3M | Dermatac™
Drape

3M™ Dermatac™ Drape

Product Monograph

Table of contents

Introduction

Wound care has evolved from using dry gauze products to the more frequent use of advanced modalities. These modalities often utilize medical adhesive to help secure the products to the wound through direct contact with the periwound skin. Periwound skin may become fragile as the increased use of medical adhesives during wound care can lead to higher risk for the development of medical-adhesive related skin injury (MARSI).[1] MARSI can cause pain, increase the risk of infection, and delay healing.[2] Additionally, treatment of MARSI results in increased patient care requirements along with the associated costs.[3]

Two advanced modalities used in wound care are 3M™ V.A.C.® Therapy, a clinically proven negative pressure wound therapy (NPWT) system that provides continuous negative pressure to the wound, and 3M™ Veraflo™ Therapy, which combines the benefit of instillation and dwell of topical wound solutions with the advantages of 3M™ V.A.C.® Therapy Systems. During application, both V.A.C.® Therapy and Veraflo Therapy require the use of an adhesive drape to secure the foam dressings in place and provide a negative pressure seal. This drape makes direct contact with the surrounding periwound skin and is removed when a new drape is applied at every dressing change. Previously, both V.A.C.® Therapy and Veraflo Therapy utilized a traditional acrylic drape. Historically, traditional acrylic drapes have been associated with providing the needed occlusive seal for negative pressure but with the trade-off that its use can cause MARSI and its removal has been associated with pain during dressing changes. Traditional acrylic drape is unable to be repositioned once applied and easily sticks to gloves or itself increasing waste and other inefficiencies. Additionally, patients who have sensitive skin may have an increased risk of premature cessation of therapy or risk of not receiving NPWT when using the traditional acrylic drape, which can contribute to delayed wound healing.[4] An acrylic-silicone hybrid drape, 3M™ Dermatac™ Drape, has been developed to be gentler on skin while maintaining a robust negative pressure seal.

3M™ Dermatac™ Drape description

Dermatac Drape (**Figure 1**) is a semi-occlusive wound drape used as an accessory to the V.A.C.® Therapy and Veraflo Therapy Systems. Dermatac Drape is a single-use, sterile covering that provides a sealed environment for delivery of these therapies and allows for a moist wound environment.

The drape consists of a polyurethane film with acrylic adhesive with a perforated silicone layer. The perforations in the silicone layer expose the acrylic adhesive coated on the polyurethane film. The acrylic adhesive secures the drape to the periwound skin, thus creating a sealed wound environment while the silicone layer allows for repositionability during the initial placement and reduced pain at dressing changes. Dermatac Drape can conform to different anatomical locations without loss of the negative pressure and instillation seal. This conformability also helps improve patient comfort during wear.

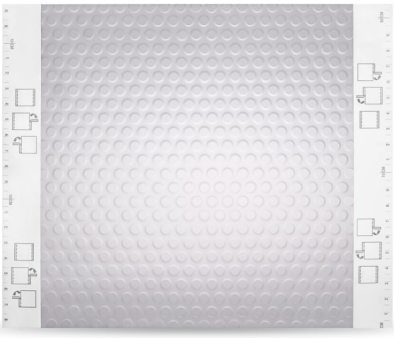

Figure 1. 3M™ Dermatac™ Drape, a novel hybrid drape that combines the benefits of both silicone and acrylic adhesive.

Indications for use

It is important to read and follow all instructions and safety information prior to use for any NPWT device. Please refer to product instructions for use for detailed safety information.

Dermatac Drape is an accessory to the following 3M™ V.A.C.® Therapy Systems:

- 3M™ ActiV.A.C.™ Therapy System, 3M™ V.A.C.® Simplicity Therapy System, and 3M™ V.A.C.® Via Therapy System, which are integrated wound management systems for use in acute, extended, and home care settings
- The 3M™ V.A.C.® Ulta Therapy System and 3M™ V.A.C.® Rx4 Therapy System, which are integrated wound management systems for use in acute care settings and other professional healthcare environments where product use is conducted by or under the supervision of a qualified health care professional

When used on open wounds, these systems are intended to create an environment that promotes wound healing by secondary or tertiary (delayed primary) intention, by preparing the wound bed for closure, reducing edema, promoting granulation tissue formation and perfusion, and by removing exudate and infectious material. Open wound types include: chronic, acute, traumatic, subacute and dehisced wounds, partial-thickness burns, ulcers (such as diabetic, pressure or venous insufficiency), flaps, and grafts.

When used on closed surgical incisions, they are intended to manage the environment of surgical incisions that continue to drain following sutured or stapled closure by maintaining a closed environment and removing exudates via the application of negative pressure wound therapy.

The 3M™ Dermatac™ Drape is also an accessory to 3M™ Veraflo™ Therapy (instillation) provided by the 3M™ V.A.C.® Ulta Therapy Unit.

Veraflo Therapy is indicated for patients who would benefit from vacuum assisted drainage and controlled delivery of topical wound treatment solutions and suspensions over the wound bed and is indicated for patients with chronic, acute, traumatic, sub-acute and dehisced wounds, partial-thickness burns, ulcers (such as diabetic, pressure or venous insufficiency), flaps, and grafts.

Warnings, precautions, and limitations

Do not use Dermatac Drape over the open abdomen or with 3M™ AbThera™ Open Abdomen Negative Pressure Therapy. Use over the open abdomen may result in the inability to maintain a negative pressure seal.

The Dermatac Drape has an acrylic adhesive coating and a silicone layer, which may present a risk of an adverse reaction in patients who are allergic or hypersensitive to acrylic adhesives or silicone. If any signs of allergic reaction or hypersensitivity develop, such as redness, swelling, rash, urticaria or significant pruritus, discontinue use and consult a physician immediately. If bronchospasm or more serious signs of an allergic reaction appear, seek immediate medical assistance.

Literature Review

3M™ V.A.C.® Therapy with 3M™ Dermatac™ Drape

Nine case study publications have reported on the use of V.A.C.® Therapy in 85 patients with a variety of wounds including traumatic, surgical wound dehiscence, pressure injury, arterial insufficiency ulcer, amputation, and diabetic foot ulcer. These publications are summarized in **Table 1**.

Fernández et al[5] (2020) reported on their initial experience using V.A.C.® Therapy with Dermatac Drape in 6 patients with anatomically challenging wounds. Dermatac Drape was easily able to be repositioned 1-2 times during the initial placement without irritation in 4 out of 6 patients. By the second or third dressing change, ancillary products to help maintain a negative pressure seal were discontinued. Dermatac Drape should be large enough to cover the foam dressing and an additional 5-7 cm of intact periwound skin to help maintain a negative pressure seal. Negative pressure leaks were not observed for any drape application.[5]

Greenstein et al[6] (2021) reported on the use of V.A.C.® Therapy with Dermatac Drape in 4 patients with periwound skin breakdown. Initially, the 4 patients received V.A.C.® Therapy using the traditional acrylic drape. However, after 2 days, mild to moderate periwound skin breakdown was observed in all 4 patients. As the wounds still required the use of V.A.C.® Therapy, the drape was changed to Dermatac Drape. All 4 patients showed significant periwound skin improvement with reduced erythema and irritation after the first dressing change. Patients also reported a decrease in pain upon drape removal when Dermatac Drape was used.[6]

A case study by Harrison[7] (2019) utilized V.A.C.® Therapy with Dermatac Drape in 3 patients with a pressure injury or wound dehiscence. Dermatac Drape use was initiated after periwound skin irritation was noted with the traditional acrylic drape. Periwound skin medical adhesive-related skin injury and pain during dressing changes were reduced with the use of Dermatac Drape. Additionally, Harrison reported that Dermatac Drape was able to be repositioned upon first application.[7]

Speyrer and Thibodeaux[8] (2019) utilized V.A.C.® Therapy with Dermatac Drape in 5 patients with mixed wound etiology. The authors reported that application and reposition of Dermatac Drape at first placement was easily accomplished and resulted in reduced clinical time required for V.A.C.® Therapy placement. Additionally, patient reported pain during dressing changes was reduced with Dermatac Drape.[8]

In 2019, the initial clinical observations from V.A.C.® Therapy with Dermatac Drape use in diabetic foot ulcers, pressure injuries, superficial abdominal wounds, or use over skin grafts were examined by Galarza[9] (2019). In 17 patients, the negative pressure seal was maintained without leaks for 48 hours in all 53 drape applications. In 40 of these applications, no extra drape reinforcement at initial placement was needed to maintain the negative pressure seal. In the drape application where leaks were detected, wrinkles within the Dermatac Drape were able to be smoothed in order to achieve an optimal negative pressure seal. No signs of periwound skin irritation or maceration were observed in any of the 17 patients.[9]

Gabriel et al[10] (2019) reported that in 3 patients with skin grafts or flaps, the use of V.A.C.® Therapy with Dermatac Drape was associated with minimal pain during drape removal (average 0.8, range 0–1). In these patients, use of V.A.C.® Therapy with Dermatac Drape contributed to help support skin graft or flap take without any complications.[10]

Desvigne et al[11] (2019) utilized V.A.C.® Therapy with Dermatac Drape in 5 patients. Immediately after each drape removal, 3/5 patients reported a pain level of 0. Periwound skin irritation was not observed in any patient. Dermatac Drape was gentle enough to be used in a patient with an autoimmune disorder, who would not normally receive V.A.C.® Therapy due to skin fragility and compromised immune status, without any complications.[11]

Napolitano[12] (2019) reported on the use of V.A.C.® Therapy with Dermatac Drape in 5 patients with lower extremity wounds. Patients noted reduced pain and more comfort during wear with Dermatac Drape compared to traditional acrylic drape. The author noted that the drape was able to be placed over delicate periwound skin without any irritation or complications.[12]

Kharkar P et al[13] (2019) performed a retrospective assessment of 46 3M™ Dermatac™ Drape removals by 10 health care professionals. The overall mean pain score after removal of Dermatac Drape was 2.23 ± 2.2 out a 10-point visual analog scale.

Table 1. 3M™ V.A.C.® Therapy with 3M™ Dermatac™ Drape literature review

Author	Study type and patients	Results/conclusions
Fernández et al[5] (2020)	• Case series of 6 patients with wounds in anatomically challenging areas • Wound types included trauma, abscess, infected graft site, and amputation	• 3M™ Dermatac™ Drape was able to be repositioned 1-2 times without periwound skin irritation in 4/6 wounds • No negative pressure seal leaks occurred • Dermatac Drape should be cut large enough to cover the wound, foam dressing, and have a 5-7 cm border over intact periwound skin • Ancillary products were not needed to maintain the negative pressure seal
Greenstein[6] (2021)	• A case series of 4 patients with periwound skin breakdown • Wound types included pressure injury and surgical wound	• All 4 patients showed significant periwound skin improvement • A decrease in pain with dressing removal was observed in all 4 patients
***Harrison[7] (2019)**	• A case series of 3 patients • Wound types included pressure injury and surgical wound dehiscence	• 3M™ Dermatac™ Drape could be repositioned • Patient pain during dressing changes was reduced
***Speyrer et al[8] (2019)**	• A case series of 5 patients • Wound types included surgical wound dehiscence, arterial insufficiency ulcer, and abscess	• 3M™ Dermatac™ Drape application and reposition was easily accomplished • Pain at dressing replacement was reduced • Ease of drape application reduced clinician time required for VAC® Therapy placement
†Galarza et al[9] (2019)	• Dermatac Drape use evaluated in 17 patients • Wound types included diabetic foot ulcer, skin graft, pressure injury, abdominal wound, and surgical wound	• In 40/53 drape applications, the negative pressure seal was maintained without the need of drape reinforcement • Patients reported no pain during drape removal • No signs of maceration or irritation were reported
***Gabriel et al[10] (2019)**	• A case study of 3 patients • Wound types included acute or trauma wounds	• Pain after drape removal averaged 0.8 (range 0-1 on the Visual Analog Scale of 10 points) • Skin graft and flap take were reported as 100% in all 3 patients
***Desvigne et al[11] (2019)**	• A case study of 5 patients • Wound types included surgical dehiscence, acute wound, pressure injury, and graft rejection	• A pain score of 0 was reported in 3/5 patients at dressing changes. • Periwound skin irritation was not observed • 3M™ Dermatac™ Drape was used in a patient with autoimmune disease and fragile skin, who is not normally a candidate for NPWT, without periwound skin breakdown
***Napolitano[12] (2019)**	• A case series of 5 patients with lower extremity wounds • Wound types included surgical dehiscence, amputation, and surgical wound	• 3M™ Dermatac™ Drape was used for a mean of 22.2 days (range: 9-31) • The wounds demonstrated increased granulation tissue development and reduction in wound volume • At dressing changes, reduced pain was reported • Dermatac Drape was easy to apply and readjust at initial placement • Use of Dermatac Drape was reported to improve the ease of dressing changes • Dermatac Drape was applied over fragile periwound skin without irritation • The maximum pain score during dressing changes was 3/10
†Kharkar et al[13] (2019)	• A case series of 35 patients • Wound types included trauma, surgical dehiscence, pressure injury, venous leg ulcer, arterial ulcer, and diabetic foot ulcer	• Pain upon drape removal was reported as a mean pain score of 2.23 ± 2.2 compared to 3.04 ± 3.0 before drape removal

* denotes author is a paid consultant for 3M
† denotes author is an employee of 3M

3M™ Veraflo™ Therapy with 3M™ Dermatac™ Drape

Six case series have reported on the use of Veraflo Therapy in 16 patients with a variety of wounds including traumatic, surgical wound dehiscence, pressure injury, burn wound, and necrotizing fasciitis. These publications are summarized in **Table 2**.

Kalos[14] (2022) documented the use of Veraflo Therapy using 3M™ Veraflo Cleanse Choice™ Dressing and Dermatac Drape in 3 patients with a non-healing amputation wound or pressure injuries. Dermatac Drape easily conformed to difficult anatomical areas and was able to maintain a negative pressure and instillation seal.[14]

Fernández et al[15] (2021) presented their initial clinical experience with the use of Veraflo Therapy and Dermatac Drape in 3 patients with large wounds. In all patients, the negative pressure and instillation seal remained intact between dressing changes. No periwound skin irritation was observed and patients reported no pain during Dermatac Drape removal.[15]

In 2021, Obst[16] reported that the use of Dermatac Drape allowed for the healing of periwound skin while providing Veraflo Therapy. All patients noted that the Dermatac Drape was comfortable for day-to-day wear and provided flexibility during movement. Additionally, minimal pain was reported with removal and repositioning of the Dermatac Drape.[16]

In 3 patients with mixed wound types, Greenstein[17] (2021) utilized Veraflo Therapy with Dermatac Drape which was able to be repositioned after the initial placement, was easily removed without pain at dressing changes, and maintained a negative pressure and instillation seal. None of the patients developed periwound skin irritation.[17]

Napolitano[18] (2021) reported that Dermatac Drape adequately created a negative pressure and instillation seal around an anatomically difficult area when used with Veraflo Therapy in a patient with a non-healing superficial wound subsequent to total knee arthroplasty. Dermatac Drape was easily able to be repositioned after the initial placement and the gentle silicone-acrylic adhesive provided improved patient comfort during dressing changes.[18]

Desvigne et al[19] (2021) detailed their experience with Veraflo Therapy using Dermatac Drape in 3 patients with lower extremity wounds. No negative pressure or instillation leaks occurred during therapy. Dermatac Drape was well tolerated with no pain during drape removal and no periwound skin irritation in any patient. In the patient that switched from traditional acrylic drape, pain relief and resolution of periwound skin irritation was reported when Dermatac Drape use was initiated.[19]

Table 2. 3M™ Veraflo™ Therapy with 3M™ Dermatac™ Drape literature review

Author	Study type and patients	Results/conclusions
***Kalos[14] (2022)**	• A case series of 3 patients • Wound types included traumatic wound, non-healing surgical wound, and pressure injury	• 3M™ Dermatac™ Drape easily conformed to difficult anatomical areas • A negative pressure and instillation seal was maintained
***Fernández et al[15] (2021)**	• A case series of 3 patients • Wound types included traumatic wound, burn wound, and pressure injury	• In all patients, 3M™ Dermatac™ Drape maintained a negative pressure and instillation seal • No periwound skin irritation or pain at dressing changes were observed
***Obst et al[16] (2021)**	• A case series of 3 patients • Wound types included necrotizing fasciitis, infected abdominal wall seroma, and surgical dehiscence	• 3M™ Dermatac™ Drape created a negative pressure and instillation seal without leaks • Reduced periwound skin irritation was observed with Dermatac Drape use • Minimal pain was reported during dressing changes with drape use • All patients felt that the Dermatac Drape was comfortable for day-to-day wear and provided flexibility
***Greenstein[17] (2021)**	• A case series of 3 patients • Wound types included surgical wound, surgical wound dehiscence, and necrotizing fasciitis	• 3M™ Dermatac™ Drape was able to be repositioned after the initial placement • No negative pressure or instillation leaks were observed • Dermatac Drape was easily able to be removed without patient reported pain • No periwound skin irritation was observed in any of the 3 patients
***Napolitano[18] (2021)**	• A single patient case study of a non-healing total knee arthroplasty wound	• 3M™ Dermatac™ Drape adequately created a negative pressure and instillation seal around an anatomically difficult area • The drape was easily able to be repositioned after initial application • The gentle silicone-acrylic adhesive provided patient comfort during dressing changes
***Desvigne et al[19] (2021)**	• A case series of 3 patients • Wound types included venous stasis ulcer, wound secondary to graft versus host disease, and a non-healing surgical wound	• No negative pressure or instillation leaks occurred • 3M™ Dermatac™ Drape was well tolerated with no pain during drape removal • No periwound skin irritation was observed in any patient • Pain relief and resolution of periwound skin irritation was reported in the patient that switched from traditional acrylic drape to Dermatac Drape

* denotes author is a paid consultant for 3M

Science supporting 3M™ Dermatac™ Drape

Dermatac Drape is an accessory to 3M™ V.A.C.® Therapy and 3M™ Veraflo™ Therapy Systems and has the same intended use and similar indications as traditional acrylic drape. However, compared to other NPWT drapes in the market, Dermatac Drape utilizes an acrylic adhesive with a perforated silicone layer. As such, several analyses were conducted to evaluate the properties of the Dermatac Drape. Results of the preclinical studies have not yet been verified in human trials.

Performance bench testing

Dermatac Drape underwent performance bench testing to examine the force required to remove the drape, peel adhesion with re-application force testing, moisture vapor transmission rate, and maintenance of a negative pressure seal. The negative pressure performance bench testing was conducted using simulated wound exudate, maximum air leak rate, worst case dressing configuration and for the maximum use life of the dressings. It also included a re-application cycle to demonstrate that the drape is capable of being applied, lifted, and re-applied. The results documented that the Dermatac Drape is capable of maintaining negative pressure and meeting peel adhesion after multiple re-applications and removals within specification. In all instances, Dermatac Drape functioned as intended, and all test results were as expected.

Preclinical and animal studies

Preclinical bench testing

Bench testing was utilized to assess the ability of Dermatac Drape to be repositioned and to maintain a seal in a simulated NPWT model. Reposition testing included placing a Dermatac Drape strip (n=30) on a stainless steel plate and manually removing and replacing the drape strip 4 times. Results reported an approximately 10% decrease in the peel force required to remove Dermatac Drape when it was applied, removed, and re-applied compared to Dermatac Drape that was applied once.[20] This finding illustrates the ability of Dermatac Drape to be removed and repositioned during the initial placement while minimizing the risk of skin damage. To test the ability of Dermatac Drape to maintain a negative pressure seal, Dermatac Drape along with a reticulated open cell foam dressing were applied onto an acrylic test plate.

Negative pressure was intermittently applied for 1 minute on and 1 minute off at -200 mmHg for 72 hours. This bench testing revealed that Dermatac Drape was able to secure a negative pressure dressing onto an acrylic test plate with intermittent negative pressure at -200 mmHg for up to 72 hours while maintaining a negative pressure seal in temperatures ranging from 5°C to 40°C and relative humidity ranging from 15% to 93%.[20] Additionally, Dermatac Drape was compared to an all silicone commercially available drape for the ability to maintain adhesion under dry and wet conditions.[21] The test drapes were attached to a vertical acrylic plate and a 20 g weight was applied to simulate a tube set hanging from the dressing. Movements of the drape fold were assessed every 3 minutes for a total of 21 minutes. For the wet conditions, 21.6 L/hour of water was applied to the drapes.[21] Dermatac Drape was able to maintain adherence under both dry and wet conditions (**Figure 2**).

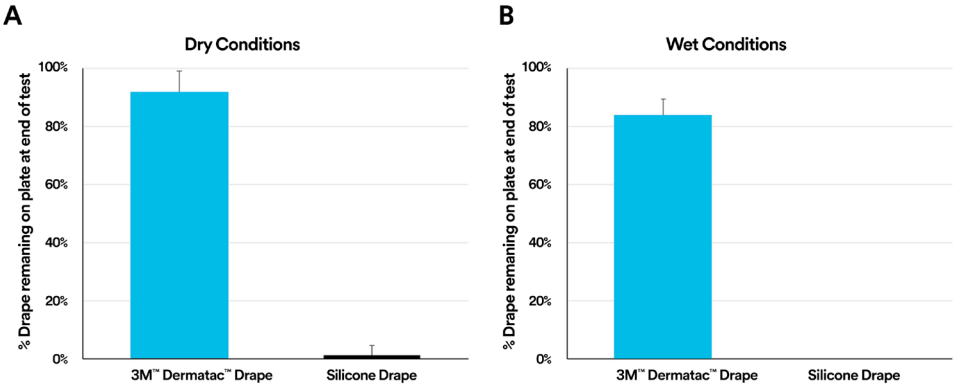

Figure 2. Drape adherence under dry (A) and wet (B) conditions.

To more fully understand how 3M™ Dermatac™ Drape removal affects skin deformation and strain, finite element analysis (FEA) modeling was conducted. Initially an adhesive removal model that mimics skin was used to generate peel force values and examine deformation of the model. Dermatac Drape or traditional acrylic drapes were placed on the skin mimic and a high-speed camera captured the drape removal while the 180-degree peel force was measured. FEA models of the drapes and drape removal were created based on the mechanical test data and peel force data. The maximum principal strain was lower with the Dermatac Drape compared to the traditional acrylic drape (**Figure 3**).

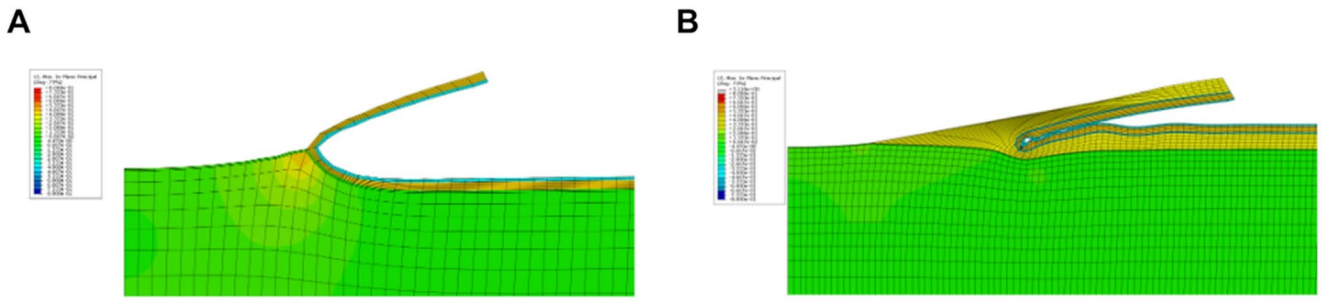

Figure 3. Finite element analysis model of peel force strain for traditional acrylic drape (A) and 3M™ Dermatac™ Drape (B).

Partial thickness animal wound model

A partial thickness animal wound model was performed in swine to assess the effect of Dermatac Drape usage on re-epithelialization. Split-thickness wounds (n=3 for each treatment group) were created on the dorsum of swine for a 5 day study per an Institutional Animal Care and Use Committee approved protocol. Group 1 received Dermatac Drape on Day 0 and underwent a dressing change on Day 3. Group 2 received Dermatac Drape on Day 0 and the dressings remained in place for the duration of the study. At the end of the study, the wounds were assessed for re-epithelialization using histomorphometry. Re-epithelialization of 97.1% (Group 1) and 94.0% (Group 2) was achieved by day 5 of Dermatac Drape use (**Figure 4**).[20]

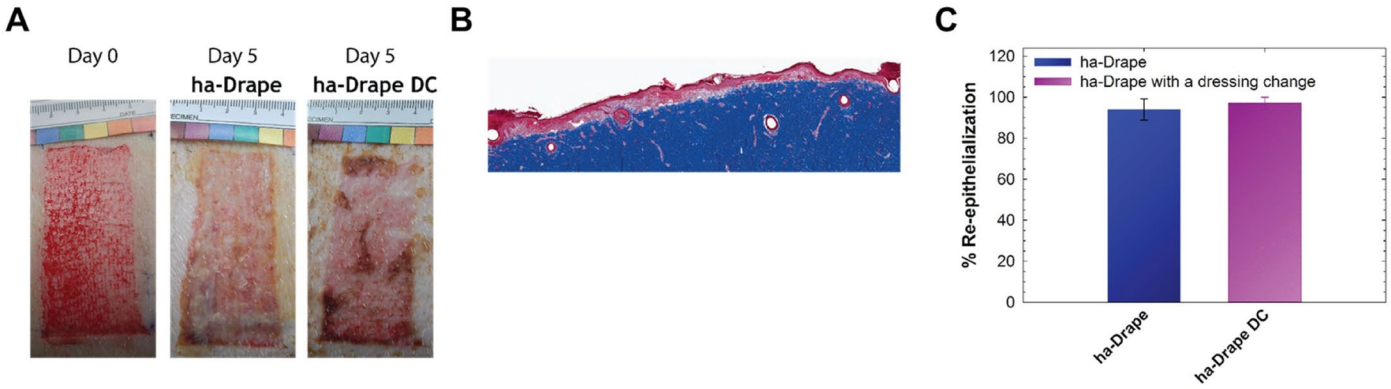

Figure 4. Results of the partial-thickness animal wound model. A. Representative images at Day 0 and Day 5 with (ha-Drape DC) and without (ha-Drape) a dressing change on Day 3; B. Representatives Mason's trichrome stained image; C. Quantified percentage of re-epithelialization after 5 days. N=3; mean ± standard error.

Healthy human study

A healthy human study from Kharkar et al examined the ability to maintain a negative pressure seal. Results demonstrated that 3M™ Dermatac™ Drape had the ability to maintain a negative pressure seal for 72 hours in 35 healthy human subjects. Additionally, the force required to remove the Dermatac Drape was significantly lower than that required to remove the traditional acrylic drape.[23]

Another healthy human study was performed to assess how removal of the Dermatac Drape affected the skin compared to the traditional acrylic drape. A total of 44 healthy human volunteers were enrolled in the study. Strips of Dermatac Drape were placed on the volar forearms and transepidermal water loss, development of erythema and edema, skin stripping/denudation, lift, pain upon drape removal, bicinchoninic acid (BCA), and IL-1α (an inflammatory cytokine) production were assessed. The drape strips were removed and replaced with new strips every 2-3 days for a total of 5 times. Transepidermal water loss (an assessment of skin integrity) was measured at baseline and after every drape removal. BCA analysis examined the amount of protein removed from the skin after the first and fifth drape removal. IL-1α was measured using the fifth drape. Pain upon dressing removal was assessed using a 100 mm long visual analogue scale. Less transepidermal water loss was associated with the Dermatac Drape indicating that the stratum corneum and the upper layers of the epidermis remained intact without damage. Erythema, edema, and skin stripping/denudation were similar between all drapes. However, reduced pain upon removal was observed with the Dermatac Drape. Additionally, levels of BCA and IL-1α were reduced in samples from Dermatac Drape removal compared to the traditional acrylic drape.[24]

Case studies

The following case studies are the results of HCP's clinical experience. As with any case study, the results and outcomes should not be interpreted as a guarantee or warranty of similar results. Individual results may vary depending on the patient's circumstances and condition.

3M™ V.A.C.® Therapy with 3M™ Dermatac™ Drape case studies

Case study 1

Management of a lower extremity arterial ulcer using 3M™ V.A.C.® Therapy with 3M™ Dermatac™ Drape

Marcus S. Speyrer,* RN, CWS The Wound Treatment Center, LLC, at Opelousas General Health System; Opelousas, LA, USA

Patient

A 71-year-old female presented with a 13-month-old arterial ulcer of the left lower extremity. The patient had several comorbidities, including a BMI of 36.2 kg/m^2, peripheral vascular disease, and diabetes mellitus. Previous treatments included surgical and non-surgical wound debridements, followed by the placement of various types of advanced wound dressings.

Diagnosis

At presentation to the wound care clinic, the wound measured 7.8 × 3.8 × 0.5 cm^3 (**Figure 1**).

Course of treatment/application of 3M™ V.A.C.® Therapy with 3M™ Dermatac™ Drape

After initial debridement, V.A.C.® Therapy was applied continuously at -125mmHg using 3M™ V.A.C.® Granufoam™ Dressing and Dermatac Drape, and oral antibiotics were administered. The foam dressing and drape were changed every 2-3 days, and the wound was assessed for granulation tissue formation weekly. After 10 days of V.A.C.® Therapy, the wound measured 8.8 × 5.6 × 0.3 cm^3, and there was an improvement in granulation tissue formation within the wound bed. V.A.C.® Therapy using the dressing and Dermatac Drape was then re-applied and continued (**Figure 2**). There continued to be an improvement in wound bed granulation tissue at 28 days (**Figure 3**) and at 49 days, when the wound had 90% healthy tissue granulation, medium exudate levels, and no complications (**Figure 4**).

Discharge and follow-up

After 49 days, V.A.C.® Therapy was discontinued, and the patient was transitioned to wound treatment using 3M™ Promogran Prisma™ Collagen Matrix with ORC and Silver.

At each dressing change, the patient reported minimal pain related to the removal of the Dermatac Drape (0 using the Global Pain Scale of 0 to 10), and the patient required no pain medication within 1 hour of any drape change.

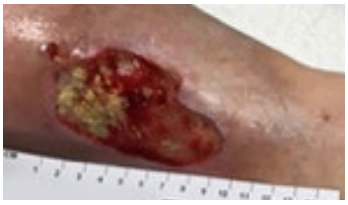

Figure 1. Left lower extremity arterial ulcer at presentation.

Figure 2. Wound on Day 10 after re-application of 3M™ VAC® Therapy using 3M™ VAC® Granufoam dressing and 3M™ Dermatac™ Drape.

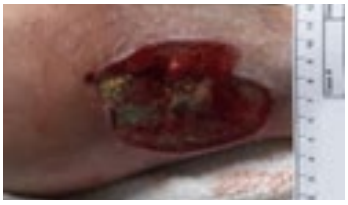

Figure 3. Wound on Day 28 of dressing change.

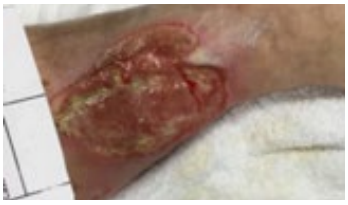

Figure 4. Wound after 49 days of 3M™ VAC® Therapy using 3M™ VAC® Granufoam dressing and 3M™ Dermatac™ Drape.

* denotes author is a paid consultant for 3M

Case study 2

Management of right foot dehiscence using 3M™ V.A.C.® Therapy with 3M™ Dermatac™ Drape

Ralph Napolitano,* Jr., DPM, CWSP, FACFAS; Orthoneuro; New Albany, OH

Patient

An otherwise healthy 61-year-old female with a foot deformity presented to the clinic for a complex right forefoot reconstruction. Orthopedic healing appeared to progress normally; however, the site developed a dermal dehiscence involving both the dorsal and medial incisions.

Diagnosis

The wounds were managed with serial debridements and 3M™ Silvercel™ Antimicrobial Alginate Dressing. The dorsal incision successfully healed, but the medial incision demarcated and increased in depth.

Course of treatment/application of 3M™ V.A.C.® Therapy with 3M™ Dermatac™ Drape

At the time V.A.C.® Therapy was initiated, the wound measured 2.0 × 1.5 × 0.5 cm^3 and was mostly fibrinous with a small area of exposed bone. V.A.C.® Therapy was applied at -125 mmHg, using a foam dressing and Dermatac Drape (**Figures 1-2**). Dressing changes were conducted per the manufacturer's instructions. After 4 days, the wound was smaller, measuring 2.0 × 1.2 × 0.3 cm^3, and appeared slightly less fibrinous and more granular, with a small area of exposed bone (**Figure 3**). After the first dressing change, the patient was asked to estimate pain using a 10-point Visual Analog Scale. She indicated that pain level was 2/10. V.A.C.® Therapy was resumed using the same settings as before.

Discharge and follow-up

After 5 days, the wound measured 2.0 × 1.0 × 0.2 cm^3 and was mostly granular with a small area of exposed bone (**Figure 4**). After the dressing change, the patient evaluated her pain as 1/10. At this time, V.A.C.® Therapy was discontinued due to the small size of the wound.

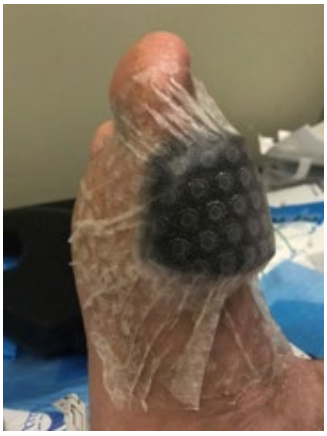

Figure 1. Application of 3M™ VAC® Therapy with 3M™ Dermatac Drape.

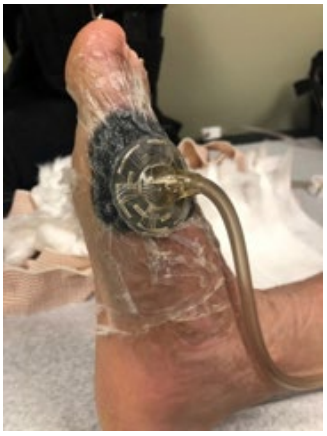

Figure 2. Initiation of 3M™ VAC® Therapy.

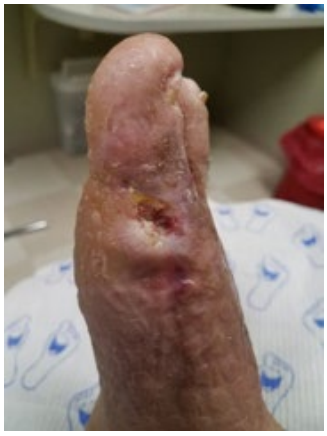

Figure 3. Wound appearance after 4 days of 3M™ VAC® Therapy.

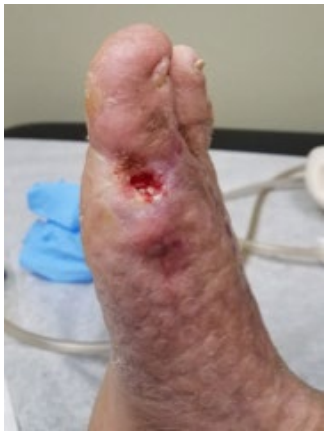

Figure 4. Granulated wound after 9 days of 3M™ VAC® Therapy.

* denotes author is a paid consultant for 3M

Case study 3

Management of a dehisced abdominal wound post reconstruction using 3M™ V.A.C.® Therapy with 3M™ Dermatac™ Drape

Michael N. Desvigne,* MD, FACS, CWS, FACCWS
Valley Wound Care Specialists, Glendale, AZ

Patient

The patient is a 77-year-old male with a medical history of obesity, diabetes mellitus, chronic obstructive pulmonary disease, hypertension, and a large recurrent ventral hernia with complete loss of abdominal domain. Patient underwent hernia repair with complex abdominal wall reconstruction with a porcine dermal matrix and staged closure with use of regenerative tissue matrices.

Diagnosis

The patient developed a non-healing surgical wound following repair of his large recurrent ventral hernia (**Figure 1**).

Course of treatment/application of 3M™ V.A.C.® Therapy with 3M™ Dermatac™ Drape

V.A.C.® Therapy was initiated at -125 mmHg using a foam dressing and Dermatac Drape, (**Figure 2**). Dressing changes occurred every 3 days. After 10 days of therapy (**Figure 3**), there was an increase in granulation tissue formation, and the appearance of the periwound was notably improved without evidence of irritation, maceration, or compromise. After 6 weeks of V.A.C.® Therapy (**Figure 4**), there was 100% granulation tissue formation of the wound bed with continued improvement of the periwound as noted by decreased periwound edema, normalization of skin color, and resolution of the purple discoloration, which is indicative of soft tissue injury. A split-thickness skin graft (STSG) was then applied over the wound (**Figure 5**) and was bolstered with V.A.C.® Therapy using Dermatac Drape (**Figure 6**).

Discharge and follow-up

At 1-week post-STSG (**Figure 7**), V.A.C.® Therapy was discontinued and the Dermatac Drape was removed without difficulty or patient discomfort. The STSG was adherent. The small areas along the periphery with epidermalysis were managed further with 3M™ Promogran™ Collagen Matrix with ORC and Silver to help reduce the chronic inflammation.

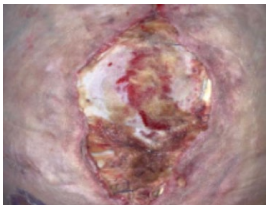

Figure 1. Presentation of dehisced abdominal wound.

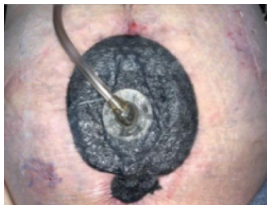

Figure 2. Application of 3M™ VAC® Therapy with 3M™ Dermatac™ Drape.

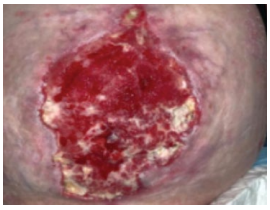

Figure 3. Wound after 10 days of 3M™ VAC® Therapy.

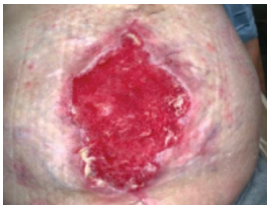

Figure 4. Wound after 5 weeks of 3M™ VAC® Therapy.

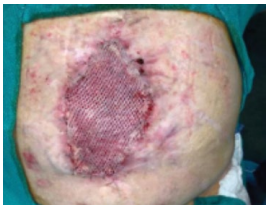

Figure 5. Application of STSG.

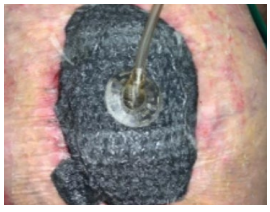

Figure 6. 3M™ VAC® Therapy was used as a bolster over the STSG.

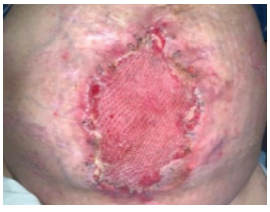

Figure 7. At 1-week post-STSG.

* denotes author is a paid consultant for 3M

3M™ Veraflo™ Therapy with 3M™ Dermatac™ Drape case studies

Case study 1

Management of left knee wound after total knee arthroplasty revision using 3M™ Veraflo™ Therapy with 3M™ Dermatac™ Drape

Ralph J. Napolitano, Jr.*, DPM, CWSP, FACFAS; Mark E. Gittins, DO, FAOAO; Sarah Laub, PA-C
OrthoNeuro, Columbus, OH

Patient

A 61-year-old female with a history of anxiety, depression, and early-stage multiple sclerosis presented with an open wound after undergoing left total knee arthroplasty for advanced osteoarthritis. Initially post-surgery, orthopedic healing progressed well with improved range of motion and no implant issues. However, at about 3 weeks post-surgery, increased fluid at the operative site was noted, and dermal healing regressed resulting in dehiscence at the distal edge of the incision, requiring revision.

Diagnosis

The knee joint cavity was closed, but a wound requiring advanced wound care remained (**Figure 1**). The wound was initially managed with 3M™ Silvercel™ Antimicrobial Alginate Dressing, but by day 7, nonviable tissue covered the wound surface (**Figure 2**).

Course of treatment/application of 3M™ Veraflo™ Therapy with 3M™ Dermatac™ Drape

Surgical debridement including pulsed lavage were performed, and Veraflo Therapy with Dermatac Drape was applied in the operating room (**Figures 3, 4**). Normal saline was instilled with an 8-minute dwell time, followed by 3.5 hours of -125 mmHg negative pressure. No fluid was instilled into the joint space. Dressings were changed every 2-3 days. After 3 days of Veraflo Therapy with 3M™ Veraflo™ Dressing, there was a visible reduction of nonviable tissue on the wound surface (**Figure 5**). Dressings were changed to 3M™ Veraflo Cleanse Choice™ Dressing and Veraflo Therapy continued for an additional 3 days.

* denotes author is a paid consultant for 3M

Discharge and follow-up

By postoperative day 6, the wound depth had decreased, and the surface was covered with healthy granulation tissue (**Figure 6**). The patient was discharged home with 3M™ V.A.C.™ Therapy, which continued for an additional 2 weeks. This was followed by 2 weeks of applications of 3M™ Promogran Prisma™ Collagen Matrix with ORC and Silver. Upon follow-up at 5 weeks post-surgery, the wound was almost completely healed (**Figure 7**).

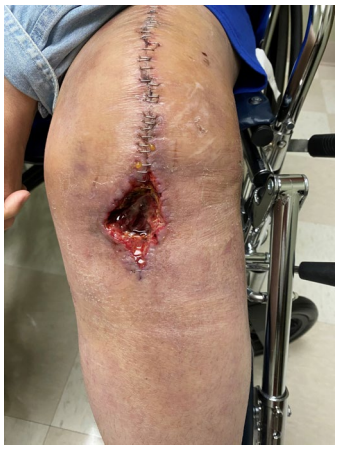

Figure 1. Initial appearance of the open wound, without communication with the joint space.

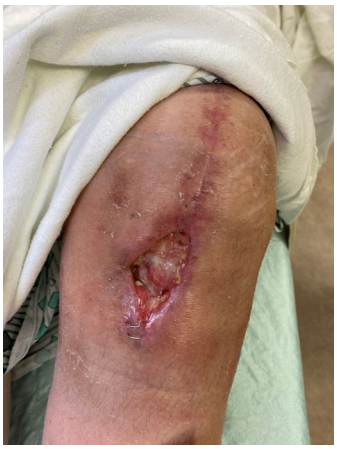

Figure 2. Presence of nonviable tissue after 7 days of 3M™ Silvercel™ Antimicrobial Alginate Dressing.

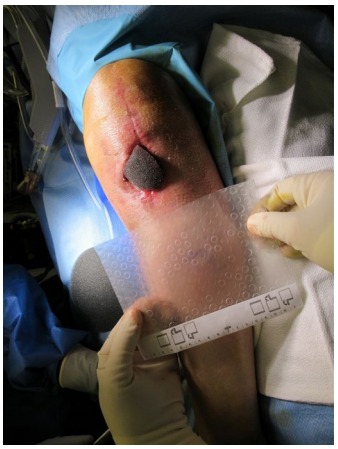

Figure 3. Placement of 3M™ Veraflo™ Dressing with 3M™ Dermatac™ Drape.

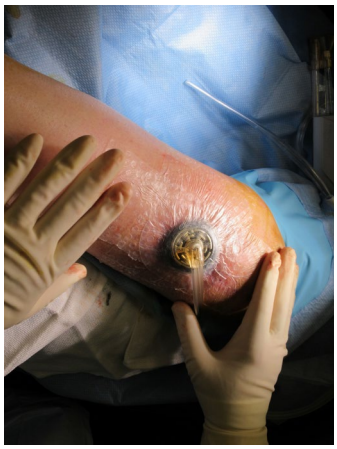

Figure 4. Creation of a seal with 3M™ Veraflo™ Therapy using Dermatac Drape in the operating room.

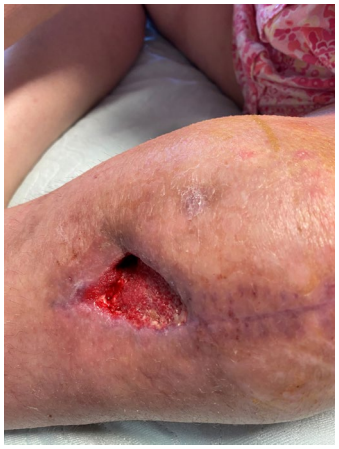

Figure 5. Wound appearance after 3 days of 3M™ Veraflo™ Therapy with the 3M™ Veraflo™ Dressing and 3M™ Dermatac™ Drape.

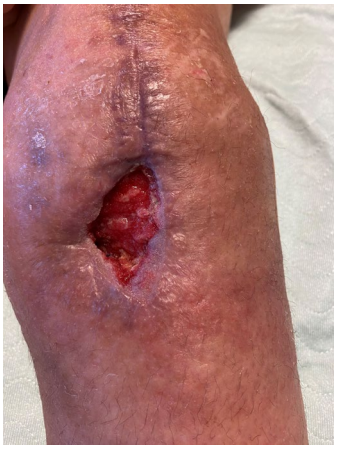

Figure 6. Wound appearance after 6 days of 3M™ Veraflo™ Therapy with 3M™ Veraflo Cleanse Choice™ Dressing and 3M™ Dermatac™ Drape.

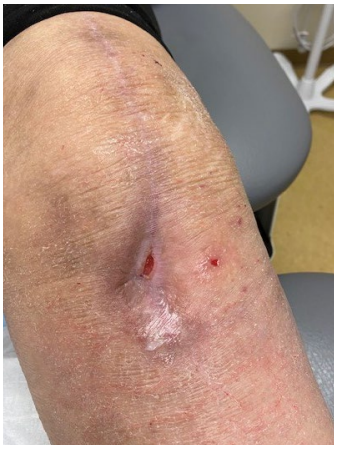

Figure 7. Wound appearance upon follow-up at week 5.

Photos and patient information courtesy of Ralph J. Napolitano, Jr., DPM, CWSP, FACFAS

References

(1) Fumarola S, Allaway R, Callaghan R, et al. Overlooked and underestimated: medical adhesive-related skin injuries. *Journal Wound Care.* 2020;29(Sup3c):S1-S24. doi:10.12968/jowc.2020.29.Sup3c.S1

(2) Cutting KF. Impact of adhesive surgical tape and wound dressing on the skin with reference to skin stripping. *Journal Wound Care.* 17(4 PY - 2008 SE - 157):157-162.

(3) Maene B. Hidden costs of medical tape-induced skin injuries. *Wounds UK*. 9(1):46-50.

(4) Janssen AHJ, van Bruggen-van der Lugt AW, Wegdam JA, et al. The association of potential prognostic determinants to nonadherence to negative pressure wound therapy: An exploratory prospective prognostic study. *Surgery*. 2022;doi:10.1016/j.surg.2022.01.037

(5) Fernández LG, Matthews MR, Benton C, et al. Use of a novel silicone-acrylic drape with negative pressure wound therapy in anatomically challenging wounds. *Int Wound J.* 2020;17(6):1829-1834.

(6) Greenstein E, Moore N. Use of a Novel Silicone-Acrylic Drape With Negative Pressure Wound Therapy in Four Patients With Periwound Skin Breakdown. *Wounds.* 2021;33(11):304-307.

(7) Harrison J. Use of Dermatac Drape: Clinical experience in a case series. *Dialogues Wound Manage*. 2019:13-14.

(8) Speyrer MS, Thibodeaux KT. Initial experience of negative pressure wound therapy using a novel hybrid adhesive drape. *Presented at the 2019 Wild on Wounds National Wound Conference, September 11-14, 2019, Las Vegas, NV*

(9) Galarza L. Initial clinical observations using a novel negative pressure wound therapy drape comprised of acrylic and silicone. *Presented at SAWC Spring 2019, May 7-11, 2019, San Antonio, TX.* 2019

(10) Gabriel A, Pfaffenberger M, Eldenburg E, Mayer D, Nelson J, Gold R. Use of a Novel Silicone-Acrylic Drape With Negative Pressure Wound Therapy to Bolster Skin Grafts and Flaps. *Presented at SAWC Fall 2019, October 12-14, 2019, Las Vegas, NV.* 2019

(11) Desvigne MN, Berman ML, Aragon J, et al. Initial Experiences Applying Negative Pressure Wound Therapy With a Novel Drape Containing an Acrylic and Silicone-based Adhesive. *Presented at SAWC Fall 2019, October 12-16, 2019, Las Vegas, NV*

(12) Napolitano RJ, Jr. Early use of a novel acrylic-silicone hybrid drape with negative pressure wound therapy in lower extremity wounds. *Presented at SAWC Fall 2019, October 12-14, 2019, Las Vegas, NV*

(13) Kharkar P, Napolitano RJ, Jr., Lantis J, et al. Assessment of a Novel Drape Containing Acrylic and Silicone-based Adhesives When Using Negative Pressure Wound Therapy. *Presented at SAWC Fall 2019, October 12-14, 2019, Las Vegas, NV*

(14) Kalos MD. A case series using 3M Veraflo Therapy and 3M Dermatac Drape. *Dialogues Wound Manage*. 2022:1-3

(15) Fernández LG, Matthews MR, Benton C, et al. Outcomes with use of novel silicone-acrylic hybrid drape during negative pressure wound therapy with fluid instillation: initial clinical experience. *Presented at SAWC Spring 2021, May 13-14, 2021, Virtual*

(16) Obst MA. Novel use of a hybrid silicone-acrylic drape with negative pressure wound therapy with instillation. *Presented at SAWC Spring 2021, May 13-14, 2021, Virtual*

(17) Greenstein E. Use of negative pressure wound therapy with instillation and a novel silicone hybrid drape: an initial experience. *Presented at SAWC Fall 2021, October 29-31, 2021, Las Vegas, NV*

(18) Napolitano RJ, Jr., Gittins ME, Laub S. Negative pressure wound therapy with instillation after total knee arthroplasty: initial use of a novel silicone-acrylic drape. *Presented at SAWC Fall 2021, October 29-31, 2021, Las Vegas, NV*

(19) Desvigne MN. Negative pressure wound therapy with instillation and a novel silicone hybrid drape use in complex wounds. *Presented at SAWC Fall 2021, October 29-31, 2021, Las Vegas, NV*

(20) Kharkar P, Allen D, Maldonado P, Young N, Kieswetter K. Novel Drape with Hybrid Adhesives Has Improved Usability and Allows Re-Epithelialization in a Partial Thickness Swine Model. *Presented at SAWC Spring 2019, May 7-11, 2019, San Antonio, TX*

(21) Kharkar P, Sweet D, Allen D, et al. Novel Drape with Hybrid Adhesives Has Improved Adhesion Properties. *Presented at SAWC Fall 2019, October 12-16, 2019, Las Vegas, NV*

(22) Turnbull M, Anderson M, Bailey A, Morse D, Grigsby I, McNulty AK. Assessing the gentleness of a new hybrid drape compared to traditional acrylate drape. *Presented at SAWC Spring 2022, April 6-10, 2022, Phoenix, AZ*

(23) Kharkar P, Allen D, Maldonado P, Kieswetter K. PO254 - ID 303: Gentle release drape with enhanced usability and allows re epithelialization in a partial thickness swine model. (Presented at WUWHS 2020, March 8-12, 2020, Abu Dhabi, UAE). *J Wound Care*. 2020;29(Sup7b):255.

(24) McNulty A, Wilkes R, Bjork J, Turnbull M, Sieracki J. Skin strain modeling to assess removal of acrylate vs hybrid negative pressure wound therapy drapes. *Presented at SAWC Spring 2022, April 6-10, 2022, Phoenix, AZ*

Note: Specific indications, contraindications, warnings, precautions and safety information exist for these products and therapies. Please consult a clinician and product instructions for use prior to application. Rx only.

3M Company
2510 Conway Ave
St. Paul, MN 55144 USA

Phone 1-800-275-4524 (NPWT products)
1-800-228-3957
Web 3M.com/medical

70-2013-1390-8