect in an agreement signed by officers of seller or manufacturer.

Summary

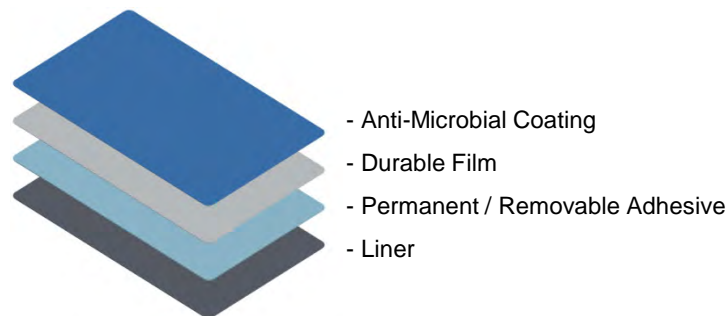
CCL Design in Scotland has developed a number of anti-microbial coatings for various applications where customers need to enhance bacterial, microbial, mould, fungal and viral protection.

The mechanism for protection is based on silver ion disruption of bacterial DNA, which kills >99.9% of microbes and prevents them hosting viral infections. As a result, the final coatings currently meet the strict anti-microbial criteria required against MRSA and E. Coli for the ISO 22196 accepted global standard as tested by independent accredited laboratories. Additional testing is underway.

Silver ion technology is a proven technique which operates from permanently embedded additives within the coating and provides continuous 24/7, anti-microbial activity over the lifetime of the coated film. This technology also avoids potential risks recently associated with nano silver and Triclosan additives.

The active components within the coatings are all EPA, FDA and EFSA registered and comply with food and skin contact regulations. These components eradicate the bacteria which cause contamination, as well as those responsible for odours and staining. The antimicrobial effect also protects the product against degradation, extending its use.

Furthermore, the active component used in these coatings has demonstrated significant antiviral activity against other fatty enveloped viruses, such as Influenza, Avian flu and SARS which are all similar surrogate viruses to COVID 19. As a result, the CCL Design coatings are currently undergoing anti-viral testing against SARS and Influenza. Although it is not yet tested for COVID 19 inhibition, at this stage it is reasonable to imply that the active component might also be effective against COVID-19.



Silver Ion Technology

Anti-Microbial Performance

Antimicrobial silver ion offers a high level of product protection by continuously inhibiting the growth of microbes on surfaces for very long periods of time. The technology will create a permanent barrier against the growth of bacteria, biofilm and moulds.

Silver ions embedded in the material substrate are released via ambient moisture and enter the cell membrane.

These silver ions then destabilise cell membrane, stop respiration and inhibit cell division, whilst blocking the replication of DNA.



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Anti-Viral Performance

Viruses depend on microbial hosts in order to be transported and remain active. By killing the host microbes, silver ion technology also helps prevent the activity and spread of viral contaminants.

E.Coli and MRSA are the most commonly tested organisms because they are classic examples of a gram positive and a gram negative bacterium. Efficacy against these bacteria is a strong indication of general coating anti-microbial performance.



Appendix

The active component in CCL Design coatings is proven to be effective against a range of bacteria, moulds and fungus, some of which are shown below. It has also been shown to inhibit and prevent the spread of fatty enveloped viruses such as Influenza, SARS and Avian Flu.

The CCL Design coatings can be tested against specific bacteria, mould, fungus and virus on request at cost from accredited test laboratories.

Bacteria

Typical test methods: JIS Z 2801:2000
ISO 22196:2011
JIS L 1902:2015
Acinetobacter calcoaceticus [IFO-13006]
Bacillus cereus [NBRC-13494]
Bacillus subtilis [NBRC-3134]
Corynebacterium xerosis [NBRC-12684]
Enterococcus faecalis [IFO-12580]
Enterococcus hirae [NBRC-3181]
Escherichia coli [NBRC-3972]
Klebsiella pneumoniae [IFO-13277]
Methicillin Resistant Staphylococcus Aureus [KB-1006]
Methylobacterium mesophilicum [IFO-15688]
Micrococcus luteus [IFO-3333]
Proteus rettgeri [IFO-13501]
Pseudomonas aeruginosa [NBRC-12689]
Salmonella enteritidis [NBRC-3313]
Serratia marcescens [IFO-12648]
Sphingomonas paucimobilis [NBRC-13935]
Staphylococcus aureus [NBRC-12732]
Staphylococcus epidermidis [NBRC-13889]
Streptococcus mutans [IFO-13955]
Streptococcus pyogenes [ATCC-19615]
Vibrio parahaemolyticus [NBRC-12711]

Mould & Fungus

Typical test methods: ASTM G21
Alternaria alternata [NBRC-31188]
Aspergillus flavus [IFO-30106]
Aspergillus niger [NBRC-6341]
Aureobasidium pullulans [NBRC-6353]
Candida albicans [IFO-1060]
Chaetomium globosum [NBRC-6347]
Cladosporium cladosporioides [NBRC-6348]
Fusarium oxysporum [NBRC-9965]
Gliocladium virens [NBRC-6355]
Paecilomyces variotii [NBRC-30539]
Penicillium citrinum [NBRC-6352]
Penicillium funiculosum [NBRC-6345]
Rhodotorula mucilaginosa [IFO-1536]
Trichophyton mentagrophytes [NBRC-6124]