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# Tips for table top assessment

3M™ Cavilon™ skin care products

There is a paucity of published clinical evidence comparing the clinical outcomes found with different barrier products. In these circumstances a quick comparison of these products using the simple techniques outlined below provides important information to support decision making on choice of barrier products.

Barrier creams come into two general classes: water in oil or oil in water. Oil in water products have the advantage of rubbing onto the skin well to moisturise but are often easily displaced from the skin through contact with fluids including stool and urine. Water in oil creams feel a little oily when rubbing in but provide a superior barrier.

The following tests allow simple but relevant comparisons to be made between products.

## 1 Package opening and application – sachets

- ▶ Open a cream sachet package.  
Will it peel open or does it need to be torn, if so how does it tear? Is the cream easy to expel without runniness?
- ▶ Apply to skin – does it go on evenly and cover the skin?

## 2 Package opening and application – tubes

- ▶ Open a cream tube. Is it easy to open the lid?
- ▶ Expel a small amount. Is it easy to control the amount dispensed?
- ▶ Apply to skin. Does it go on evenly and cover the skin?

## 3 Application to hand

- ▶ Apply a small bead of cream according to manufacturer's instructions to the back of the hand and rub in.
- ▶ Leave for 30 sec.

### Observations

- ▶ How easily does it rub in?
- ▶ What does it look like after application?
- ▶ Is there any sheen on the skin to show there is a barrier there?

## 4 Skin visibility

It's important to be able to assess the skin that is exposed to incontinence for presence or severity of incontinence associated dermatitis. Some creams contain powders such as Zinc Oxide that obscure the colour of the skin.

- ▶ Spread a little on to skin according to manufacturer's instructions.
- ▶ Observe the skin. Would you be able to see reddening, for example through the product?
- ▶ Does water bead up when you splash it onto the hand where the cream was applied?

## 5 Water repellency

Properly formulated barrier creams will show a water repellency (see photo 2) when applied to the skin.

### Method

- ▶ Apply cream to back of hand according to manufacturer's instructions.
- ▶ Wait 2 min and observe feel of skin.
- ▶ Then immerse in cool water and withdraw.
- ▶ Observe for any 'beading of water' on the skin.

### Interpretation

Unlike moisturisers, barrier creams should maintain a noticeable presence on the skin. Creams that disappear quickly and completely into the skin surface are unlikely to provide a good barrier function. This can be confirmed by immersing the hand in water and observing on its withdrawal whether water beads up demonstrating water repellency.



1 Oil in water formulation



2 Water in oil formulation



## 6 Barrier wash off resistance

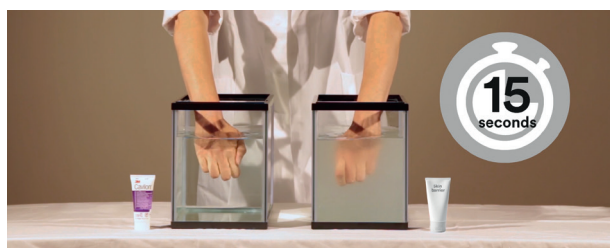
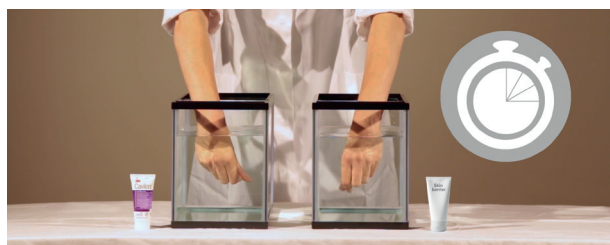
The presence of incontinence exposes skin to moisture and it is important that barrier creams do not disperse from the skin on first exposure to any liquids. Also if a residual barrier can be maintained between incontinence episodes then replacement of the barrier needs to only two to three times a day rather than every episode. Resistance to wash off is demonstrated by application to the hand and testing if the cream readily disperses in water.

### Method comparing two barrier creams

- ▶ Select two large glass containers sufficient in size to allow a hand to be swirled inside without spillage.
- ▶ Fill two thirds full with tap water.
- ▶ Apply barrier cream products to entire area of each hand according to manufacturer's instructions then immerse each hand into the separate glass containers.
- ▶ Repeatedly extend and flex fingers during 30 second period and withdraw.

### Interpretation

If the barrier cream is readily removed from the skin then this can be interpreted as readily dispersible barrier function and raises questions on its effectiveness as a barrier. It's clear that if a cream easily washes off it cannot be an effective barrier to incontinence and will require applying every incontinence episode.



Compare cloudiness

## 7 Barrier creams and adhesives

Barrier creams are often used to improve skin condition in patients, and areas of use often coincide with areas of the body subject to injury or chronic wounds. A good barrier cream should protect and restore the skin without reducing the adhesion of medical devices such as tapes and dressings.

## 8 Barrier function

All barrier creams contain a silicone material such as dimethicone that when the cream is well designed, acts as a water repellent. However in some creams the ingredients (emulsifiers) used to suspend the oil droplets in the cream cause fast penetration of water through the cream and the underlying surface. This can be demonstrated using photocopier paper and water.

### Method

- ▶ Spread 2g of product evenly over the entire area of standard A4 photocopier paper.
- ▶ Apply 1 or 2ml coloured water and leave to stand for 5 min.
- ▶ Tip off excess fluid.
- ▶ Examine front and rear of paper for strike through of the coloured water.

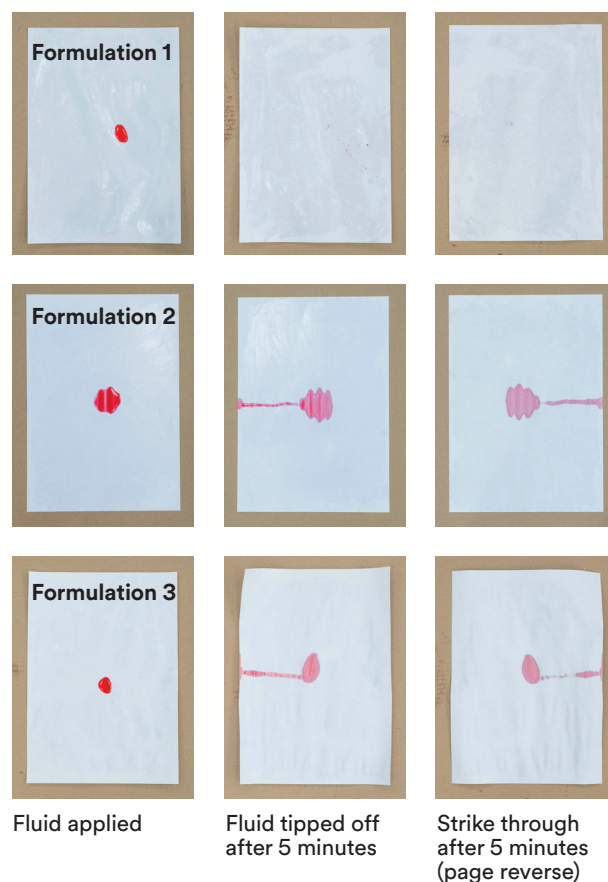
### Interpretation

The better the barrier, the fewer areas where any damp dark areas can be seen on the underside of the paper. Optionally use the following scoring scale:

### Scoring scale

- 0 = no staining of paper,
- 1 = low staining over small area of paper
- 2 = staining over less than 25% of paper
- 3 = substantial staining and saturation of paper with water

### Typical example



Barrier films come into two types: Those with plasticiser and those without. Plasticised films have greater flexibility and tend to be more durable than those without. The following tests allow simple but relevant comparisons to be made between products.

## 1 Package opening and application – wands

- ▶ Open a 1ml wand package. Will it peel open or does it need to be torn, if so how does it tear? Is the fluid essentially contained in the wand or some loose in the package. How much are you missing out on?
- ▶ Apply to skin. Does it go on evenly and dry quickly?

An effectively packaged barrier film will be easy to open with no loose film in the packaging, whilst facilitating aseptic handling requirements.

## 2 Package opening and application – sprays

- ▶ Remove cap from the spray. Easy to remove?
- ▶ Take an A5 piece of paper and apply one spray from recommended distance. Is the spray atomised evenly? Does it look even on the paper?
- ▶ Spray to entire area. How long does this take? How many depressions?

An effectively packaged barrier film spray should spray uniformly and be able to spray at any angle either directly (aerosol) or indirectly (pump and prime technique).

## 3 Drying time and tackiness

- ▶ Apply the barrier film to the inside of the arm using a 1ml wand, covering approx. 2cm by 5cm.
- ▶ Next apply to fingertips of the opposite arm.
- ▶ Leave for 30 seconds (recommended drying time for all barrier films).
- ▶ Press fingertip to film on arm and feel for tackiness/adhesion/skin pulling as you separate the two skin surfaces. Indicates suitability to use between buttocks and in skin folds.

An effective barrier film will dry within 30 seconds, leaving no tacky residue.



## 4 Barrier durability

Laboratory assessments of no sting barrier film durability are based on covering pigment or dye marks on skin with a consistent application of the barrier films and measuring colour erosion over time with a colour measuring instrument called a chromometer.

- ▶ Outside the laboratory this approach can be simply reproduced by applying black ballpoint pen marks to the back of the hands (e.g. write the first letter of the product names).
- ▶ Apply the barrier film over the pen mark using a 1ml wand applied with a single swipe over the skin.
- ▶ Allow to dry.
- ▶ Wash hands as normal and monitor the erosion of the colour twice a day.

An effective barrier film will have a wear time that provides long-term protection without the need for constant re-application (e.g. under dressings to prevent medical adhesive-related skin injuries (MARSI) and peri-stomal skin protection).



Time = zero, 5 minutes after application of Barrier Films A and B over the pen marks



Time = after second hand wash (2 hours), note fading on Barrier Film B



Time = after 4 hand washes, very little pen mark remains where Barrier Film B was applied

## 5 Barrier films and adhesives

Barrier films are often used to improve the condition of the skin in patients, and areas of use often coincide with areas of the body subject to injury or chronic wounds.

An effective barrier film should protect the skin without reducing the adhesion of medical devices such as tapes and dressings.

## 6 Friction

Friction can create superficial skin injuries and it can also be a contributing factor to pressure ulcer development. This is problematic in any location where skin surfaces rub together or against bed linen or clothing.

An effective barrier film will minimise frictional forces.

### Your test results

Test

Product tested

Notes and results

Test

Product tested

Notes and results

Test

Product tested

Notes and results

Test

Product tested

Notes and results



**3M United Kingdom PLC**  
3M House  
Morley Street  
Loughborough  
Leicestershire LE11 1EP  
+44 (0)1509 611 611

**3M Ireland Limited**  
The Iveagh Building,  
The Park, Carrickmines,  
D18 X015  
Ireland  
+353 (0)1 280 3555

**[www.3M.co.uk/cavilon](http://www.3M.co.uk/cavilon)**

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