Bodycote TESTING GROUP

Whites Manufacturing Limited

6820 Kirkpatrick Cres.
Saanichton,BC
Canada, V8M 1Z9

ATTN: James Griffiths

Uretek Style 3646
Polyurethane coated embossed

Test Method ASTM F 903 /F1670/71
Resistance of Materials Used in Protective
Clothing to Penetration by liquids
And Biological Fluids

Purchase Order Number: 2282

Project Number: Lab #3427-1a

Reference: Customer provided Chemical list,
DS/EN 14225- 2 and ASTM F1001

09/28/08

Prepared By: RR

APPROVED BY:

Technical Manager

TEST OBJECTIVE:

Chemical Penetration

The objective of this test is to subject a specimen to Liquid for a specified time and pressure sequence and observed for visible penetration of the liquid. If the liquid passes through the specimen, the material fails the test for resistance to penetration of the Liquid.

Biological Penetration

The objective of this test was developed to help assess the effectiveness of materials used in protective clothing for protecting the wearer against contact with body fluids that potentially contain blood-borne pathogens. These diseases, which may be caused by a variety of microorganisms, can pose significant risks to life and health. This is especially true of blood-borne, Hepatitis [Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV)] and Acquired Immune Deficiency Syndrome (AIDS) [Human Immunodeficiency Viruses (HIV)]. Since engineering controls can not eliminate all possible exposures, attention is placed on reducing the potential of direct skin contact through the use of protective clothing that resists penetration (29 CFR Part 1910.1030).

TEST PROCEDURE: ASTM F 903 Table 2, Procedure C and Biological Penetration

- 0 psig for 5 minutes followed by 2 psig (13.8 kPa) for 1 min followed by 0 psig for 54 minutes
- In the penetration test apparatus , the specimen acts as a partition separating the hazards liquids from the opposite side of the specimen. If penetration of the chemical is noted (discoloration wet areas or droplets present) the sample fails.
- Test condition 23C +/- 3 and 50% relative humidity +/- 10
- Note Procedure C, Circumstance Used for selecting protective clothing materials, seams and closures to limit exposure of Fire –service personnel to liquid splashes during emergency responses.

TEST INSTRUMENT

- CSI-122 Liquid Penetration Cell with stainless steel test cell
- Mitutoyo Caliper MII NO B 10482

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WEBSITE: www.bodycotetesting.com

TEST RESULT

Chemical Penetration

Chemical	Concentration %	Material thickness(mm)Seam	Requirements	Results
Acetone	100	2.55	No breakthrough after one hour	Pass
Acetonitrile	100	2.52	No breakthrough after one hour	Pass
Ammonia Solution	10	2.58	No breakthrough after one hour	Pass
Dichloromethane	100	2.62	No breakthrough after one hour	Pass
Diethylamine	100	2.58	No breakthrough after one hour	Pass
Dimethylformamide	100	2.67	No breakthrough after one hour	Pass
Ethyl Acetate	100	2.58	No breakthrough after one hour	Pass
N-hexane	100	2.55	No breakthrough after one hour	Pass
Methanol	100	2.55	No breakthrough after one hour	Pass
Carbon Disulphide	100	2.58	No breakthrough after one hour	Pass
Nitrobenzene	100	2.63	No breakthrough after one hour	Pass
Sodium Hydroxide	50	2.58	No breakthrough after one hour	Pass
Sulfuric Acid	50	2.60	No breakthrough after one hour	Pass
Tetrachloroethylene	100	2.63	No breakthrough after one hour	Pass
Tetrahydrofuran	100	2.58	No breakthrough after one hour	Pass
Toluene	100	2.54	No breakthrough after one hour	Pass
Isopropanol	100	2.69	No breakthrough after one hour	Pass
ISO liquid B 70% iso-octane/30% toluene	100	2.58	No breakthrough after one hour	Pass
ISO liquid F 80%paraffin oil 20% methylnaphalene	100	2.60	No breakthrough after one hour	Pass
ISO liquid C 50% iso-octane/50% toluene	100	2.63	No breakthrough after one hour	Pass
ASTM oil # 1 Paraffin oil	100	2.65	No breakthrough after one hour	Pass

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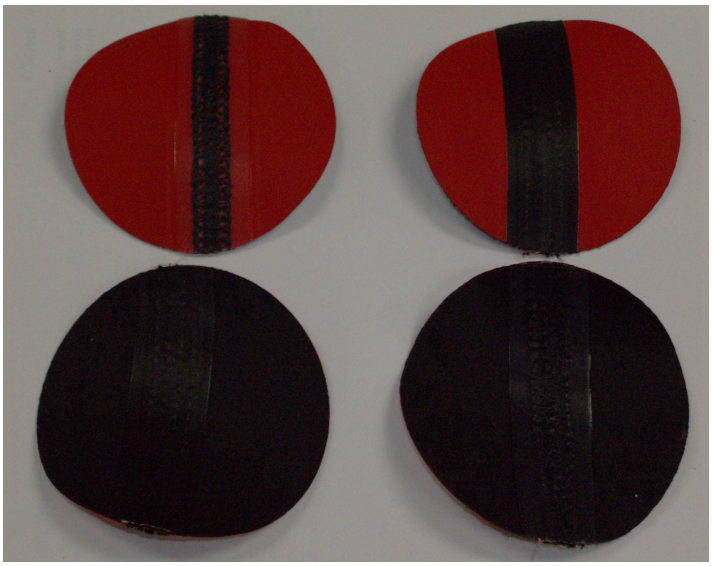
TEST RESULT

Biological Penetration

Material	Requirements	Results
Synthetic Blood	No breakthrough after one hour	Pass
Viral Simulation	No plaque development	Pass



Test sample

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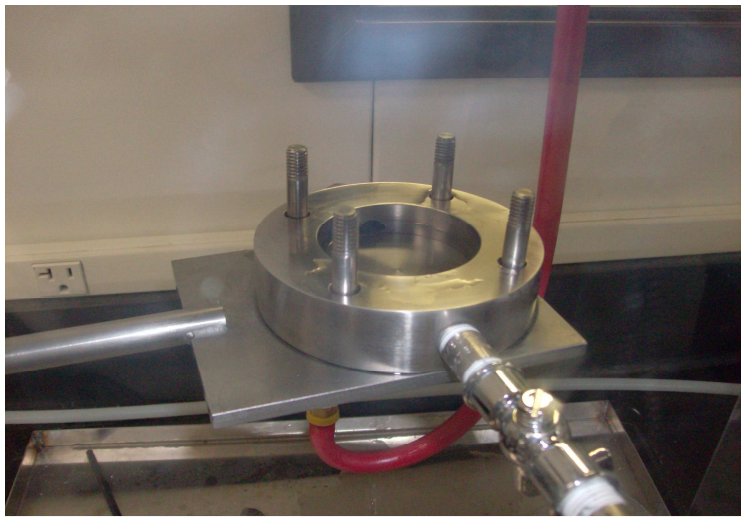

Test cell with liquid

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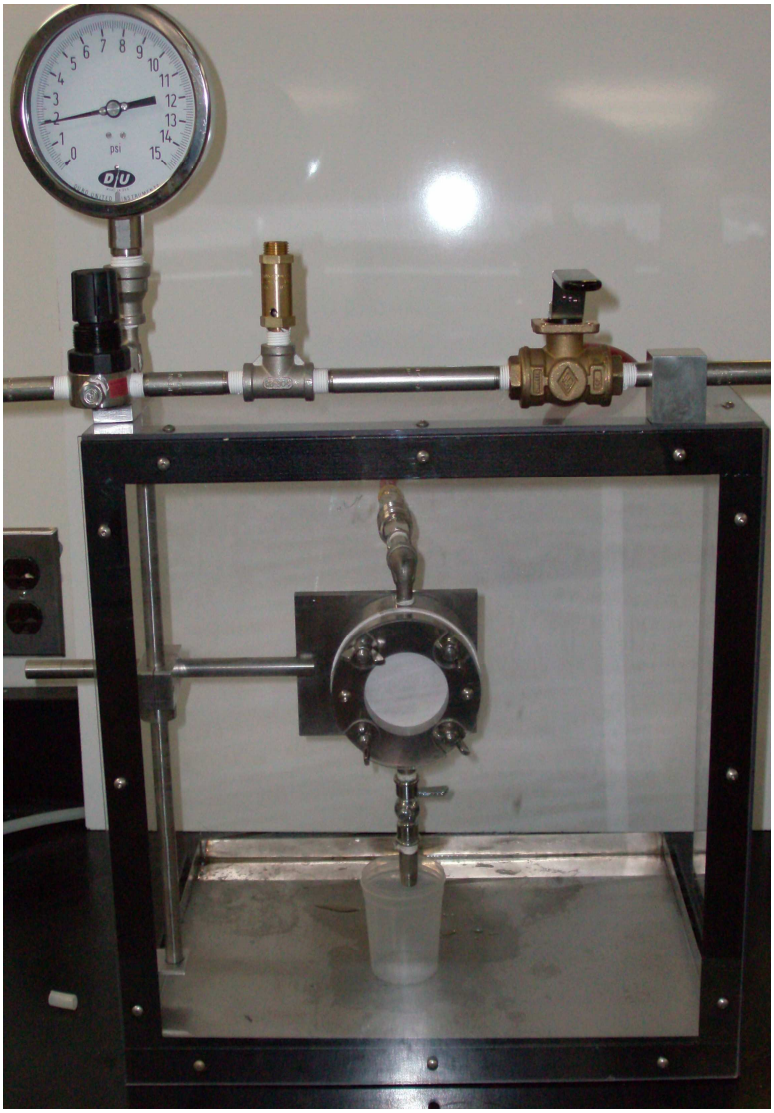

Liquid Penetration Cell

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