



Dr
sails®
FIX IT EASY

User Manual

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01

**User
manual
DrSails**

INTRODUCTION

DrSails is a versatile, high technology and two component epoxy based adhesive, specifically designed for all repair types. DrSails was developed by Sailing Technologies, achieving worldwide recognition in the nautical field, particularly among sailing professionals. DrSails can repair different material types, such as:

glass fiber, carbon fiber, wood, steel, aluminum, neoprene, and plastic materials. DrSails has grown a large and loyal customer base in the sailing market, while keeps investing in product development and branching out into other markets (industrial building, DIY, etc).



This user manual is meant to give a better understanding of the DrSails products features and benefit, while enhancing the user experience. Information concerning safety procedures, product handling and application techniques will also be found in this manual through practical examples.

DrSails combines a set of qualities and mechanical features that make it the perfect product in the sailing field. An extensive set of characteristics need to be present to achieve that status: toughness, peeling resistance, flexibility, thermal resistance, impact absorption, viscosity, color, and cost.

Click on **DrSails** website (www.drSails.com) to find additional information on DrSails' applications explained throughout this USER MANUAL. All kinds of examples can be found, from the simplest ones (i.e. how to use DrSails) to more sophisticated techniques such as: how to repair sails or neoprene.

EPOXI RESIN

was invented in
1936

BY DR. PIERRE CASTAN (Swiss)
AND DR. S. O. GREENLEE (USA)
simultaneously

1.1 DESCRIPTION OF DrSails FEATURES

DrSails is known for being FAST, FLEXIBLE, STRUCTURAL and UNDERWATER. These four features make it an ideal solution for emergency repairs. The following tutorials are provided so that DrSails' users can witness the product features first-hand. However, before checking the tutorials, we advise our users to check section 2.3 "Handling DrSails", where a throughout description on how to properly use **DrSails** is explained.

1.1.1 FAST

EXAMPLE: Compare curing time between DrSails and another standard adhesive.

1. Grab two pieces of paper of approx. (7.5 x 7.5 cm) and label them as follows: Test piece 1 and Test piece 2.

NOTE: Use a post-it or a page of DrSails' WetNotes for labelling purposes

2. DS10 preparation (DrSails 10ml)

2.a Remove the cap and level off the components

2.b Insert the nozzle into the cartridge

3. Apply about a fifth part of DS10 (DrSails 10 ml) on Test piece

4. Apply the other adhesive (market standard sample) on Test piece 2 and spread out to form a bar sized 1x4x0.2 cm approx.

5. Wait for 22 minutes and check the condition of both test pieces.



RESULT: Test piece 1 dries faster than Test piece 2. Plus, the hardening process is also affected by temperature; the higher the temperature the faster DrSails changes from liquid to solid condition. DrSails' "Easy to use" feature should also be highlighted.

READY

22
min

TO USE



1.1.2 FLEXIBLE

EXAMPLE: Compare the flexibility between a bar built using DrSails and one using an epoxy based adhesive from a different brand.

1. Grab two pieces of paper of approx. (7.5 x 7.5 cm) and label them as follows: Test piece 1 and Test piece 2.

NOTE: Use a post it or a page of DrSails' WetNotes for labelling purposes.

2. DS10 preparation (DrSails 10ml)

2.a Remove the cap and level off the components

2.b Insert the nozzle into the cartridge

4. Apply the other adhesive (market standard sample) on Test piece 2 and spread out to form a bar sized 1x4x0.2 cm approx.

5. Wait for 22 minutes until DrSails' hardening process finished and disassemble Test Piece 1.

6. Wait for 24 hours disassemble it and test it

3. Apply about a fifth part of DS10 (DrSails 10 ml) on Test piece 1.

RESULT: DrSails' bar is 100% flexible and resistant, whereas the one built with a different adhesive is more fragile.



1.1.3 STRUCTURAL

EXAMPLE: Check DrSails resilience to different mechanical efforts.

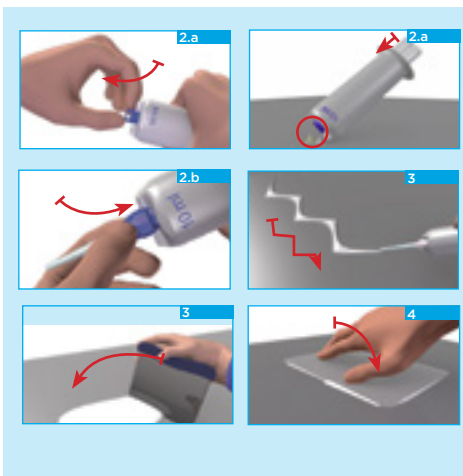
1. Grab two flat bars (Test piece 1 and Test piece 2) made of: Wood, aluminum, carbon, etc...with the following dimensions: 10 cm long, 2 cm wide and 5 mm thick.

1.1 The given dimensions are recommended but can be modified if needed.

2. DS10 format preparation (DrSails 10ml).

2.a Remove the cap and level off the components

2.b Insert the nozzle into the cartridge



3. Apply DrSails on Test piece 1 following a zig-zag pattern and spread out uniformly with the help of a scrapper. The bonding surface dimension should be of 2 cm x 2 cm.

4. Combine Test piece 2 with Test piece 1 where DrSails has been applied and apply pressure.

5. Wait for 22 minutes until the hardening process finishes (starting since DrSails' application).

6. Check results



STANDS UP to:

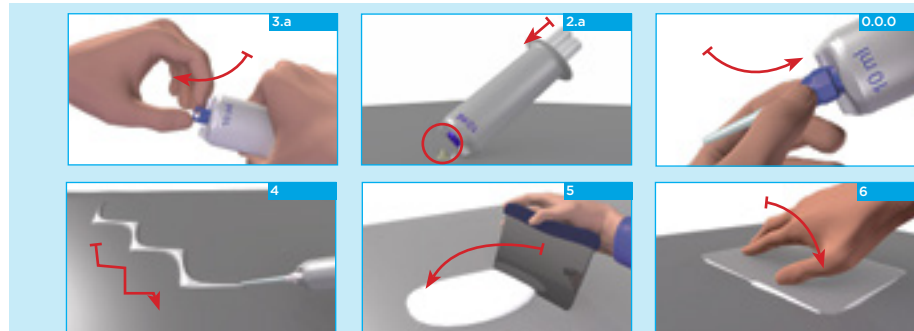
160 KG/CM²



1.1.4 UNDERWATER

EXAMPLE: Showcase how DrSails performance underwater is practically as powerful as in dry conditions.

RESULT: DrSails' hardening process takes the same amount of time in dry and underwater conditions. As to its mechanical features, these are only reduced by 5% when applied underwater.



1. Fill up a recipient with water of any kind.

2. Prepare two flat bars (Test piece 1 and Test piece 2) made of: wood, aluminium, carbon, etc...with the following dimensions: 10 cm long, 2 cm wide and 5 mm thick.

2.1 The given dimensions are recommended but can be modified if needed.

3. DS10 format preparation (10 ml DrSails).

3.a Remove the cap and level off the components

3.b Insert the nozzle into the cartridge

4. Place Test piece 1 inside the recipient (full of water) and apply DrSails following a zig-zag pattern.

5. Spread out uniformly with the help of a scrapper. The bonding surface dimension should be of 2 cm x 2 cm.

6. Combine Test piece 2 with Test piece 1 where DrSails has been applied and apply pressure.

7. Wait for 22 minutes until the drying process finishes (starting since DrSails initial application).



UNDERWATER & WATERPROOF



The background is split diagonally from the top-left to the bottom-right. The upper-left portion is a solid blue color, while the lower-right portion is white. A thick, dark blue horizontal line spans across the middle of the image, starting from the left edge and ending just before the diagonal split.

02

**Handling
DrSails**

2.1 DrSails SAFETY PROCEDURES:

DrSails IS A SAFE AND CLEAN HANDLING PRODUCT

HOWEVER REMEMBER:



Inhalation of DrSails should be avoided. Wearing latex gloves during use and washing hands after use is highly recommended. If the product is manipulated properly, it is not necessary to use any additional individual safety equipment.

The main risks associated with DrSails are due to its components: epoxy resin (molecular weight <700), bisphenol A, and corrosive amines. DrSails has a low liquid percentage and highly inflammable steams that could be dangerous in case of intake or skin contact, causing skin burns, serious eye injury, skin bruises, skin allergic reactions or symptoms, and asthma or breathing difficulty in case on inhalation.

PRECAUTIONS

1. Keep away from children.
2. Avoid inhaling the dust / smoke / gas / fog / steams / spray released.
3. Do not eat, drink or smoke while using DrSails.
4. Avoid DrSails accidental release to the environment.
5. Wear adequate gloves, clothing, glasses and protection mask when using DrSails.
6. In case of intake or inhalation, contact immediately with the closest Toxicology Information Center or physician.
7. Discard the packaging / container according to the applicable local and/or national applicable legislation.
8. IN CASE OF SKIN CONTACT, wash with abundant soap and water.
9. IN CASE OF EYE CONTACT, wash carefully with abundant water for a couple of minutes. Should you wear contact lens, take them off if able to do so. Keep rinsing with water.
10. If eye irritation persists, visit a physician.

CLEANING PROCEDURES AND WASTE TREATMENT

Keep spills under control with sand, clay or any other inert absorbing materials. Clean up with the help of a scoop and then use absorbing towels.

Do not use sandpaper or any other type to absorb DrSails' components. Do not leave any of the components before mixing on a paper surface, as that could trigger a spontaneous combustion.

Clean up the resin or epoxy (solidified or not) using a solvent product, such as: acetone, xylene or methanol. For the stiffener, use a sponge rinsed with water and soap.

Discard or recycle DrSails' components and packaging in compliance with local regulations.

Avoid discarding the resin or the stiffener while in liquid condition. Instead, mix it and wait until it hardens and turns into a solid, inert and safe mixture.

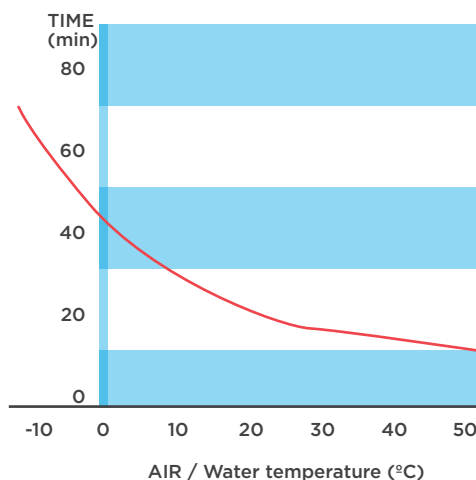
WARNING: In case a large quantity of DrSails is used, the hardening process could trigger a violent exothermic reaction leading to a spontaneous burning, releasing dangerous gas and steams as a result.



2.2 DrSails CHEMICAL COMPOSITION

2.2.1 HARDENING PROCESS

The epoxy hardening process duration changes depending on the outside temperature. The following graphic shows the correlation between the hardening process duration and temperature. As can be observed from the graphic, estimated duration stays constant within the 5 to 25°C bracket. However, when temperature reaches the 30°C to 50°C interval, DrSails hardening process speeds up and is completed in approx. 10 minutes.



DrSails solidifies in 22 minutes (given external conditions of 25°C air/water). During this time, DrSails goes through three different forms: A) liquid, B) gel and C) solid.

LIQUID



A) The mixture of both DrSails' components results in an easy mixable and relatively liquid, transparent pinkish white color paste. The product remains in liquid state during the first 8 minutes of the hardening process (22 minutes in total).

GEL



B) After 8 minutes, DrSails changes phase and increases its stickiness to a point where it should not be manipulated due to its high viscosity. The mixture resembles a dull white brownish paste and stays in this form for the next 12 minutes of the hardening process (22 minutes in total).

SOLID



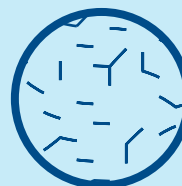
C) DrSails turns into a solid paste when the peak temperature is reached. To attain 100% of its properties, 24 hours must pass from the initial reaction.

DrSails reaches 80% of its physical properties 20 to 25 minutes after the hardening process begins. Under room temperature (25°C), the estimated working time of DrSails is 8 minutes. Working temperatures oscillate between -5 to 60°C. Under room temperature (25°C), DrSails can withstand a load of 160kg per cm² after 20 to 25 minutes.

If the room temperature changes, the hardening process could be altered (expanding or shortening in time). For instance, under room temperature of 35°C, the hardening process is shortened to 17 minutes. However, should it take place under temperatures below 0°C, the process will take twice the time taken under the first scenario (25 °C room temperature).



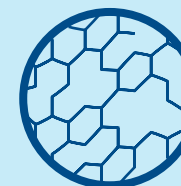
Resin hardening process consist of a polymer chains crosslinking



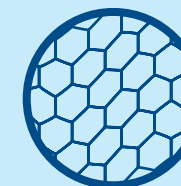
DrSails not mixed



DrSails 8 min after mixed



DrSails 22 min after mixed 80% properties



DrSails 24h after mixed 100% properties

2.2 DrSails CHEMICAL COMPOSITION

2.2.2 HIGH EXOTHERMIC REACTION

DrSails' chemical reaction is exothermic, thus affecting the amount of product to be used on each application. If a large quantity of DrSails is placed inside a recipient, the temperature needs to be monitored to control the chemical reaction and mitigate the risk of fire. Should a fire occurred, make sure the resulting steams are not inhaled and put the recipient aside in a ventilated place.



WARNING: The mixture between the resin and the stiffener releases heat as a result of an exothermic reaction. To reduce its impact, mixing small quantities is highly recommended. Plus, the higher the volume of epoxy used, the higher the heat and the lower the working time and hardening process duration. On the contrary, if the exact same amount with lower thickness is applied and spread out, the exothermic reaction will be less severe, increasing the working time and hardening process duration.

2.2.3 MIXTURE RATIO 1:1

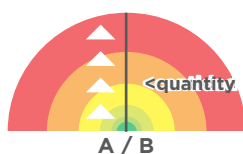
The three available DrSails' formats, (10 ml and 25 ml syringes and the 265ml peeler) balance out the two components uniformly, so that the target ratio 1:1 can be obtained. However, if an air bubble or similar originated inside the container, the 1:1 ratio would likely be altered. To assess whether the ratio is correct or not, the following patterns should be observed:

- **MIXTURE COLOR:** pinkish white (almost unnoticeable). Component A color: dim and sticky whitish. Component B color: transparent and sticky yellow.

- **HARDENING PROCESS FORMS:** liquid (8 minutes, color: pinkish white, appearance: dim, sticky), gel (12 minutes, color: white/yellow, appearance: dim and sticky), solid (color: pale yellow, appearance: shiny and soft).

If the mixture is not well balanced, once the hardening process is over (22 minutes approx. since initial application), the following could be observed:

HIGHER VOLUMEN OF DRSALES MIXED



...HIGHER MARGIN ERROR OF RATIO 1:1

- **HARDENED AREAS ALTERNATED WITH SOFT AREAS.**

Caused by one of the components being used in excess.

- **FULLY UNTREATED AREAS.**

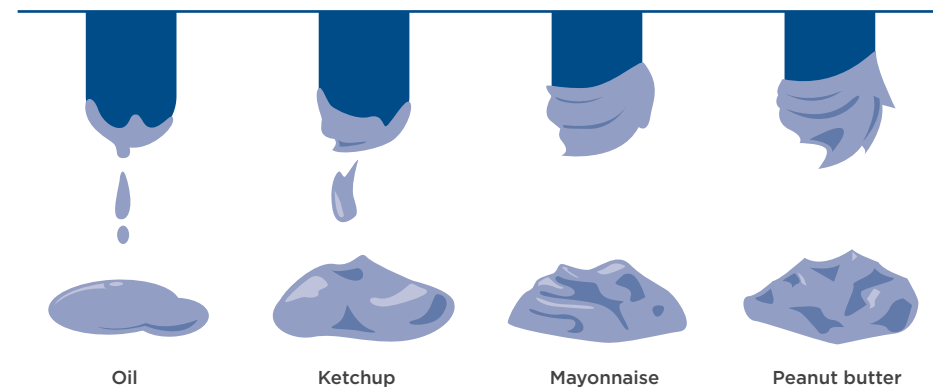
In case only one component is used.

The margin of error of target ratio 1:1 is $\pm 2\%$, depending on the volume/weight applied of each component. To avoid obtaining an unbalanced mixture, a complete read of the procedure for levelling off the components is essential.

2.2.4 VISCOSITY

DrSails' viscosity level is [26500;]cP on component A and [24500;]cP on component B, which is an equivalent ratio to mayonnaise viscosity [16000; 25000]cP. Once components A and B are mixed, the resulting viscosity will be in the range of [2000000;]cP. If the mixture of both components is not properly balanced, the viscosity level will remain at 25000cP.

Viscosity



DrSails' stickiness level can be modified through additives, such as: (acetone type solvent) or thickening agents (carbon fiber, glass fiber, micro glass spheres, and solid particles). It should be highlighted that mechanical properties and hardening process could change if DrSails' viscosity is modified.

RECOMMENDATION: Heating up the resin or the stiffener can lower the mixture's viscosity, thus facilitating its ability to laminate surfaces. Never heat up the mixture or the stiffener at a temperature higher than 50°C.

2.2 DrSails CHEMICAL COMPOSITION

2.2.5 DENSITY

The density of both components is as follows: 1.13 g/ml @ 25°C for component A and 0.98 g/ml @ 25°C for component B. Density can be modified through additives to achieve the desired properties of the different uses and applications.

2.2.6 STIFFNESS AND FLEXIBILITY

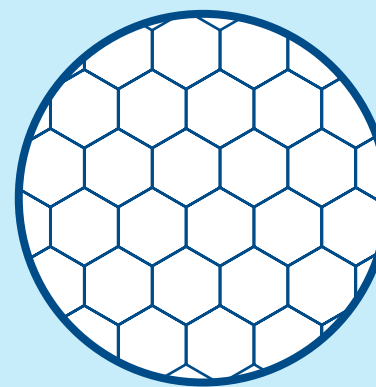
DrSails' stiffness reached 63 on Shore A scale. The resulting mixture is ductile and stretches up to a maximum of 108% which makes it a flexible epoxy based adhesive. Still, its flexibility does not compromise its structural attributes. In order to improve DrSails' stiffness, it is necessary to apply thicker doses. *Include a thickness / flexibility panel.*



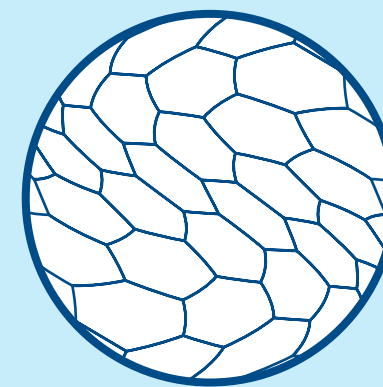
2.2.7 UNDERWATER (WATER RESISTANCE)

DrSails' is a hydrophobic product as a result of its chemical composition. This means DrSails is able to solidify while submerged in a large variety of liquids. The hardening process underwater and in dry conditions is exactly the same, but the mechanical properties get reduced by 5% when used underwater.

COMPARISON BETWEEN A DIAMOND AND DRSAIIS



Diamond



Epoxi

2.3 DrSails HANDLING PROCEDURES

2.3.1 DS265 USER METHOD (265ML)

The product consists of a coaxial cartridge with two components (A and B), with net contents of 265 ml, five mixing nozzles (single use) attached to the cartridge, and the safety cap.



PREPARATION: The surfaces should be cleaned of dust, grease and dirt. There is no need to dry the surfaces.

1. Remove the cap and pistol from the cartridge, and store them.

2. Take a nozzle, located in the gun, and inserted into the cartridge head (figure 2).

3. Place the cartridge in the applicator gun (caulking gun, preferably high viscosity) as shown in figure 1.

4. Apply DrSails by pressing the gun trigger (Figure 3) slowly and steadily to ensure a homogeneous mixture. The components A and B are mixed through the nozzle. It is advisable to discard the first part of the product (about half of the length of the nozzle) of the first application to ensure that the mixture is suitable.

5. After the product has been applied to the surfaces, put them together and apply pressure, spreading the adhesive evenly. The mixture will be manipulated for 8 minutes. After 20-25 minutes the product is cured, and the joint will be able to withstand loads of up 200kg/cm².

6. Remove the mixing nozzle from the cartridge head, throw it away and replace the cap (as shown in figure 2).



RECOMENDATIONS

* You should use the mixing nozzles every time you use DrSails. The nozzle is single-use.

** It is recommended that you make sure the mixture is uniform at all times (no bubbles and a pink-white colour). If not, mix the product by hand until the mixture is uniform.

*** If dosages of the product are quick and short, it is recommended that you mix the product manually once it has been applied.

**** DrSails should be closed with the cap after each use, and preferably stored upright.

***** DrSails can attach materials such as rubber, leather, wood, metal, plastic (except: polypropylene, polyethylene, Teflon).

2.3 DrSails HANDLING PROCEDURES

2.3.2 DS10 & DS25 USER METHOD (10ML & 25ML)

The product consists of a syringe with two components (A and B), two single use mixing nozzles attached to the syringe, and the safety cap.

PREPARATION: The surfaces should be cleaned of dust, grease and dirt. There is no need to dry the surfaces.

1. Remove the cap from the syringe (as shown in figure 1) and store it.

2. Even out the two components. Place the syringe upright and apply pressure to the plunger until the two components come out simultaneously.

3. Take a nozzle, located in the clip, and insert it into the head of the syringe.

4. To attach the mixing nozzle to the syringe, proceed as shown in figure 2. After insertion, turn the screw 90 degrees.

5. Push the plunger (figure 3), and the components A and B will mix together through the nozzle. If the components do not even out, it is advisable to discard the first part of the product (about half of the length of the nozzle) of the first application to ensure that the mixture is suitable.

6. After the product has been applied to the surfaces, put them together and apply pressure, evenly spreading the adhesive in the bond area. The mixture will be usable for 8 minutes. After 20-25 minutes the product is cured, and the joint will be able to withstand loads of up to 200kg/cm².

7. Remove the mixing nozzle from the syringe head, throw it away and replace the cap (as shown in figure 2).

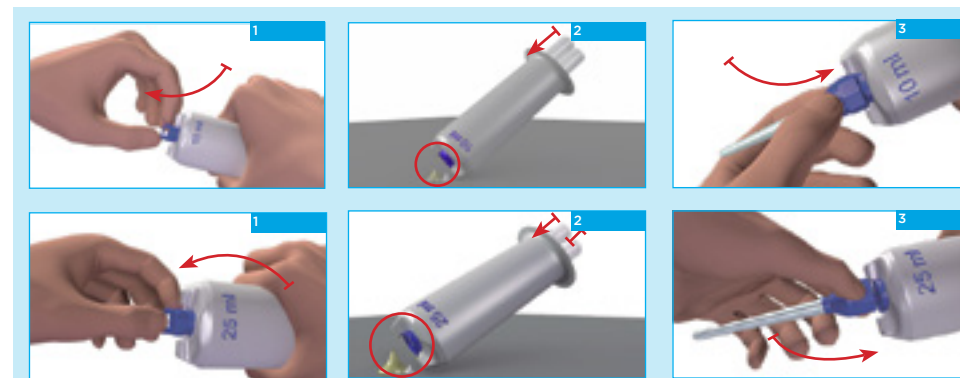


RECOMENDATIONS

- * You should use the mixing nozzles every time you use DrSails. The nozzle is single-use.
- ** It is recommended that you make sure the mixture is uniform at all times (no bubbles and a pink-white colour). If not, mix the product by hand until the mixture is uniform.

*** DrSails should be closed with the cap after each use, and preferably stored upright.

**** DrSails can attach materials such as rubber, leather, wood, metal, plastic (except: polypropylene, polyethylene, Teflon).



2.3.3 QUANTIFYING DRSAILES AMOUNT TO BE USED

1. Determine total surface to be bonded

1.1 Box: length x width

1.2 Triangle: base x height / 2

1.3 Cylinder (body): $2\pi \times R \times L$

2. Determine the mechanical effort

1. Conversion mm² to ml DrSails

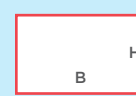
1.1 DrSails recommended thicknesses below 0.5mm

1.2 See the table in section 3.3 to determine the required thickness

Areas calculation



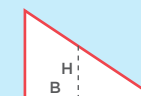
Square
A: $L1 \cdot L2$



Rectangle
A: $B \cdot H$



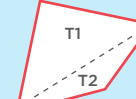
Triangle
A: $B \cdot H / 2$



Triangle
A: $B \cdot H / 2$



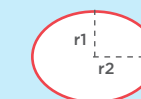
Tapeze
A: $(B1 + B2) \cdot h$



Irregular polygon
A: $T1 + T2$



Circle
A: $\pi \cdot r^2$



Elipse
A: $\pi \cdot r1 \cdot r2$

2.3 DrSails HANDLING PROCEDURES

2.3.4 OPTIMIZING DrSails' DOSES

DrSails' packaging quality protocols ensure that the three available formats (10, 25 and 265 ml) have the same volume of each component (A and B, respectively), with an error margin of $\pm 5\%$ in volume. This slight volume deviation between components makes levelling them off before the first use necessary. Otherwise, the mixture risks losing its 1:1 desired ratio. As a consequence, components need to be balanced before using them for the first time. The procedure to carry out this task is different for each format:

2.3.4.1 DS10 & DS25 BALANCE

2.3.4.1.1 Procedure by volume

1. Remove the cap, turn it 90° clockwise.

2 Apply pressure on the plunger to balance both components. Note: Do not exert too much pressure. Recommendation: Keep the component's exit tubes on a surface at an inclination of 45° to stop unwanted product leaks.



2.3.1.1.2 Procedure by colour

1. Remove the cap from the syringe and keep it in a safe place.

2. Grab a nozzle, placed over the clip.

3. The nozzle needs to be fixed. After inserting it, rotate the thread 90°.

4. Press the plunger: It is advised to discard the first sample of the mixture and then, place the syringe in vertical position with the nozzle pointing upwards. Note: The right mixture (1:1 ratio) should have a white pinkish color.



2.3.4.2 DS265 BALANCE

2.3.4.2.1 Procedure by volume

1. Remove the cap rotating counterclockwise.

2. Insert the cartridge into the dispensing gun (a high viscosity silicon gun, preferably), pointing the assembly downwards.

3. Grab the gun and point it downwards. Apply pressure on the trigger to release the mixture. Note: Keep the pressure under control to avoid unwanted product leaks.

4. Once both components come out at the same time, withdraw the cartridge from the gun and clean up the nozzle.

Recommendation: Use paper and acetone to safely carry out this procedure.

2.3.4.2.2 Procedure by volume

1. Remove the cap rotating counterclockwise.

2. Grab a nozzle from the gun, and screw it over the cartridge's head.

3. Insert the cartridge into the dispensing gun (a high viscosity silicon pistol, preferably).

4. Apply DrSails by pulling the gun's trigger. Components A and B are blended inside the nozzle. It is recommended to discard the first sample (1 cm) of product obtained from every new package to ensure an optimal mixture.



2.4 DrSails SETUP AND CLEANING

2.4.1 CLEANING

2.4.1.1 REMOVE DRSAILES

Heat up DrSails mixture by using a heating pistol or similar device, separate the epoxy from the surface with a knife or similar (Note: start with a small area and advance as the product is released from the surface). Clean up DrSails' residues by using a sandpaper.

Remove as much DrSails product as possible with a scrapper (made of plastic, wood or metal). If needed, heat up the epoxy to ease the process. Finish by cleaning up the surface with a piece of cloth and acetone.

2.4.2 MATERIALS PREPARATION

2.4.2.1 TECHNICAL PLASTICS

DrSails can handle most of existing plastic types. However, it is recommended to properly setup the surface by using an abrasive product or equivalent. When using plastic types POM-C, PC, PEEK or similar, DrSails can put up with reasonable shear stress of around 50kg/cm². Instead, when it comes to plastic types like PA, PP, PE, Teflón, DrSails' shear stress resilience will be limited to 20 kg/cm². As a result, the below procedure for setting up the surface should be followed:

To obtain a structural bonding strength, it is necessary to remove all sort of paint residues, rust films, unmolding agents, oil, dust and any kind of pollutant. However, the surface preparation effort depends on the bonding strength as well as the aging resistance desired by the user. A quick and standard surface preparation can be performed using a fine and clean abrasive (such as isopropyl

alcohol), followed by cleaning up with a standard solvent to remove remaining particles.

USAGE GUIDELINES

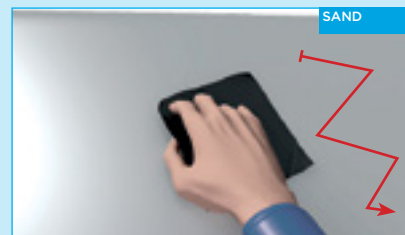
1. Sanding and cleaning the adhering surface:

- Sand the surface using sandpaper n° 80.
- Clean up the surface using a solvent (*isopropyl alcohol*).
- Remove the surface coating (*use acetone or similar*).
- Clean up using a solvent (*Isopropanol or methanol*).

2. DrSails cartridge preparation:

- | | |
|---|--|
| 2.a Remove the cap and level off the components | 3.b Insert the nozzle into the cartridge |
|---|--|

3. Apply DrSails onto the surface following a zig-zag pattern.



2.4.2.2 METALS

DrSails offers a great performance with metallic materials, of between 80 - 150kg/cm². However, there are specific treatments (galvanized, anodizing) and certain specific alloys requiring surface treatment.

1. Sanding and cleaning the adhering surface:

- Sand the surface with sandpaper n° 80.
- Clean up using a solvent (*Isopropanol or methanol*).

2. DrSails cartridge preparation:

- | | |
|---|--|
| 2.a Remove the cap and level off the components | 2.b Insert the nozzle into the cartridge |
|---|--|

3. Apply DrSails onto the surface following a zig-zag pattern.

2.4.2.3 COMPOSITES

Composites are highly resistant structures. DrSails offers exceptional mechanical properties ranging between 120 - 180kg/cm² with these material type. However, composites have a top layer made of crystalized resin or equivalent, which significantly diminishes its adherence to other surfaces. To offset this, the following procedure is to be followed:

1. Sanding and cleaning the adhering Surface:

- Sand the surface with sandpaper n° 80.
- Clean up using a solvent (*Isopropanol or methanol*).

2. DrSails cartridge preparation:

- | | |
|---|--|
| 2.a Remove the cap and level off the components | 2.b Insert the nozzle into the cartridge |
|---|--|

SHARK SKIN IS LIKE SANDPAPER.

2.5 DrSails VS TEMPERATURE

2.5.1 DrSails' HARDENING PROCESS AT LOW TEMPERATURES:

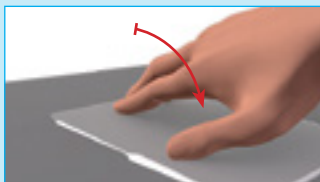
In section 2.2. the relationship between DrSails hardening process and temperature is explained in detail. The higher the temperature the less it takes to harden the mixture. In case DrSails is applied with temperatures close to 0°, it is recommended to follow the next steps in order to minimize the hardening process timing.

1. Heat up water, 1 liter for every 50 ml of DrSails, approx.

2. Prepare DrSails mixture.

3. Pour 250 ml of warm water over DrSails every 2 minutes to raise temperature.

4. Keep heating the water up to keep the temperature constant.



2.5.2 DrSails' HARDENING PROCESS AT HIGH TEMPERATURE:

Using DrSails in high temperatures, can considerably shorten the hardening process, therefore diminishing DrSails working time. Under such scenario, following a completely opposite procedure to the one explained in 4.11. is advised:

1. Cool down DrSails cartridge or syringe.

2. Prepare DrSails mixture.

3. If necessary, pour 250ml of cool water over DrSails to lowe temperature.

03

**DrSails
mechanical
properties**

3.1 DrSails COMPATIBLE MATERIALS

DrSails is an epoxy based adhesive that can be used to merge a broad range of materials. Nonetheless, every material type requires a specific preparation before DrSails is applied. The following list describes the preparation methods corresponding to each of DrSails' compatible materials.

HARDWOOD

Sand with heavy paper 80 and remove dust before applying DrSails. The adherent properties of DrSails with this material are as follows:

SINGLE OVERLAP ISO 11003-2:2001	N/MM2	KG/CM2	PSI
Iroko Wood	5.5	55	797,7
Oak Wood	5.3	53	768,7

TEAK

Sand with heavy paper 300 and remove dust. If the surface has an oily layer or equivalent, it is recommended to clean it up with a cloth and acetone. Before applying DrSails ensure the acetones is completely evaporated. DrSails' adhesive properties with this materials are as follows:

SINGLE OVERLAP ISO 11003-2:2001	N/MM2	KG/CM2	PSI
Teka Wood	6.9	69	1000.8

SOFT WOOD

No specifics are required for this material, although a 400 heavy sandpaper can be used before removing the dust. DrSails' adhesive properties with this material are as follows:

SINGLE OVERLAP ISO 11003-2:2001	N/MM2	KG/CM2	PSI
Pine Wood	4.9	49	710.7

STEEL OR IRON

Remove dust or oily layers from the surface using acetone and a cloth piece. Sand with heavy paper 80 is also advised. Remove dust with a cloth and acetone. DrSails adhesive properties with this material are as follows.

SINGLE OVERLAP ISO 11003-2:2001	N/MM2	KG/CM2	PSI
Stainless Steel AISI-304	8.2	82	1189.3

STAINLESS

Remove dust or oily layers from the surface using acetone and a cloth piece. Sand with heavy paper 80 is also advised. Remove dust with a cloth and acetone. DrSails adhesive properties with this material are as follows:

SINGLE OVERLAP ISO 11003-2:2001	N/MM2	KG/CM2	PSI
Stainless Steel AISI-304	8.6	86.0	1247.3

ANODIZED ALUMINUM

Remove dust or oily layers from the surface using acetone and a cloth piece. DrSails' adhesive properties with this material are as follows:

SINGLE OVERLAP ISO 11003-2:2001	N/MM2	KG/CM2	PSI
Stainless Steel AISI-304	5.6	56.0	812.2

NON ANODIZED ALUMINUM

As with any metal material, remove dust or oily layers from the surface using acetone and a cloth piece. Sand with heavy paper 80 is also advised. Remove dust with acetone and a cloth piece. DrSails' adhesive properties with this material are as follows:

SINGLE OVERLAP ISO 11003-2:2001	N/MM2	KG/CM2	PSI
Stainless Steel AISI-304	5.6	56.0	812.2

COPPER

DrSails' adhesive properties drop to mid-low range with copper, thus an initial surface cleanup with a cloth and acetone is recommended. After that, the surface can be treated with an abrasive product such as sulfuric acid or similar. The mechanical properties of DrSails with this material are as follows:

SINGLE OVERLAP ISO 11003-2:2001	N/MM2	KG/CM2	PSI
Stainless Steel AISI-304	7.4	74.0	1073.3



3.1 DrSails COMPATIBLE MATERIALS

RFG (REINFORCED FIBERGLASS)

Sand the surface layer with heavy paper 500 and remove dust with acetone and a cloth piece. DrSails' mechanical properties with this material are as follows:

SINGLE OVERLAP ISO 11003-2:2001	N/MM2	KG/CM2	PSI
Stainless Steel AISI-304	18.2	182.0	2639.7

RCF (REINFORCED CARBON FIBER)

Sand the surface layer with heavy paper 500 and remove dust with acetone and a cloth piece. DrSails' mechanical properties with this material are as follows:

CEMENT

Sand the bonding surface with heavy paper 80 and remove dust with acetone and a cloth piece. DrSails' mechanical properties are as follows:

SINGLE OVERLAP ISO 11003-2:2001	N/MM2	KG/CM2	PSI
CFR epoxy matrix	20.1	201.0	2915.3

PLASTICS

A broad range of plastic materials can be bonded using DrSails while keeping a reasonable mechanical resistance. However, plastics are an extremely complicated product to handle, thus offering less optimal performance than other product types. As a result, to improve DrSails' adherence it is advised to treat the surface with an abrasive product (acetone or similar) before use. For specific plastic types, such as: Polyethylene, polypropylene, PTFE (Teflon), polyamide, DrSails is not recommended as it does not offer the necessary mechanical features. DrSails' mechanical properties with this material type are as follows:

SINGLE OVERLAP ISO 11003-2:2001	N/MM2	KG/CM2	PSI
Polycarbonate	10.4	104.0	1508.4
Polyamide	1.8	18	261.1

MYLAR®

This material consists of a PET layer. DrSails' mechanical properties are significantly high with Mylar. However, its resistance to peeling is not very good. To improve it, it is recommended to sand the surface using wet sanding paper and clean it up with a cloth. DrSails mechanical properties with this material are as follows:

SINGLE OVERLAP ISO 11003-2:2001	N/MM2	KG/CM2	PSI
Mylar® with Twaron® 1650	>0.2	>2.0	>29.1

DACRON®

This material consists of a polyester layer where DrSails mechanical properties are significantly high. However, its resistance to peeling is not very good. To improve its resistance, it is recommended to sand the surface using wet sanding paper and clean it up with a cloth. DrSails mechanical properties with this material are as follows:

SINGLE OVERLAP ISO 527-3:1996	N/MM2	KG/CM2	PSI
Dacron®	>0.5	>5.0	>72.5

TAFFETA®

DrSails mechanical properties with this material are as follows:

SINGLE OVERLAP ISO 11003-2:2001	N/MM2	KG/CM2	PSI
Tafetta® with Twaron® 1650 & Carbon 800	>0.82	>8.2	>118.9

3DI®

This material is made up of highly resistant fibers, leading to the following mechanical properties when using DrSails.

SINGLE OVERLAP ISO 11003-2:2001	N/MM2	KG/CM2	PSI
NS 3Di® Kevlar® Dynema® (80/20)	>0.99	>9.9	>143.6

CUBEN®

A laminated composite of Ultra High Molecular Weight Polyethylene fibers. DrSails mechanical properties with this material are as follows:

SOLAPE SIMPLE ISO 527-3:1996	N/MM2	KG/CM2	PSI
Cuben® Fiber Film	1.3	13.0	188.6

NYLON®

This material consists of a double nylon layer. DrSails' mechanical properties are significantly high. However, its resistance to peeling is not very good. To improve it, it is recommended to sand the surface using wet sanding paper and clean it up with a cloth. DrSails mechanical properties with this material are as follows:

3.2 DrSails ADHESION TYPES

The combination of two surfaces is subject to the chemical and physical connection between them. This means, it depends on how the substrate's surface layers and the adhesive are combined, whether it is through chemical or physical links. (e.g. through pores and other surface irregularities). Plus, the type of adhesion is related to: primary and secondary adhesion.

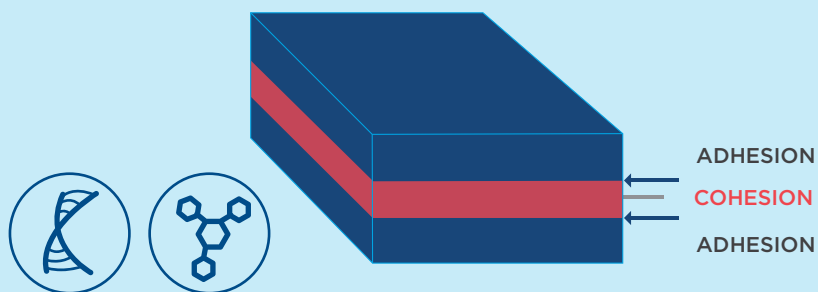
A) PRIMARY OR CHEMICAL ADHESION:

Relies on the chemical side and how both materials form a single layer.

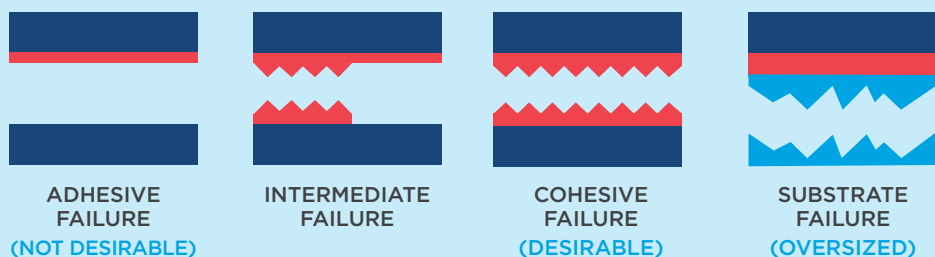
B) SECONDARY OR PHYSICAL ADHESION:

Relies on the physical side and how the adhesive sticks to the cracks of the material to be joined.

Differentiation between adhesion and cohesion



Failure modes of adhesive bonds



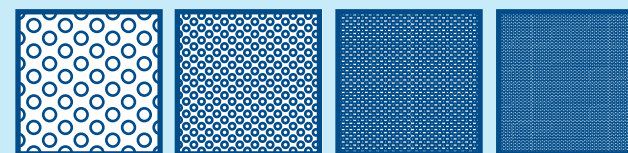
DrSails can bring together all of the materials mentioned in the table above, but in order to improve its adhesion capabilities, a proper preparation of the bonding surface is recommended. The following steps are critical to ensure an adequate bonding of different surfaces:

- **DEFINE** the working area: If resisting an effort of 1000kg is required, the minimum overlapping area needs to be 5cm² (the maximum tensile strength DrSails can put up with is 160kg/cm².)
- **SANDING:** The adhesion between two surfaces can be chemical or physical. The chemical one depends on the epoxy configuration whereas the physical depends on the surfaces' porosity. To improve the physical adherence, it is recommended to sand the bonding surfaces.
- **WASH UP:** the surface using a clean piece of paper and solvent (acetone).

State of a sanded surface form a microscope view



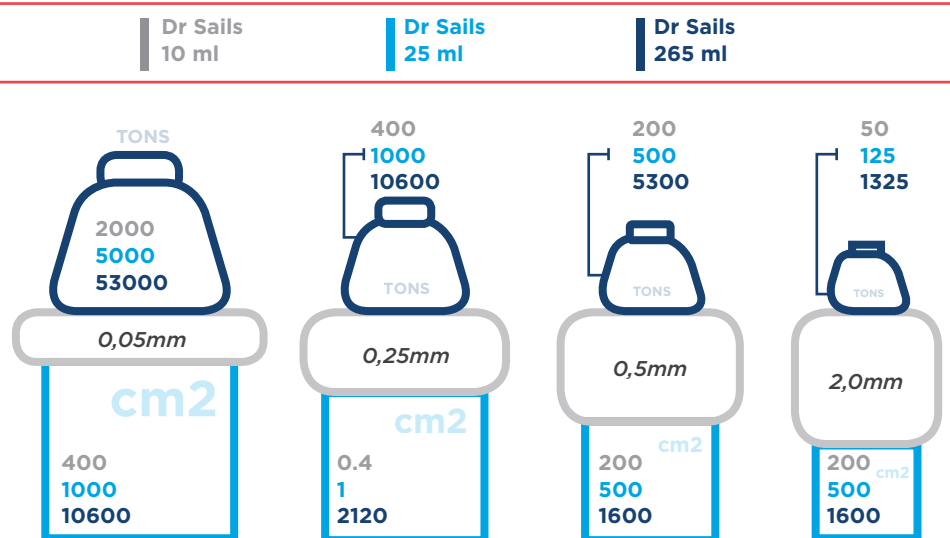
Types of sandpaper



3.3 DrSails ADHESION GUIDELINES

Plus, the extension of the bonding surface varies per product format: DS10 (10ml), DS25 (25ml) y DS265 (265ml). The following graphic shows the surface extension and tensile strength limits for each type of format depending on DrSails thickness.

**The tests are standardized according to ISO*



04

**Tricks
& Tips**

4.1 EMERGENCY REPAIRS

4.1.1 MAINSAIL'S EMERGENCY REPAIR (OVERLAP PEEL OFF)

DESCRIPTION: How to repair the Mainsail's overlap damaged because of the flapping.

REPAIR TYPE:

flexible, bonding, fortifying and emergency

MATERIAL TYPE:

Dacron®

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS265

RELATED PRODUCTS: SM265, DS10

RELATED TIPS & TRICKS:

Jib's emergency repair (batten pockets),
 Jib's emergency repair (head tear),
 Spinnaker's emergency repair (tear),
 Spinnaker's emergency repair (overlap peel off),
 Spinnaker's emergency repair (leech tear),
 (overlap peel off), Kitesurf's emergency repair (tear)

1. SPOT THE AREA TO BE REPAIRED

1.1 Spot the damaged area

1.2 If viable, clean up using acetone and a rag

2. DS265 PREPARATION (DRSAILS 265ML)

2.a Remove the cap and level off the components

2.b Insert the nozzle into the cartridge



2.c Insert the cartridge into the caulking gun

3. APPLY DRSAILS IN ZIG-ZAG ON THE OVERLAP (PATCH)

3.1 It is recommended to apply DrSails along the perimeter

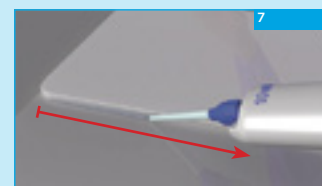
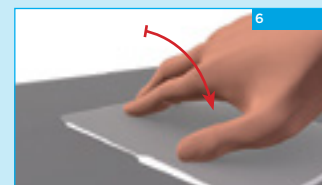
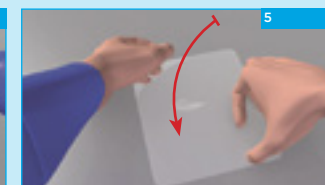
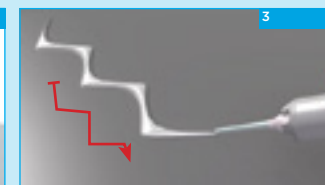
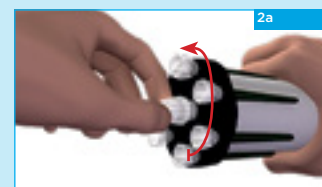
4. SPREAD DRSAILS UNIFORMLY ON THE PATCH BY USING A SCRAPER (OR SIMILAR DEVICE)

5. STICK THE OVERLAP TO THE SAIL

6. APPLY PRESSURE USING A SCRAPER OR SIMILAR DEVICE

7. REINFORCE THE OVERLAP EDGES BY APPLYING A LINE OF DRSAILS AROUND THE OVERLAP'S PERIMETER TO IMPROVE PEELING RESISTANCE. SPREAD THE MIXTURE WITH THE HELP OF A SCRAPER OR SIMILAR DEVICE

8. WAIT 22 MINUTES AND HOIST THE MAINSAIL



4.1 EMERGENCY REPAIRS

4.1.2 JIB'S EMERGENCY REPAIR (BATTEN POCKETS)

DESCRIPTION: How to repair the batten pockets of a Mylar's® Kevlar® fiber laminated Jib's sail damaged because of the batten's pointer.

REPAIR TYPE:

flexible, bonding, fortifying, and emergency

MATERIAL TYPE:

Mylar® Kevlar

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS25

RELATED PRODUCTS: SM25, DS10, SM10

RELATED TIPS & TRICKS:

Mainsail's emergency repair (main leech), Jib's emergency repair (head tear), Spinnaker's emergency repair (tear), Spinnaker's emergency repair (overlap peel off), Spinnaker's emergency repair (leech tear), Windsurf's emergency repair (tear), Windsurf's emergency repair (overlap peel off), Kitesurf's emergency repair (tear), Kitesurf's emergency repair (tear)

1. SPOT AND CLEAN UP THE AREA TO BE REPAIRED

1.1 Spot the damaged area

1.2 If viable, clean up using acetone and a rag

2. DS25 PREPARATION (DRSAILS 25ML)

2.a Remove the cap and level off the components

2.b Insert the nozzle

3. APPLY DRSAILS IN ZIGZAG ON THE OVERLAP

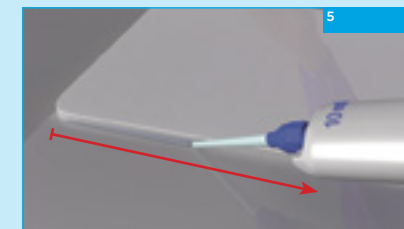
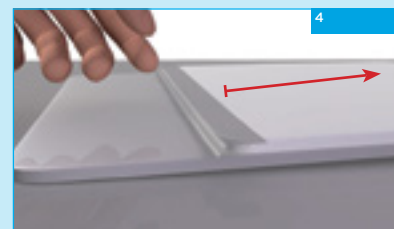
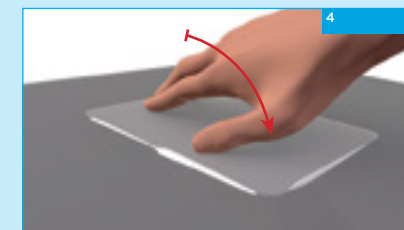
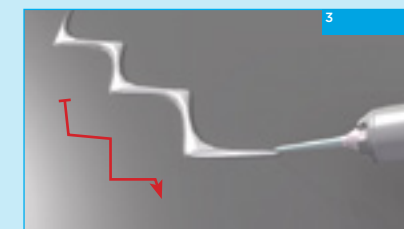
3.1 A distance of 1cm to 3cm between the zigzag lines is recommended

4. STICK THE OVERLAP TO THE SAIL AND APPLY PRESSURE USING A SCRAPER OR SIMILAR DEVICE

4.1 The excess fluid should be left on the paper tape

5. REINFORCE THE OVERLAP EDGES BY APPLYING A "STRING" OF DRSAILS AROUND THE OVERLAP'S PERIMETER TO IMPROVE PEELING RESISTANCE. SPREAD THE MIXTURE WITH THE HELP OF A SCRAPER OR SIMILAR DEVICE

6. WAIT 22 MINUTES AND HOIST THE MAINSAIL



4.1 EMERGENCY REPAIRS

4.1.3 JIB'S EMERGENCY REPAIR (HEAD POINT TEAR)

DESCRIPTION: How to repair the foot's head point of a Mylar's® Kevlar® fiber laminated Jib's sail.

REPAIR TYPE:

flexible, bonding, fortifying, and emergency

MATERIAL TYPE:

Mylar® Kevlar

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS25

RELATED PRODUCTS: SM25, DS10, SM10

RELATED TIPS & TRICKS:

Mainsail's emergency repair (main leech), Jib's emergency repair (batten pockets), Spinnaker's emergency repair (tear), Spinnaker's emergency repair (overlap peel off), Spinnaker's emergency repair (leech tear), Windsurf's emergency repair (tear), Windsurf's emergency repair (overlap peel off), Kitesurf's emergency repair (tear), Kitesurf's emergency repair (tear)

1. SPOT AND CLEAN UP THE REPAIR AREA

1.1 Spot the damaged area

1.2 If viable, clean up using acetone and a rag

1.3 Overlap material preparation (patch)

2. OVERLAPPING MATERIAL SETUP (PATCH)

2.1 How to define the overlapping area

2.1.1 Outside patch width: Allow 5cm margin on each side

2.1.2 Outside patch length: Allow the length of the breakage plus 5 cm on each side

2.1.3 Inside patch width: Should be 1cm shorter than the batten pocket's width

2.1.4 Inside patch length: Allow between 15 to 20cm. Minimum bonding length should be at least 10 cm

2.2 Patch setup

2.2.1 Draw the outline patches

2.2.2 Cut the patches and round corners

3. DS25 PREPARATION (DRSAILS 25ML)

3.a Remove the cap and level off the components

3.b Insert the nozzle

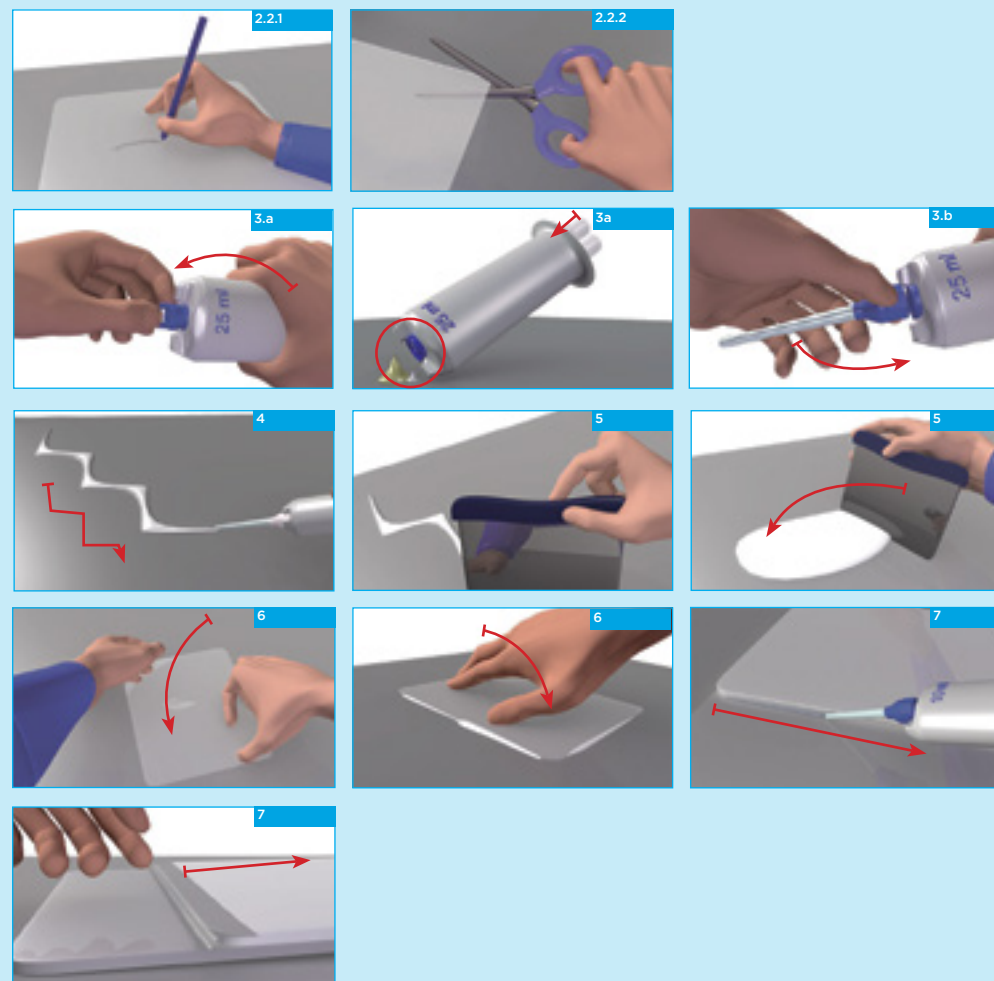
4. APPLY DRSAILS IN ZIGZAG ON THE PATCH

4.1 The distance between the zigzag lines drawn should be between 1 and 3 cm

5. SPREAD DRSAILS UNIFORMLY ON THE PATCH BY USING A SCRAPER (OR SIMILAR DEVICE)

6. PLACE THE PATCH AND APPLY PRESSURE WITH A SCRAPER

7. WAIT 22 MINUTES AND HOIST THE MAINSAIL



4.1 EMERGENCY REPAIRS

4.1.4 SPINNAKER'S EMERGENCY REPAIR (TEAR)

DESCRIPTION: Example showing how to repair a tearing on a white spinnaker sail weighing between 0.5 and 0.75 ounces.

REPAIR TYPE:

flexible, bonding, fortifying and emergency

MATERIAL TYPE:

Nylon

MULTIPLE USES

Sailboat, sails, windsurf, kitesurf

RELATED PRODUCTS: DS25

RELATED TIPS & TRICKS: SM10, DS25, SM25

RELATED TIPS & TRICKS:

Mainsail's emergency repair (main leech), Jib's emergency repair (batten pockets), Jib's emergency repair (tear), Spinnaker's emergency repair (overlap peel off), Spinnaker's emergency repair (leech tear), Windsurf's emergency repair (tear), Windsurf's emergency repair (overlap peel off), Kitesurf's emergency repair (tear), Kitesurf's emergency repair (tear)

1. SPOT THE AREA TO BE REPAIRED AND CLEAN IT UP

1.1 Spot the damaged area

1.2 If viable, clean up using acetone and a rag

2. OVERLAPPING MATERIAL SETUP (PATCH)

2.1 How to define the overlapping area (one side patch)

2.1.1 Patch width: Allow 5cm margin on each side of the overlap

2.1.2 Patch length: Allow the breakage's length plus 5 cm on each side

2.2 Patch setup

2.2.1 Draw the outline on the internal patch

2.2.2 Cut the internal patch perimeter and round the corners

3. DS25 PREPARATION (DRSAILS 25ML)

3.a Remove the cap and level off the components

3.b Insert the nozzle

4. APPLY DRSAILS IN ZIGZAG ALL OVER THE INTERNAL PATCH

5. THE DISTANCE BETWEEN THE ZIGZAG LINES DRAW SHOULD BE BETWEEN 1 AND 3 CM

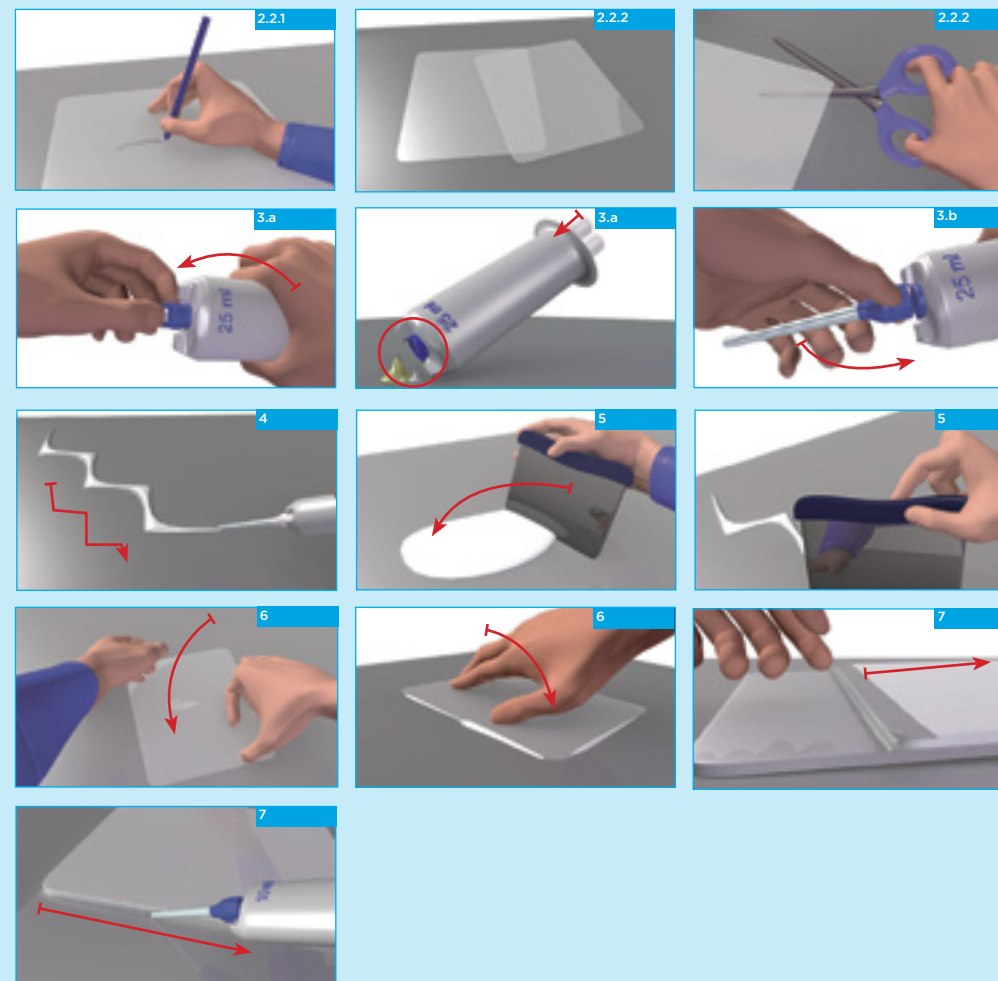
6. SPREAD DRSAILS UNIFORMLY THROUGHOUT THE OVERLAPPING AREA WITH THE HELP OF A SCRAPER OR SIMILAR DEVICE

7. ENSURE THE PATCH IS SYMMETRICALLY POSITIONED IN RELATION TO THE BREAKAGE AREA AND APPLY PRESSURE ON THE PATCH

8. APPLY PRESSURE WITH A SCRAPER TO REMOVE THE EXTRA PRODUCT

9. IN ORDER TO IMPROVE PEELING RESISTANCE, THE OVERLAPPING BORDERS SHOULD BE REINFORCED BY APPLYING AN ADDITIONAL STRING OF DRSAILS THROUGHOUT THE OVERLAP PERIMETER

10. WAIT 22 MINUTES AND HOIST THE MAINSAIL



4.1 EMERGENCY REPAIRS

4.1.5 SPINNAKER SAIL EMERGENCY REPAIR (OVERLAP PEEL OFF)

DESCRIPTION: Example showing how to repair a white spinnaker's overlap separation, weighing between 0.5 and 0.75 ounces

REPAIR TYPE:

flexible, bonding, fortifying and emergency

MATERIAL TYPE:

Nylon

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS25

RELATED PRODUCTS: SM10, DS25, SM25

RELATED TIPS & TRICKS:

Mainsail's emergency repair (main leech), Jib's emergency repair (batten pockets), Jib's emergency repair (tear), Spinnaker's emergency repair (tear), Spinnaker's emergency repair (leech tear), Windsurf's emergency repair (tear), Windsurf's emergency repair (overlap peel off), Kitesurf's emergency repair (tear), Kitesurf's emergency repair (tear)

1. SPOT AND CLEAN UP THE REPAIR AREA

1.1 Spot the damaged overlapping area

1.2 If viable, clean up using acetone and a rag

2. DS25 PREPARATION (DRSAILS 25ML)

3.a Remove the cap and level off the components

3.b Insert the nozzle

4. APPLY DRSAILS IN ZIGZAG THROUGHOUT THE OVERLAPPING AREA

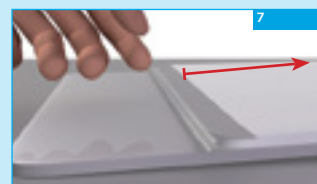
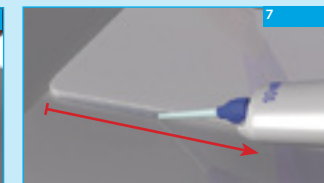
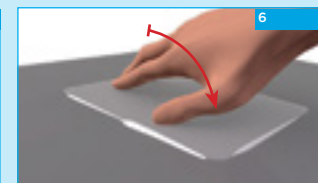
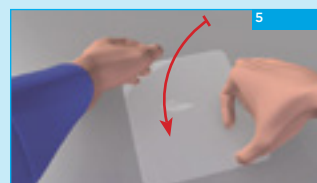
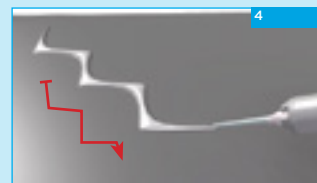
4.1 A distance of 1cm to 3 cm between the zigzag lines is recommended

5. ENSURE THE PATCH IS SYMMETRICALLY POSITIONED IN RELATION TO THE BREAKAGE AREA AND APPLY PRESSURE ON THE PATCH

6. APPLY PRESSURE TO THE PATCH USING A SCRAPER AND REMOVE THE EXTRA FLUID

7. IN ORDER TO IMPROVE PEELING RESISTANCE, THE OVERLAPPING BORDERS SHOULD BE REINFORCED BY APPLYING AN ADDITIONAL STRING OF DRSAILS THROUGHOUT THE OVERLAP PERIMETER

8. WAIT 22 MINUTES AND HOIST THE SPINNAKER



4.1 EMERGENCY REPAIRS

4.1.6 SPINNAKER'S EMERGENCY REPAIR (LEECH TEAR)

DESCRIPTION: Example showing how to repair the leech of a white spinnaker weighing between 0.5 and 0.75 ounces.

REPAIR TYPE:

flexible, bonding, fortifying and emergency

MATERIAL TYPE:

Nylon

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS25

RELATED PRODUCTS: SM10, DS25, SM25

RELATED TIPS & TRICKS:

Mainsail's emergency repair (main leech), Jib's emergency repair (batten pockets), Jib's emergency repair (tear), Spinnaker's emergency repair (tear), Spinnaker's emergency repair (overlap peel off), Windsurf's emergency repair (tear), Windsurf's emergency repair (overlap peel off), Kitesurf's emergency repair (tear), Kitesurf's emergency repair (tear)

1. SPOT THE REPAIR AREA AND CLEAN UP

1.1 Spot the damaged overlapping area

1.2 If viable, clean up with acetone and a rag

2. OVERLAPPING MATERIAL SETUP (PATCH)

2.1 How to define the overlapping area (two sides patches: external and internal)

2.1.1 External patch width

I. Based on the sail type

II. Strong winds: Allow 4 mm for each overlapping cm in relation to the breakage's symmetry axis

III. Moderate winds: Allow 2mm for each overlapping cm in relation to the breakage's symmetry axis

IV. Light winds: 0mm

2.1.2 External patch length: Allow the breakage's length plus 5 cm on each side

2.1.3 Internal patch width: Same as the external

2.1.4 Internal patch length: Same as the external

2.1 Patch preparation: external and internal

2.2.1 Draw the outline over the internal overlap

2.2.2 Cut the internal overlap perimeter and round the corners

2.2.3 Repeat the same procedure for the external patch

3. DS25 PREPARATION (DRSAILS 25ML)

3.a Remove the cap and level off the components

3.b Insert the nozzle

4. APPLY DRSAILS IN ZIGZAG THROUGHOUT THE INTERNAL OVERLAPPING AREA

4.1 A distance of 1cm to 3cm between the zigzag lines is recommended

5. SPREAD DRSAILS UNIFORMLY THROUGHOUT THE INTERNAL OVERLAP WITH THE HELP OF A SCRAPER OR SIMILAR DEVICE

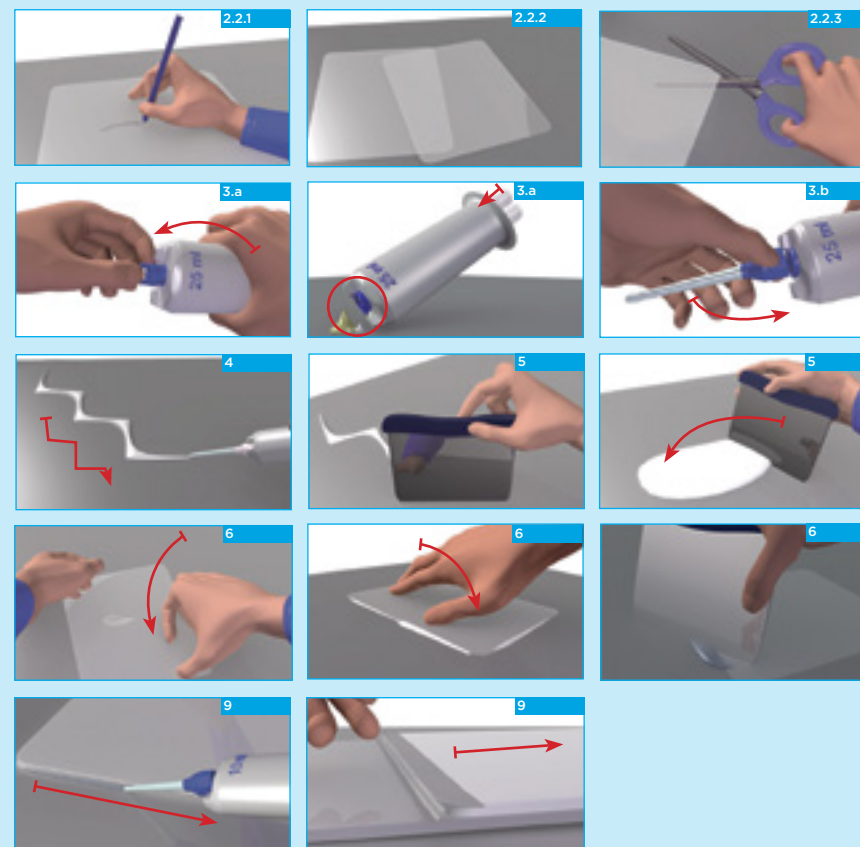
6. PLACE THE PATCH SYMMETRICAL TO THE BREAKAGE AND APPLY PRESSURE TO THE PATCH USING A SCRAPER TO REMOVE THE EXTRA PRODUCT

7. WAIT FOR 22 MINUTES

8. REPEAT STEPS 5, 6 Y 7 FOR THE EXTERNAL PATCH

9. TO IMPROVE PEELING RESISTANCE, REINFORCE THE OVERLAPPING BORDERS AND STICK SELF-BONDING TAPE

10. WAIT FOR 22MINUTES AND HOIST THE JIB AGAIN



4.1 EMERGENCY REPAIRS

4.1.7 WINDSURF SAIL EMERGENCY REPAIR (TEARING)

DESCRIPTION: Example showing how to repair a tearing on a windsurf sail.

REPAIR TYPE:

flexible, bonding, fortifying and emergency

MATERIAL TYPE:

Mylar

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS25

RELATED PRODUCTS: SM25, DS10, SM

RELATED TIPS & TRICKS:

Mainsail's emergency repair (main leech), Jib's emergency repair (batten pockets), Jib's emergency repair (tear), Spinnaker's emergency repair (tear), Spinnaker's emergency repair (overlap peel off), Spinnaker's breakage repair (leech tear), Windsurf's emergency repair (overlap peel off), Kitesurf's emergency repair (tear), Kitesurf's emergency repair (tear)

1. SPOT THE REPAIR AREA

1.1 Identify the damaged overlapping area

1.2 If viable, clean up with acetone and a rag

2. OVERLAPPING MATERIAL SETUP (PATCH)

2.1 How to define the overlapping area (two sides patches: external and internal)

2.1.1 External overlap width

I. Based on the sail type

II. Strong winds: Allow 4 mm for each overlapping cm in relation to the breakage's symmetry axis

III. Moderate winds: Allow 2mm for each overlapping cm in relation to the breakage's symmetry axis

IV. Light winds: 0mm

2.1.2 External patch length: Allow the breakage's length plus 5 cm on each side

2.1.3 Internal patch width: Same as the external

2.1.4 Internal patch length: Same as the external

2.2 Patch preparation: external and internal

2.2.1 Draw the outline over the internal patch

2.2.2 Cut the internal patch perimeter and round the corners

2.2.3 Repeat the same procedure with the external patch

3. DS25 PREPARATION (DRSAILS 25ML)

3.a Remove the cap and level off the components

3.b Insert the nozzle

4. APPLY DRSAILS IN ZIGZAG THROUGHOUT THE OVERLAPPING AREA

4.1 A distance of 1cm to 3cm between the zigzag lines is recommended

5. SPREAD DRSAILS UNIFORMLY THROUGHOUT THE INTERNAL PATCH WITH THE HELP OF A SCRAPER OR SIMILAR DEVICE

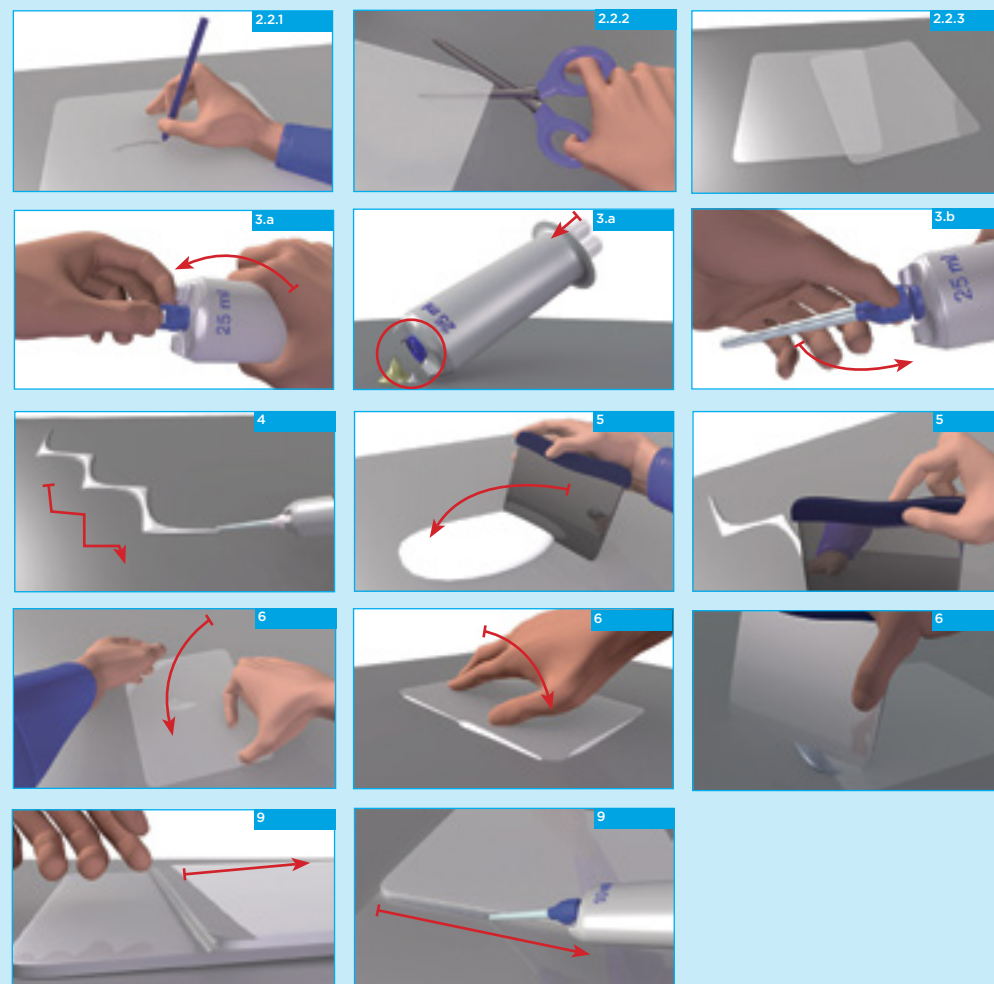
6. PLACE THE PATCH SYMMETRICAL TO THE BREAKAGE AND APPLY PRESSURE TO THE PATCH USING A SCRAPER TO REMOVE THE EXTRA PRODUCT

7. WAIT FOR 22 MINUTES

8. EPEAT STEPS 5, 6 Y 7 FOR THE EXTERNAL PATCH

9. TO IMPROVE PEELING RESISTANCE, REINFORCE THE OVERLAPPING BORDERS AND STICK SELF-BONDING TAPE

10. WAIT FOR 22 MINUTES AND BACK SAILING



4.1 EMERGENCY REPAIRS

4.1.8 WINDSURF SAIL EMERGENCY REPAIR (OVERLAP PEEL OFF)

DESCRIPTION: Example showing how to repair a torn windsurf sail.

REPAIR TYPE:

flexible, bonding, fortifying and emergency

MATERIAL TYPE:

Mylar

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS25

RELATED PRODUCTS: SM25, DS10, SM10

RELATED TIPS & TRICKS:

Mainsail's emergency repair (main leech), Jib's emergency repair (batten pockets), Jib's emergency repair (tear), Spinnaker's emergency repair (tear), Spinnaker's emergency repair (overlap peel off), Spinnaker's breakage repair (leech tear), Windsurf's emergency repair (tear), Kitesurf's emergency repair (tear), Kitesurf's emergency repair (tear)

1. IDENTIFY AND CLEAN UP THE REPAIR AREA

1.1 Identify the damaged overlapping area

1.2 If viable, clean up using acetone and a rag

2. DS25 PREPARATION (DRSAILS 25ML)

2.a Remove the cap and level off the components

2.b Insert the nozzle

3. APPLY DRSAILS IN ZIGZAG THROUGHOUT THE OVERLAPPING AREA

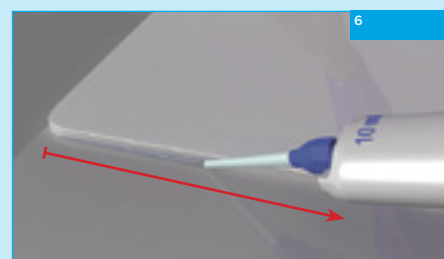
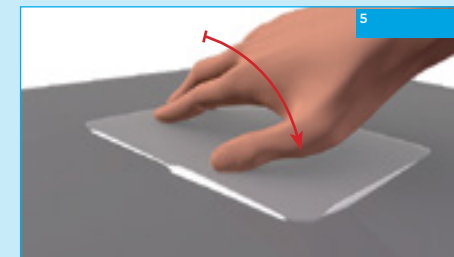
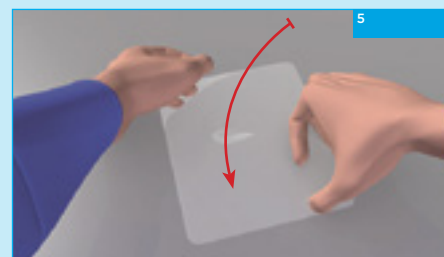
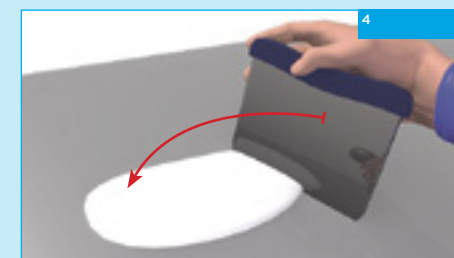
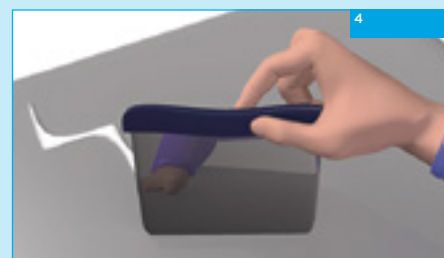
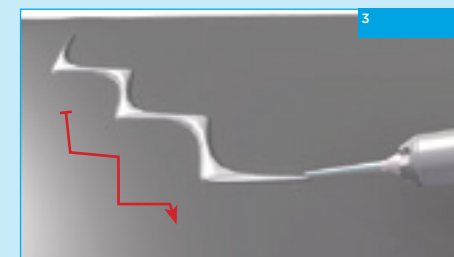
3.1 A distance of 1cm to 3cm between the zigzag lines is recommended

4. SPREAD DRSAILS UNIFORMLY THROUGHOUT THE INTERNAL OVERLAP WITH THE HELP OF A SCRAPER OR SIMILAR DEVICE

5. PLACE THE PATCH SYMMETRICAL TO THE BREAKAGE AND APPLY PRESSURE TO THE PATCH USING A SCRAPER TO REMOVE THE EXTRA FLUID

6. TO IMPROVE PEELING RESISTANCE, REINFORCE THE OVERLAPPING BORDERS AND STICK SELF-BONDING TAPE

7. WAIT FOR 22 MINUTES AND BACK SAILING



4.1 EMERGENCY REPAIRS

4.1.9 KITESURF'S EMERGENCY REPAIR (TEAR)

DESCRIPTION: Example showing how to repair a tearing on a Kitesurf's sail.

REPAIR TYPE:

flexible, bonding, fortifying and emergency

MATERIAL TYPE:

Nylon

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS25

RELATED PRODUCTS: SM10, DS10, SM25

RELATED TIPS & TRICKS:

Mainsail's emergency repair (main leech), Jib's emergency repair (batten pockets), Jib's emergency repair (tear), Spinnaker's emergency repair (overlap peel off), Spinnaker's emergency repair (leech tear), Windsurf's emergency repair (tear), Windsurf's emergency repair (overlap peel off)

1. SPOT THE AREA TO BE REPAIRED AND CLEAN IT UP

1.1 Spot the damaged area

1.2 If viable, clean up using acetone and a rag

2. OVERLAPPING MATERIAL SETUP (PATCH)

2.1 Draw the outline over the overlap

2.2 Cut the overlap perimeter and round the corners

3. DS25 PREPARATION (DRSAILS 25ML)

3.a Remove the cap and level off the components

3.b Insert the nozzle

4. APPLY DRSAILS IN ZIGZAG ON THE PATCH

4.1 The distance between the zigzag lines drawn should be between 1 and 3 cm

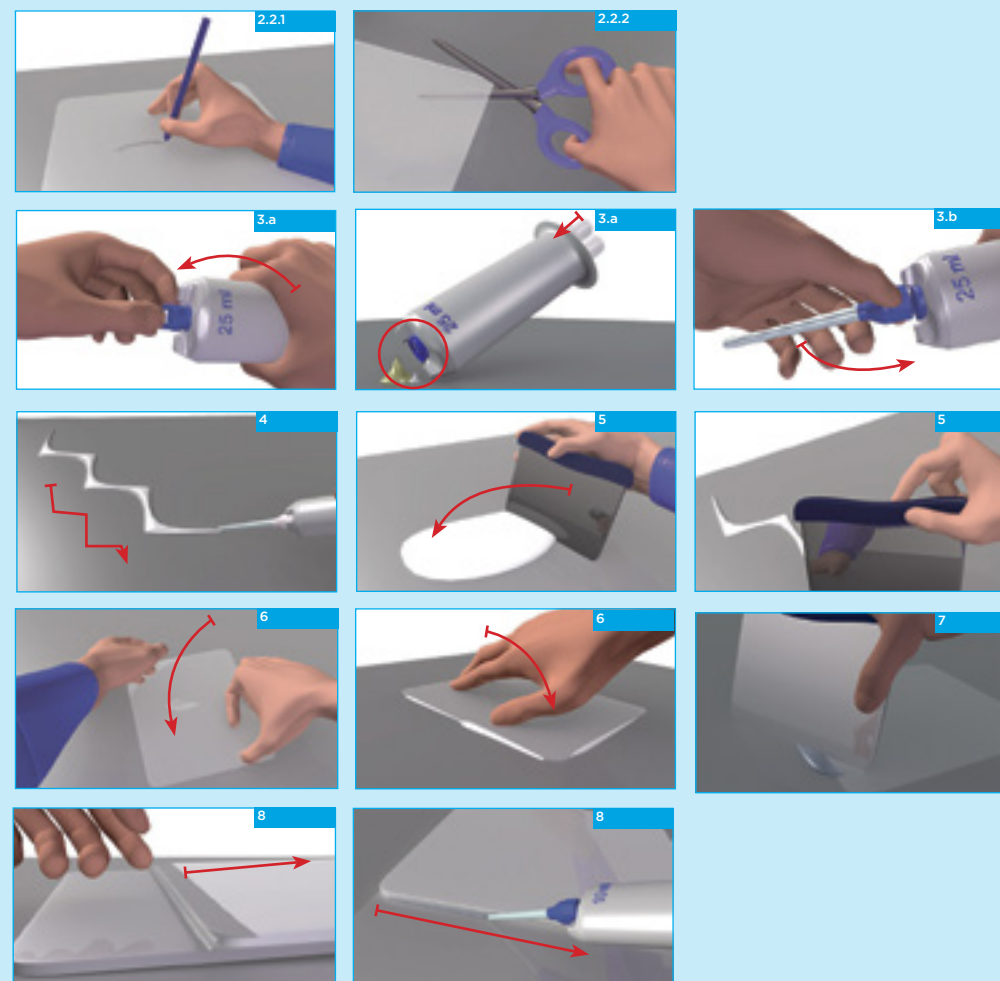
5. SPREAD DRSAILS UNIFORMLY THROUGHOUT THE OVERLAPPING AREA WITH THE HELP OF A SCRAPER OR SIMILAR DEVICE

6. ENSURE THE PATCH IS SYMMETRICALLY POSITIONED IN RELATION TO THE BREAKAGE AREA AND APPLY PRESSURE ON THE PATCH

7. APPLY PRESSURE WITH A SCRAPER TO REMOVE THE EXTRA PRODUCT

8. IN ORDER TO IMPROVE PEELING RESISTANCE, THE OVERLAPPING BORDERS SHOULD BE REINFORCED BY APPLYING AN ADDITIONAL STRING OF DRSAILS THROUGHOUT THE OVERLAP PERIMETER

9. WAIT 22 MINUTES AND START SAILING AGAIN



4.1 EMERGENCY REPAIRS

4.1.10 KITESURF'S EMERGENCY REPAIR (MICRO-PORES FLOATER)

DESCRIPTION: Example showing how to repair a pore on a coolant tank made of plastic.

REPAIR TYPE:

flexible, bonding, fortifying and emergency

MATERIAL TYPE:

Latex

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS10

RELATED PRODUCTS: SM10, DS25, SM25

2. DS10 PREPARATION (DRSAILS 10ML)

2.a Remove the cap and level off the components

2.b Insert the nozzle

3. APPLY DRSAILS ON THE REPAIR AREA

4. WAIT FOR 22 MINUTES AND CHECK RESULTS



RELATED TIPS & TRICKS:

Mainsail's emergency repair (main leech), Jib's emergency repair (batten pockets), Jib's emergency repair (tear), Spinnaker's emergency repair (overlap peel off), Spinnaker's emergency repair (leech tear), Windsurf's emergency repair (tear), Windsurf's emergency repair (overlap peel off), Kitesurf's emergency repair (tear)

1. SPOT THE AREA TO BE REPAIRED

1.1 Mix water and soap and soak the plastic tank

1.2 Blow through the tank's filling mouth.

NOTE: Should a micro-pore exist, a soap bubble might form on the tank's surface

1.3 Clean the area with acetone and a rag



4.1 EMERGENCY REPAIRS

4.1.11 SURFBOARD EMERGENCY REPAIR

DESCRIPTION: Example showing how to repair grip on a surfboard

REPAIR TYPE:

rigid, filling, bonding, refilling, fortifying, sealing and emergency

MATERIAL TYPE:

Aluminum, steel, inox, wood, glass composite, carbon composite, copper, cement, glass, polyester.

MULTIPLE USES:

Sailboat, powerboat, dinghy, pneumatic, sails, hardware, swimming pool, bike, clothing, ski, windsurf, kayak.

USED PRODUCTS: DS10

RELATED PRODUCTS: SM25, DS25, SM10



RELATED TIPS & TRICKS:

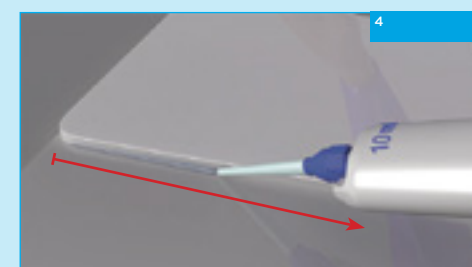
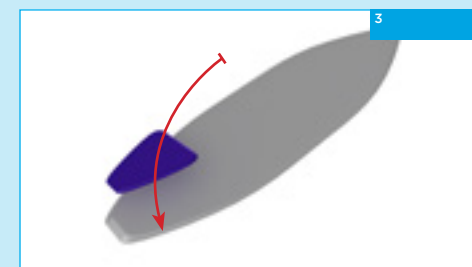
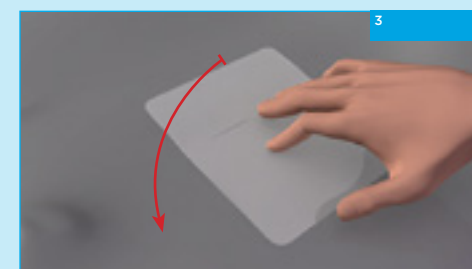
Underwater rigid junction

1. DS10 PREPARATION (DRSAILS 10ML)

1.a Remove the cap and level off the components

1.b Insert the nozzle

2. APPLY DRSAILS IN ZIGZAG OVER THE REPAIR AREA AND EXTEND THROUGHOUT USING A SCRAPER OR SIMILAR DEVICE



4.1 EMERGENCY REPAIRS

4.1.12 TANK EMERGENCY REPAIR (MICRO-PORES)

DESCRIPTION: Example showing how to repair a pore on a coolant tank made of plastic.

REPAIR TYPE:

rigid, filling, bonding, fortifying, and emergency

MATERIAL TYPE:

Aluminum, steel, inox, wood, glass composite, carbon composite, copper, cement, glass, polyester.

MULTIPLE USES:

Sailboat, powerboat, dinghy, pneumatic, sails, hardware, swimming pool, bike, clothing, ski, windsurf, kayak.

USED PRODUCTS: DS10

RELATED PRODUCTS: SM10, DS25, SM25

RELATED TIPS & TRICKS:

Surfboard emergency repair (grip)

1. SPOT THE AREA TO BE REPAIRED

1.1 Mix water and soap and soak the plastic tank

1.2 Blow through the tank's filling mouth.

Note: Should a micro-pore exist, a soap bubble might form on the tank's surface.

1.3 Clean the area with acetone and a rag

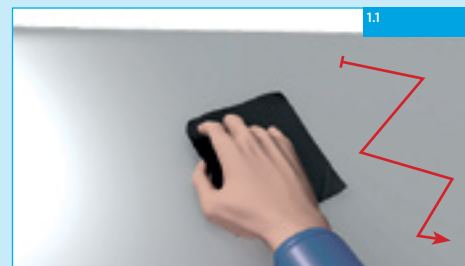
2. DS10 PREPARATION (DRSAILS 10ML).

2.a Remove the cap and level off the components

2.b Insert the nozzle

3. APPLY DRSAILS ON THE REPAIR AREA

4. WAIT FOR 22 MINUTES AND CHECK RESULTS



4.1 EMERGENCY REPAIRS

4.1.13 NEOPRENE'S EMERGENCY REPAIR (TEARING REPAIR)

DESCRIPTION: Example showing how to repair a torn neoprene type 3/4.

REPAIR TYPE:

flexible, bonding, sealing, fortifying, emergency

MATERIAL TYPE:

Neoprene

MULTIPLE USES:

Surf, diving, powerboat, dinghy, wind-surf, kitesurfing, kayak

USED PRODUCTS: DS10

RELATED PRODUCTS: SM10, DS25, SM25

RELATED TIPS & TRICKS:

Neoprene: tear, Neoprene: breakage

1. IF NEEDED, PREPARE THE OVERLAP.

2. DS10 PREPARATION (DRSAILS 10ML)

2.a Remove the cap and level off the components

2.b Insert the nozzle

3. APPLY DRSAILS IN ZIGZAG THROUGHOUT THE OVERLAP

3.1 A distance of 1cm to 3cm between the zigzag lines is recommended

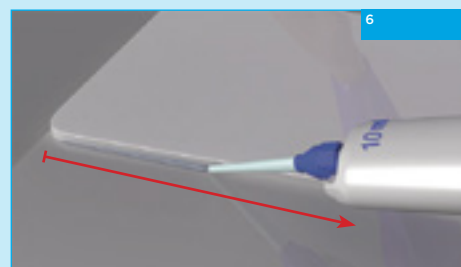
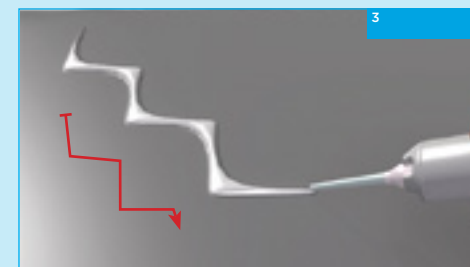
4. SPREAD DRSAILS UNIFORMLY THROUGHOUT THE PATCH.

5. STRETCH THE NEOPRENE (REGULAR BENDING), BOND THE FABRICS TOGETHER AND APPLY PRESSURE TO IT FOR 5 TO 8 MINUTES

6. TO IMPROVE PEELING RESISTANCE, APPLY DRSAILS ON THE OVERLAPPING BORDERS FORMING A STRING

6.1 Due to neoprene's high porosity, using a mix of DrSails and DrSails Filler is recommended to avoid soaking the neoprene

7. WAIT FOR 30MIN TO REACH 80% OF DRSAILS' MECHANICAL PROPERTIES



4.2 FLEXIBLE BONDING REPAIRS

4.2.1 MAINSAIL'S BREAKAGE REPAIR (OVERLAP PEEL OFF)

DESCRIPTION: How to repair the Mainsail's overlap damaged because of the flapping.

REPAIR TYPE:

flexible, bonding, fortifying, dry

MATERIAL TYPE:

Dacron®

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS265

RELATED PRODUCTS: SM265, DS10

RELATED TIPS & TRICKS:

Jib's emergency repair (batten pockets), Jib's emergency repair (head tear), Spinnaker's emergency repair (tear), Spinnaker's emergency repair (overlap peel off), Spinnaker's emergency repair (leech tear), Windsurf's emergency repair (tear), Windsurf's emergency repair (overlap peel off), Kitesurf's breakage repair (tear)

1. SPOT AND CLEAN UP THE AREA TO BE REPAIRED

1.1 Spot the damaged area

1.2 Clean up using acetone and a cloth piece

1.3 Clear the area to be repaired

2. OVERLAPPING MATERIAL SETUP (PATCH)

2.1 How to define the overlapping area (two sides Overlapping material setup (patch))

2.1.1 External patch width

I. Based on the sail type

II. Strong winds: Allow 4 mm for each overlapping cm in relation to the breakage's symmetry axis

III. Moderate winds: Allow 2mm for each overlapping cm in relation to the breakage's symmetry axis

IV. Light winds: 0mm

2.1.2 External patch length: Allow the breakage's length plus 5 cm on each side

2.1.3 Internal patch length: Same as the external

2.2 Patch preparation: external and internal

2.2.1 Draw the outline over the internal patch

2.2.2 Cut the internal patch perimeter and round the corners

2.2.3 Repeat the same procedure for the external patch

3. PASTE TAPE AROUND THE PERIMETER OF THE DAMAGE AREA

3.1 Leave a gap of 5 mm (approximately) between the overlap's edge and the tape

4. DS265 PREPARATION (DRSAILS 265ML)

4.c Insert the cartridge in the caulking gun

4.a Remove the cap and level off the components

4.b Insert the nozzle into the cartridge

5. APPLY DRSAILS IN ZIGZAG ON THE PATCH

5.1 A distance of 1cm to 3cm between the zigzag lines is recommended

6. PLACE THE PATCH SYMMETRICAL TO THE BREAKAGE AND APPLY PRESSURE TO THE PATCH USING A SCRAPER TO REMOVE THE EXTRA PRODUCT

Note: The excess product should be left on the paper tape

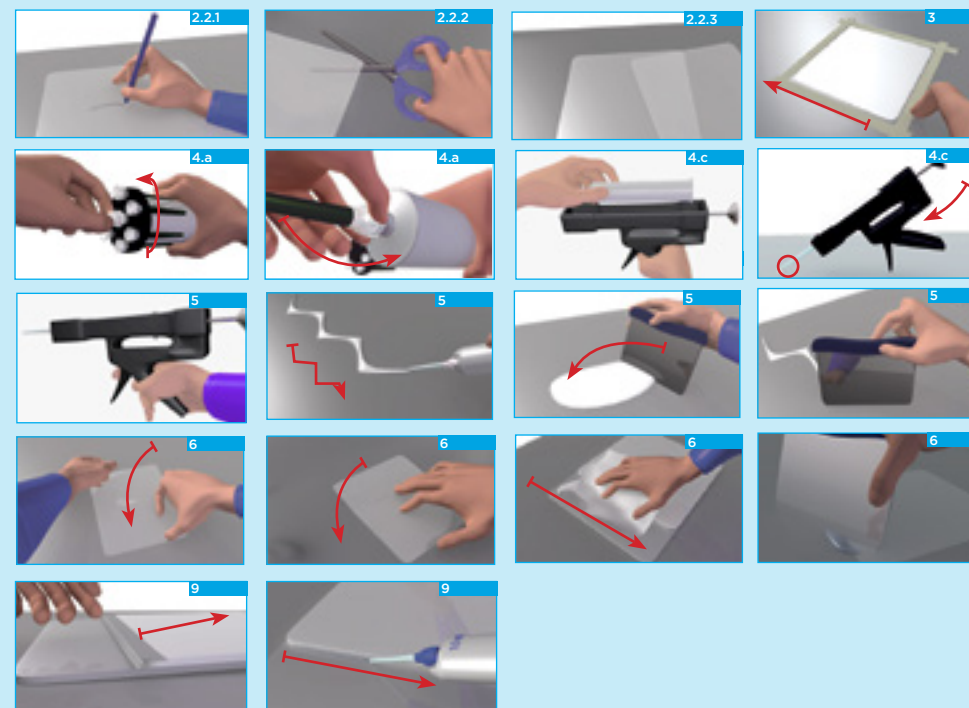
7. WAIT FOR 22 MINUTES

8. REPEAT STEPS 7, 8 AND 9 FOR THE EXTERNAL PATCH

9. REINFORCE THE OVERLAP EDGES BY BONDING AUTOADHESIVE SAILCLOTH TISSUE AROUND THE OVERLAP'S PERIMETER TO IMPROVE PEELING RESISTANCE

9.1 Peeling reinforce can also be done by applying a "string" of DrSails around the overlap's perimeter and then spreading the mixture with the help of a scraper or similar device

10. WAIT FOR 22 MINUTES AND CHECK RESULTS



4.2 FLEXIBLE BONDING REPAIRS

4.2.2 JIB'S BREAKAGE REPAIR (BATTEN POCKETS)

DESCRIPTION: How to repair the batten pockets of a Mylar's® Kevlar® fiber laminated Jib's sail damaged because of the batten's pointer.

REPAIR TYPE:

flexible, bonding, fortifying, dry

MATERIAL TYPE:

MYLAR®, KEVLAR®

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS25

RELATED PRODUCTS: SM10, DS10, SM25

3.a Remove the cap and level off the components

3.b Insert the nozzle

4. APPLY DRSALES IN ZIGZAG ON THE PATCH

5. A DISTANCE OF 1CM TO 3CM BETWEEN THE ZIGZAG LINES IS RECOMMENDED

6. PLACE THE PATCH SYMMETRICAL TO THE BREAKAGE AND APPLY PRESSURE TO THE PATCH USING A SCRAPER TO REMOVE THE EXTRA PRODUCT

6.1 Note: The excess of product should be left on the paper tape

7. REINFORCE THE OVERLAP EDGES BY BONDING AUTOADHESIVE SAILCLOTH TISSUE AROUND THE PATCHES' PERIMETER TO IMPROVE PEELING RESISTANCE

7.1 Peeling reinforce can also be done by applying a "string" of DrSails around the patches' perimeter and then spreading the mixture with the help of a scraper or similar device

8. WAIT FOR 22 MINUTES AND HOIST BACK THE JIB

RELATED TIPS & TRICKS:

Mainsail's emergency repair (main leech), Jib's emergency repair (head tear), Spinnaker's emergency repair (tear), Spinnaker's emergency repair (overlap peel off), Spinnaker's emergency repair (leech tear), Windsurf's emergency

1. SPOT AND CLEAN UP THE AREA TO BE REPAIRED

1.1 Spot the damaged area

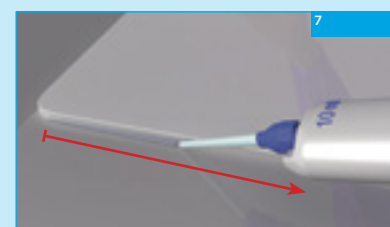
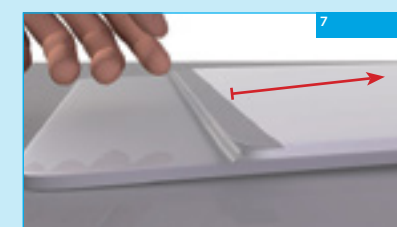
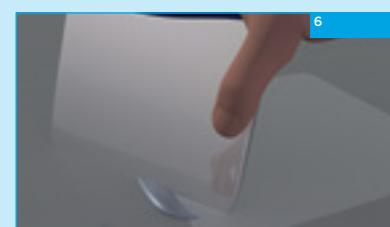
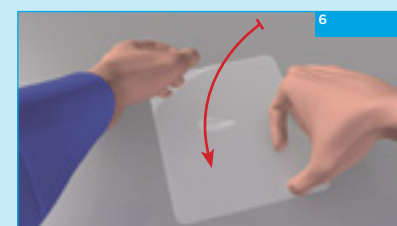
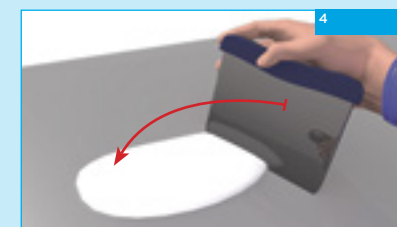
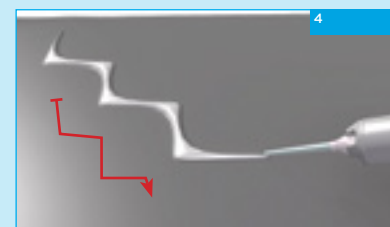
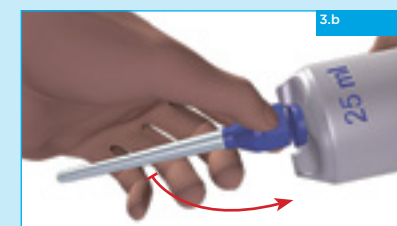
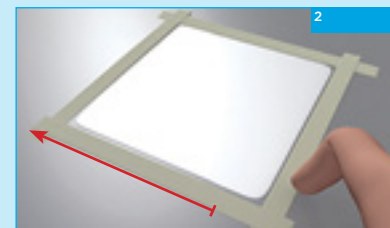
1.2 Clean up using acetone and rag

1.3 Clear the area to be repaired

2. PASTE TAPE AROUND THE PERIMETER OF THE DAMAGE AREA

2.1 Leave a gap of 5 mm (approximately) between the overlap's edge and the tape

3. DS25 PREPARATION (DRSALES 25ML)



4.2 FLEXIBLE BONDING REPAIRS

4.2.3 JIB'S BREAKAGE REPAIR (HEAD POINT TEAR)

DESCRIPTION: How to repair the foot's head point of a Mylar's® Kevlar® fiber laminated Jib's sail.

REPAIR TYPE:

flexible, bonding, fortifying, dry

MATERIAL TYPE:

MYLAR®, KEVLAR®

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS25

RELATED PRODUCTS: SM25, DS10, SM10

RELATED TIPS & TRICKS:

Mainsail's emergency repair (main leech), Jib's emergency repair (batten pockets), Spinnaker's emergency repair (tear), Spinnaker's emergency repair (overlap peel off), Spinnaker's emergency repair (leech tear), Windsurf's emergency repair (tear), Windsurf's emergency repair (overlap peel off), Kitesurf's breakage repair (tear)

1. SPOT AND CLEAN UP THE REPAIR AREA

1.1 Spot the damaged area

1.2 Clean up using acetone and a cloth piece

1.3 Clear the working area

2. PATCH MATERIAL PREPARATION

2.1 Guideline to determine the overlapping area

2.1.1 patch width: Allow 5cm margin on each side

2.1.2 patch length: Allow the length of the breakage plus 5 cm on each side

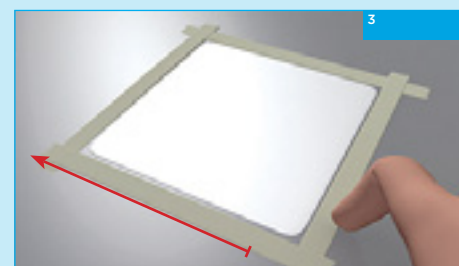
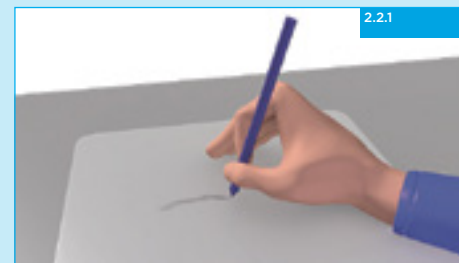
2.2 Patch setup

2.2.1 Draw the outline on the patch

2.2.2 Cut the patch and round the corners

3. PASTE TAPE AROUND THE PERIMETER OF THE DAMAGE AREA

3.1 Leave a gap of 5 mm (approximately) between the patch's edge and the tape



4.2 FLEXIBLE BONDING REPAIRS

4.2.3 JIB'S BREAKAGE REPAIR (HEAD POINT TEAR)

4. DS25 PREPARATION (DRSAILS 25ML)

4.a Remove the cap and level off the components

4.b Insert the nozzle

5. APPLY DRSAILS IN ZIGZAG ON THE PATCH

The distance between the zigzag lines drawn should be between 1 and 3 cm

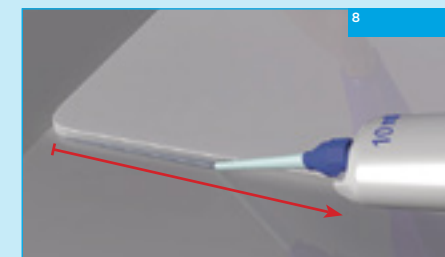
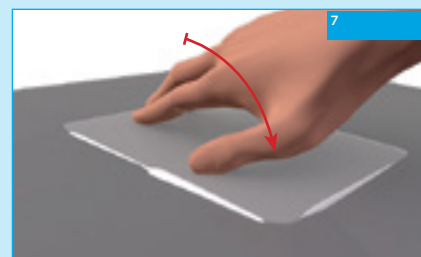
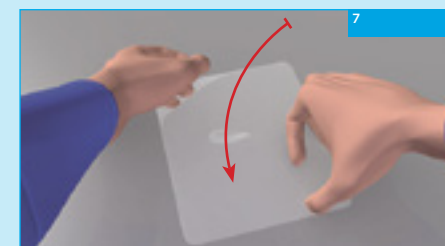
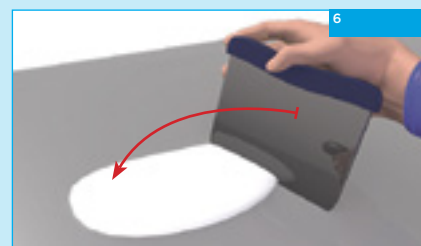
6. SPREAD DRSAILS UNIFORMLY BY USING A SCRAPER

7. PLACE THE PATCH SYMMETRICAL TO THE BREAKAGE AND APPLY PRESSURE TO THE PATCH USING A SCRAPER TO REMOVE THE EXTRA PRODUCT

8. REINFORCE THE PATCHES' EDGES BY BONDING AUTOADHESIVE SAILCLOTH TISSUE AROUND THE PATCH'S PERIMETER TO IMPROVE PEELING RESISTANCE

8.1 Peeling reinforce can also be done by applying a "string" of DrSails around the patch's perimeter and then spreading the mixture with the help of a scraper or similar device

9. WAIT FOR 22 MINUTES AND CHECK RESULTS



4.2 FLEXIBLE BONDING REPAIRS

4.2.4 SPINNAKER'S BREAKAGE REPAIR (TEAR)

DESCRIPTION: Example showing how to repair a tearing on a white spinnaker sail weighing between 0.5 and 0.75 ounces.

REPAIR TYPE:

flexible, bonding, fortifying, dry

MATERIAL TYPE:

Nylon

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS25

RELATED PRODUCTS: SM10, DS10, SM25

RELATED TIPS & TRICKS:

Mainsail's emergency repair (main leech),
Jib's emergency repair (batten pockets),
Jib's emergency repair (tear)

1. SPOT THE AREA TO BE REPAIRED AND CLEAN IT UP

1.1 Spot the damaged area

1.2 Clean up using acetone and a cloth piece

1.3 Clear area to be repaired

2. OVERLAPPING MATERIAL SETUP (PATCHES)

2.1 Guideline to determine the overlapping area

2.1.1 External patch width: Allow 5cm margin on each side of the overlap

2.1.2 External patch length: Allow the breakage's length plus 5 cm on each side

2.1.3 Internal patch width: Same as the external

2.1.4 Internal patch length: Same as the external

2.2 Patch setup

2.2.1 Draw the outline on both patches

2.2.2 Cut both patches perimeter and round the corners

3. PASTE TAPE AROUND THE PERIMETER OF THE DAMAGE AREA

3.1 Leave a gap of 5 mm (approximately) between the patch's edge and the tape

4. DS25 PREPARATION (DRSAILS 25ML)

4.a Remove the cap and level off the components

4.b Insert the nozzle

5. APPLY DRSAILS IN ZIGZAG ALL OVER THE INTERNAL PATCH

5.1 The distance between the zigzag lines drawn should be between 1 and 3 cm

6. SPREAD DRSAILS UNIFORMLY THROUGHOUT THE OVERLAPPING AREA WITH THE HELP OF A SCRAPER OR SIMILAR DEVICE

7. PLACE THE PATCH SYMMETRICAL TO THE BREAKAGE AND APPLY PRESSURE TO THE PATCH USING A SCRAPER TO REMOVE THE EXTRA PRODUCT

7.1 Note: extra product should always be kept on a paper tape

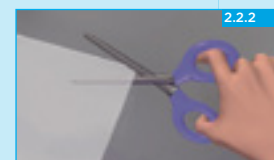
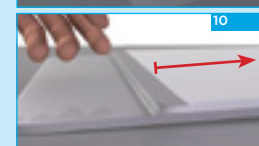
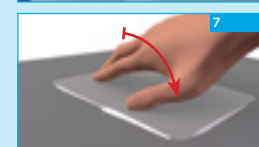
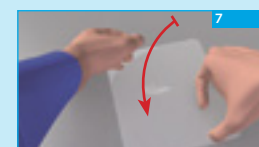
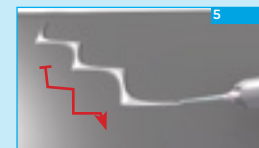
8. WAIT FOR 22 MINUTES

9. REPEAT STEPS 7, 8 AND 9 FOR THE EXTERNAL PATCH

10. REINFORCE THE PATCH EDGES BY BONDING AUTOADHESIVE SAILCLOTH TISSUE AROUND THE OVERLAP'S PERIMETER TO IMPROVE PEELING RESISTANCE

10.1 Peeling reinforce can also be done by applying a "string" of DrSails around the overlap's perimeter and then spreading the mixture with the help of a scraper or similar device

11. WAIT FOR 22 MINUTES AND CHECK RESULTS



4.2 FLEXIBLE BONDING REPAIRS

4.2.5 SPINNAKER SAIL BREAKAGE REPAIR (OVERLAP PEEL OFF)

DESCRIPTION: Example showing how to repair a white spinnaker's overlap separation, weighing between 0.5 and 0.75 ounces

REPAIR TYPE:

flexible, bonding, fortifying, dry

MATERIAL TYPE:

Nylon

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS25

RELATED PRODUCTS: SM10, DS10, SM25

ELATED TIPS & TRICKS:

Mainsail's emergency repair (main leech), Jib's emergency repair (batten pockets), Jib's emergency repair (tear), Spinnaker's emergency repair (tear), Spinnaker's emergency repair (leech tear), Windsurf's emergency repair (tear), Windsurf's emergency repair (overlap peel off), Kitesurf's breakage repair (tear)

1. SPOT AND CLEAN UP THE REPAIR AREA

1.1 Spot the damaged overlapping area

1.2 Clean up using acetone and a cloth piece

1.3 Cut off the frayed threads

2. PASTE TAPE AROUND THE PERIMETER OF THE DAMAGE AREA

2.1 Leave a gap of 5 mm (approximately) between the overlap's edge and the tape

3. DS25 PREPARATION (DRSAILS 25ML)

3.a Remove the cap and level off the components

3.b Insert the nozzle

4. APPLY DRSAILS IN ZIGZAG THROUGH OUT THE OVERLAPPING AREA

4.1 A distance of 1cm to 3 cm between the zigzag lines is recommended

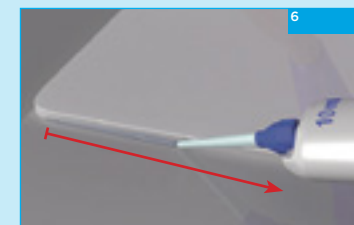
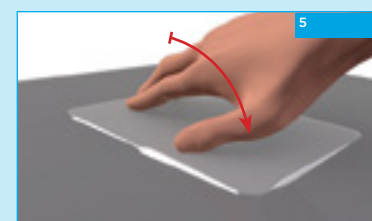
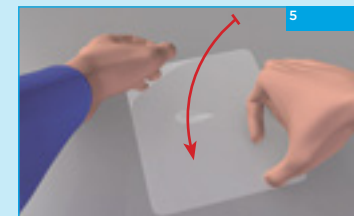
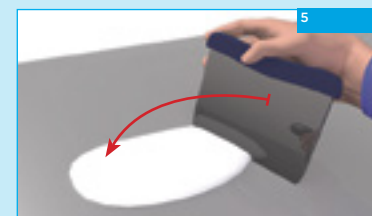
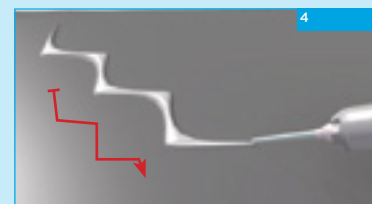
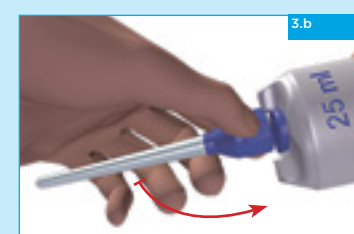
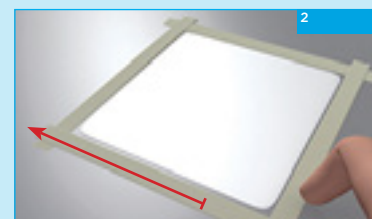
5. PLACE THE PATCH SYMMETRICAL TO THE BREAKAGE AND APPLY PRESSURE TO THE PATCH USING A SCRAPER TO REMOVE THE EXTRA PRODUCT

Note: extra product should always be kept on a paper tape

6. REINFORCE THE OVERLAP EDGES BY BONDING AUTOADHESIVE SAILCLOTH TISSUE AROUND THE OVERLAP'S PERIMETER TO IMPROVE PEELING RESISTANCE

6.1 Peeling reinforce can also be done by applying a "string" of DrSails around the overlap's perimeter and then spreading the mixture with the help of a scraper or similar device

7. WAIT FOR 22 MINUTES AND CHECK RESULTS



4.2 FLEXIBLE BONDING REPAIRS

4.2.6 SPINNAKER'S BREAKAGE REPAIR (LEECH TEAR)

DESCRIPTION: Example showing how to repair the leech of a white spinnaker weighing between 0.5 and 0.75 ounces.

REPAIR TYPE:

flexible, bonding, fortifying, dry

MATERIAL TYPE:

Nylon

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS25

RELATED PRODUCTS: SM10, DS10, SM25

RELATED TIPS & TRICKS:

Mainsail's emergency repair (main leech), Jib's emergency repair (batten pockets), Jib's emergency repair (tear), Spinnaker's emergency repair (tear), Spinnaker's emergency repair (overlap peel off), Windsurf's emergency repair (tear), Windsurf's emergency repair (overlap peel off), Kitesurf's breakage repair (tear)

1. SPOT THE REPAIR AREA AND CLEAN UP

1.1 Spot the damaged overlapping area

1.2 Clean up with acetone and a rag

1.3 Cut off the frayed threads

2. OVERLAPPING MATERIAL SETUP (PATCHES)

2.1 How to define the overlapping area

2.1.1 External overlap width

2.1.1.1 Based on the sail type

I. Strong winds: Allow 4 mm for each overlapping cm in relation to the breakage's symmetry axis

II. Moderate winds: Allow 2mm for each overlapping cm in relation to the breakage's symmetry axis

III. Light winds: 0mm

2.1.2 External patch length: Allow the breakage's length plus 5 cm on each side

2.1.3 Internal patch width: Same as the external

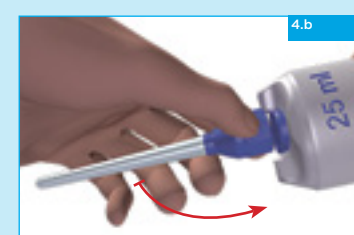
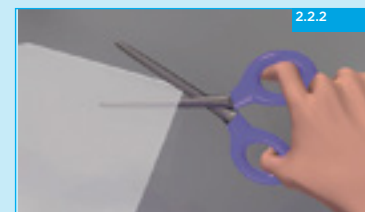
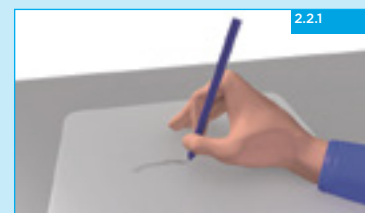
2.1.4 Internal patch length: Same as the external

2.2 Patch preparation: external and internal

2.2.1 Draw the outline over the internal patch

2.2.2 Cut the internal patch perimeter and round the corners

2.2.3 Repeat the same procedure for the external patch



4.2 FLEXIBLE BONDING REPAIRS

4.2.6 SPINNAKER'S BREAKAGE REPAIR (LEECH TEAR)

3. PASTE TAPE AROUND THE PERIMETER OF THE DAMAGE AREA

3.1 Leave a gap of 5 mm (approximately) between the overlap's edge and the tape

4. DS25 PREPARATION (DRSAILS 25ML)

4.a Remove the cap and level off the components

4.b Insert the nozzle

5. APPLY DRSAILS IN ZIGZAG THROUGHOUT THE INTERNAL OVERLAPPING AREA

5.1 A distance of 1cm to 3cm between the zigzag lines is recommended

6. SPREAD DRSAILS UNIFORMLY THROUGHOUT THE INTERNAL OVERLAP WITH THE HELP OF A SCRAPER OR SIMILAR DEVICE

7. PLACE THE PATCH SYMMETRICAL TO THE BREAKAGE AND APPLY PRESSURE TO THE PATCH USING A SCRAPER TO REMOVE THE EXTRA PRODUCT

Note: extra product should always be kept on a paper tape

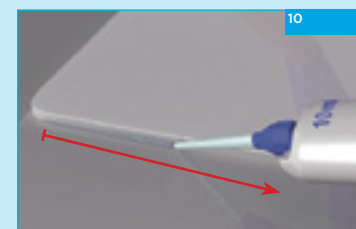
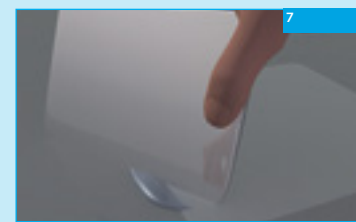
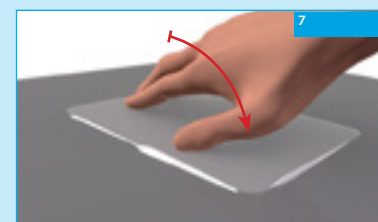
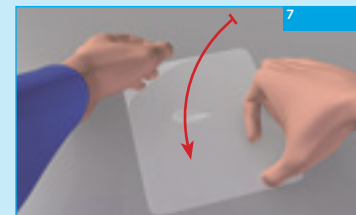
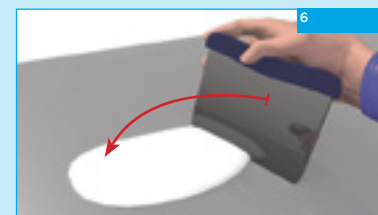
8. WAIT FOR 22 MINUTES

9. REPEAT STEPS 7, 8 AND 9 FOR THE EXTERNAL PATCH

10. REINFORCE THE PATCH EDGES BY BONDING AUTOADHESIVE SAILCLOTH TISSUE AROUND THE OVERLAP'S PERIMETER TO IMPROVE PEELING RESISTANCE

10.1 Peeling reinforce can also be done by applying a "string" of DrSails around the overlap's perimeter and then spreading the mixture with the help of a scraper or similar device

11. WAIT FOR 22 MINUTES AND CHECK RESULTS



4.2 FLEXIBLE BONDING REPAIRS

4.2.7 WINDSURF SAIL REPAIR (TEARING)

DESCRIPTION: Example showing how to repair a tearing on a windsurf sail.

REPAIR TYPE:

flexible, bonding, fortifying, dry

MATERIAL TYPE:

Nylon

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS25

RELATED PRODUCTS: SM25,
DS10, SM10

RELATED TIPS & TRICKS:

Mainsail's emergency repair (main leech), Jib's emergency repair (batten pockets), Jib's emergency repair (tear), Spinnaker's emergency repair (tear), Spinnaker's emergency repair (overlap peel off), Spinnaker's breakage repair (leech tear), Windsurf's emergency repair (overlap peel off), Kitesurf's breakage repair (tear)

1. SPOT THE REPAIR AREA AND CLEAN UP

1.1 Spot the damaged overlapping area

1.2 Clean up with acetone and a rag

1.3 Cut off the frayed threads

2. OVERLAPPING MATERIAL SETUP (PATCHES)

2.1 How to define the overlapping area

2.1.1 External overlap width

2.1.1.1 Based on the sail type

I. Strong winds: Allow 4 mm for each overlapping cm in relation to the breakage's symmetry axis

II. Moderate winds: Allow 2mm for each overlapping cm in relation to the breakage's symmetry axis

III. Light winds: 0mm

2.1.2 External patch length: Allow the breakage's length plus 5 cm on each side

2.1.3 Internal patch width: Same as the external

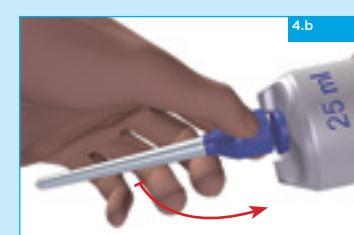
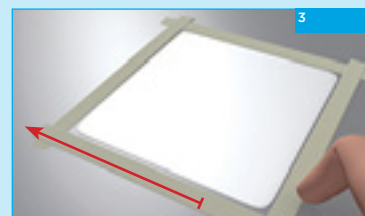
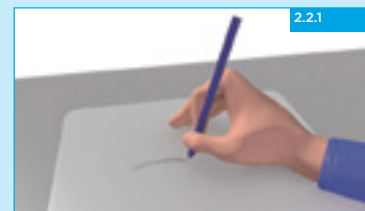
2.1.4 Internal patch length: Same as the external

2.2 Patch preparation: external and internal

2.2.1 Draw the outline over the internal patch

2.2.2 Cut the internal patch perimeter and round the corners

2.2.3 Repeat the same procedure for the external patch



4.2 FLEXIBLE BONDING REPAIRS

4.2.7 WINDSURF SAIL REPAIR (TEARING)

3. PASTE TAPE AROUND THE PERIMETER OF THE DAMAGE AREA

3.1 Leave a gap of 5 mm (approximately) between the overlap's edge and the tape

4. DS25 PREPARATION (DRSAILS 25ML)

4.a Remove the cap and level off the components

4.b Insert the nozzle

5. APPLY DRSAILS IN ZIGZAG THROUGHOUT THE INTERNAL OVERLAPPING AREA

5.1 A distance of 1cm to 3cm between the zigzag lines is recommended

6. SPREAD DRSAILS UNIFORMLY THROUGHOUT THE INTERNAL OVERLAP WITH THE HELP OF A SCRAPER OR SIMILAR DEVICE

7. PLACE THE PATCH SYMMETRICAL TO THE BREAKAGE AND APPLY PRESSURE TO THE PATCH USING A SCRAPER TO REMOVE THE EXTRA FLUID

7.1 *Note: extra product should always be kept on a paper tape*

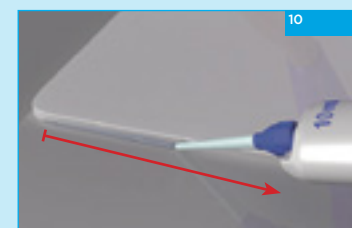
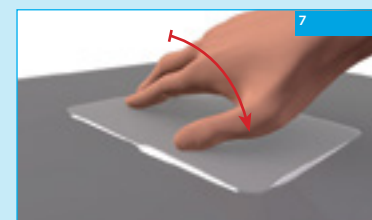
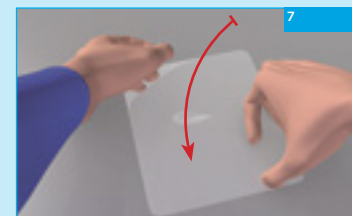
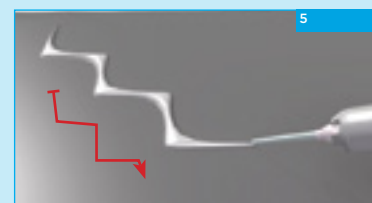
8. WAIT FOR 22 MINUTES

9. REPEAT STEPS 5, 6 Y 7 FOR THE EXTERNAL OVERLAP

10. REINFORCE THE OVERLAP EDGES BY BONDING AUTOADHESIVE SAILCLOTH TISSUE AROUND THE OVERLAP'S PERIMETER TO IMPROVE PEELING RESISTANCE

10.1 Peeling reinforce can also be done by applying a "string" of DrSails around the overlap's perimeter and then spreading the mixture with the help of a scraper or similar device

11. WAIT FOR 22 MINUTES AND CHECK RESULTS



4.2 FLEXIBLE BONDING REPAIRS

4.2.8 WINDSURF SAIL REPAIR (OVERLAP PEEL OFF)

DESCRIPTION: Example showing how to repair a torn windsurf sail.

REPAIR TYPE:

flexible, bonding, fortifying, dry

MATERIAL TYPE:

Nylon

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS25

RELATED PRODUCTS: SM25, DS10, SM10

RELATED TIPS & TRICKS:

Mainsail's emergency repair (main leech), Jib's emergency repair (batten pockets), Jib's emergency repair (tear), Spinnaker's emergency repair (tear), Spinnaker's emergency repair (overlap peel off), Spinnaker's breakage repair (leech tear), Windsurf's emergency repair (tear)

1. SPOT THE REPAIR AREA AND CLEAN UP

1.1 Spot the damaged overlapping area

1.2 Clean up with acetone and a rag

1.3 Cut off the frayed threads

2. PASTE TAPE AROUND THE PERIMETER OF THE DAMAGE AREA

2.1 Leave a gap of 5 mm (approximately) between the overlap's edge and the tape

3. DS25 PREPARATION (DRSAILS 25ML)

3.a Remove the cap and level off the components

3.b Insert the nozzle

4. APPLY DRSAILS IN ZIGZAG THROUGHOUT THE OVERLAPPING AREA

4.1 A distance of 1cm to 3cm between the zigzag lines is recommended

5. SPREAD DRSAILS UNIFORMLY THROUGHOUT THE INTERNAL OVERLAP WITH THE HELP OF A SCRAPER OR SIMILAR DEVICE

6. PLACE THE PATCH SYMMETRICAL TO THE BREAKAGE AND APPLY PRESSURE TO THE PATCH USING A SCRAPER TO REMOVE THE EXTRA FLUID

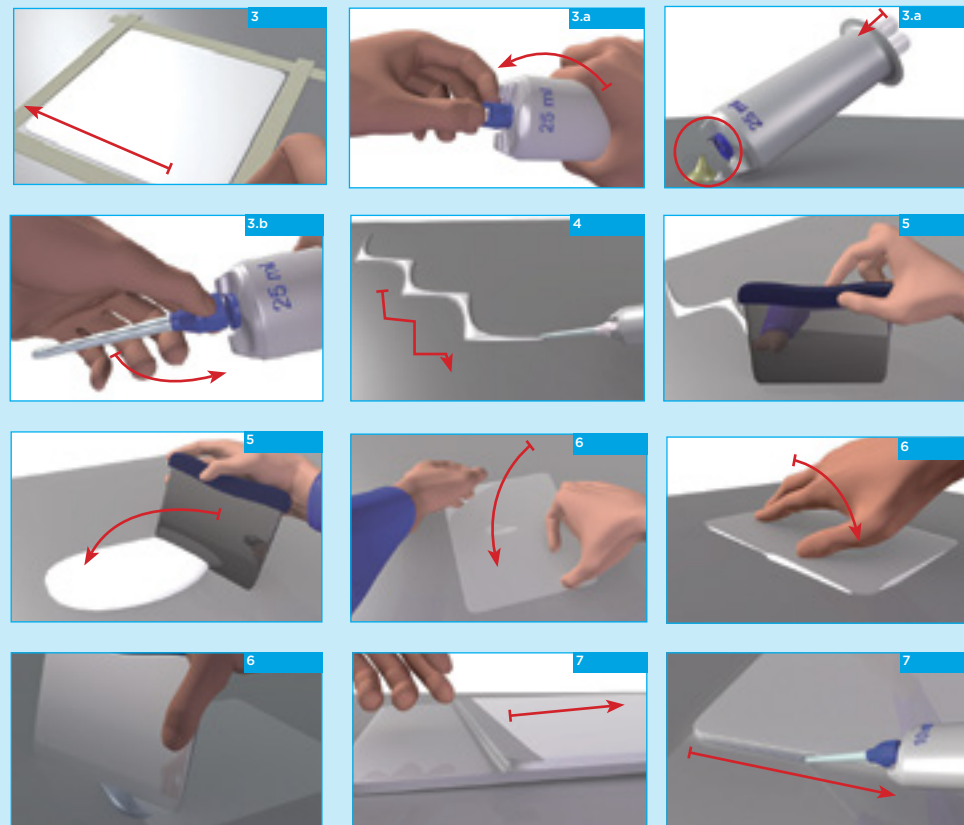
Note: extra DrSails fluid should always be kept on a paper tape

7. REINFORCE THE OVERLAP EDGES BY BONDING AUTOADHESIVE SAILCLOTH TISSUE AROUND THE OVERLAP'S PERIMETER TO IMPROVE PEELING RESISTANCE

8. WAIT FOR 22 MINUTES AND GO BACK SAILING



7.1 Peeling reinforce can also be done by applying a "string" of DrSails around the overlap's perimeter and then spreading the mixture with the help of a scraper or similar device



4.2 FLEXIBLE BONDING REPAIRS

4.2.9 KITESURF'S BREAKAGE REPAIR (TEAR)

DESCRIPTION: Example showing how to repair a tearing on a Kitesurf sail weighing between 0.5 and 0.75 ounces.

REPAIR TYPE:

flexible, bonding, fortifying, dry

MATERIAL TYPE:

Nylon

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS25

RELATED PRODUCTS: SM10, DS10, SM25

RELATED TIPS & TRICKS:

Mainsail's emergency repair (main leech), Jib's emergency repair (batten pockets), Jib's emergency repair (tear), Spinnaker's emergency repair (overlap peel off), Spinnaker's emergency repair (leech tear), Windsurf's emergency repair (tear), Windsurf's emergency repair (overlap peel off)

1. SPOT THE REPAIR AREA AND CLEAN UP

1.1 Spot the damaged overlapping area

1.2 Clean up with acetone and a rag

1.3 Cut off the frayed threads

2. OVERLAPPING MATERIAL SETUP (PATCHES)

2.1 How to define the overlapping area

2.1.1 External overlap width

2.1.1.1 Based on the sail type

I. Strong winds: Allow 4 mm for each overlapping cm in relation to the breakage's symmetry axis

II. Moderate winds: Allow 2mm for each overlapping cm in relation to the breakage's symmetry axis

III. Light winds: 0mm

2.1.2 External patch length: Allow the breakage's length plus 5 cm on each side

2.1.3 Internal patch width: Same as the external

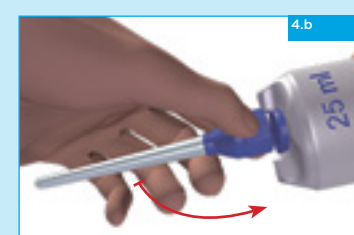
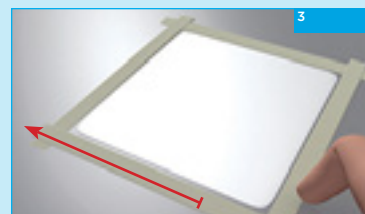
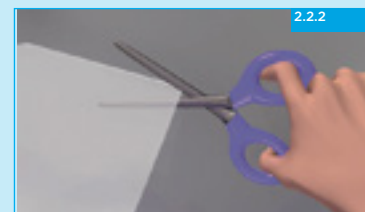
2.1.4 Internal patch length: Same as the external

2.2 Patch preparation: external and internal

2.2.1 Draw the outline over the internal patch

2.2.2 Cut the internal patch perimeter and round the corners

2.2.3 Repeat the same procedure for the external patch



4.2 FLEXIBLE BONDING REPAIRS

4.2.9 KITESURF'S BREAKAGE REPAIR (TEAR)

3. PASTE TAPE AROUND THE PERIMETER OF THE DAMAGE AREA

3.1 Leave a gap of 5 mm (approximately) between the overlap's edge and the tape

4. DS25 PREPARATION (DRSAILS 25ML)

4.a Remove the cap and level off the components

4.b Insert the nozzle

5. APPLY DRSAILS IN ZIGZAG ALL OVER THE INTERNAL OVERLAP'S AREA

5.1 The distance between the zigzag lines drawn should be between 1 and 3 cm

6. SPREAD DRSAILS UNIFORMLY THROUGHOUT THE OVERLAPPING AREA WITH THE HELP OF A SCRAPER OR SIMILAR DEVICE

7. PLACE THE PATCH SYMMETRICAL TO THE BREAKAGE AND APPLY PRESSURE TO THE PATCH USING A SCRAPER TO REMOVE THE EXTRA FLUID

7.1 Note: extra product should always be kept on a paper tape

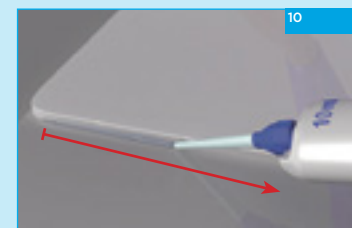
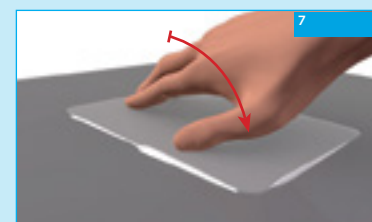
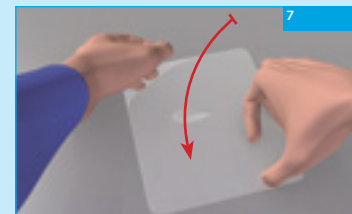
8. WAIT FOR 22 MINUTES

9. REPEAT STEPS 5, 6 Y 7 FOR THE EXTERNAL OVERLAP

10. REINFORCE THE OVERLAP EDGES BY BONDING AUTOADHESIVE SAILCLOTH TISSUE AROUND THE OVERLAP'S PERIMETER TO IMPROVE PEELING RESISTANCE

10.1 Peeling reinforce can also be done by applying a "string" of DrSails around the overlap's perimeter and then spreading the mixture with the help of a scrapper or similar device

11. WAIT 22 MINUTES AND THE SAILS IS READY



4.2 FLEXIBLE BONDING REPAIRS

4.2.10 KITESURF'S FLOATER REPAIR (MICRO-PORES FLOATER)

DESCRIPTION: Example showing how to repair a pore on a coolant tank made of plastic.

REPAIR TYPE:

flexible, bonding, fortifying, dry

MATERIAL TYPE:

Latex

MULTIPLE USES:

Sailboat, sails, windsurf, kitesurf

USED PRODUCTS: DS10

RELATED PRODUCTS: SM10, DS25, SM25

RELATED TIPS & TRICKS:

Mainsail's emergency repair (main leech), Jib's emergency repair (batten pockets), Jib's emergency repair (tear), Spinnaker's emergency repair (overlap peel off), Spinnaker's emergency repair (leech tear), Windsurf's emergency repair (tear), Windsurf's emergency repair (overlap peel off), Kitesurf's emergency repair (tear)

1. SPOT THE AREA TO BE REPAIR

1.1 Mix water and soap and soak the plastic tank

1.2 Blow through the tank's filling mouth.

1.2.1 Should a micro-pore exist, a soap bubble might form on the tank's surface.

1.2.2 Sand using sandpaper n° 80

2. CLEAN THE AREA WITH ACETONE AND A RAG

2.1 PREPARE THE PATCH

3. DS10 PREPARATION (DRSAILS 10ML)

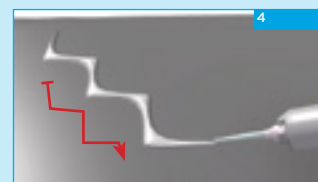
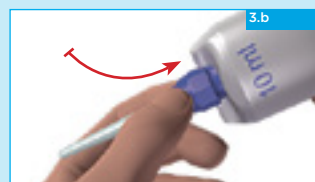
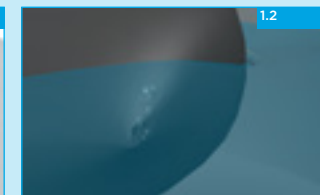
3.a Remove the cap and level off the components

3.b Insert the nozzle

4. APPLY DRSAILS OVER THE PATCH

5. PLACE THE PATCH SYMMETRICAL TO THE BREAKAGE AND APPLY PRESSURE TO THE PATCH USING A SCRAPER TO REMOVE THE EXTRA FLUID

6. WAIT FOR 22 MINUTES AND GO BACK SAILING



4.2 FLEXIBLE BONDING REPAIRS

4.2.11 RIB'S BREAKAGE REPAIR (TEAR)

DESCRIPTION: Example showing how to repair a rib's tube (tear)

REPAIR TYPE:

Flexible, bonding, sealing, fortifying

MATERIAL TYPE:

Neoprene

MULTIPLE USES:

Surf, diving, powerboat, dinghy, windsurf, kitesurfing, kayak

USED PRODUCTS: DS10

RELATED PRODUCTS: SM10, DS25, SM25

RELATED TIPS & TRICKS:

Neoprene: tear, Neoprene: breakage, Rib's breakage repair (micro-pores)

1. CLEAN UP THE REPAIR AREA USING ACETONE AND A CLOTH PIECE

1.1 Sand using sandpaper n° 80

1.2 Clean the area with acetone and a rag

2. IF NEEDED, PREPARE THE PATCH. (BLUNT EDGES)

2.1 Draw the outline on the patch

2.2 Cut the patch perimeter and round the corners

3. PASTE TAPE AROUND THE PERIMETER OF THE DAMAGE AREA

4. DS10 PREPARATION (DRSAILS 10ML)

4.a Remove the cap and level off the components

4.b Insert the nozzle

5. APPLY DRSAILS IN ZIGZAG THROUGHOUT THE OVERLAP

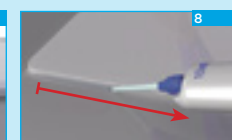
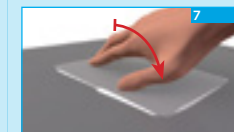
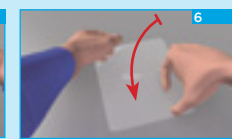
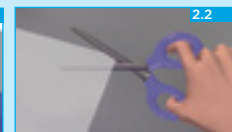
5.1 A distance of 1cm to 3cm between the zigzag lines is recommended

6. SPREAD DRSAILS UNIFORMLY THROUGHOUT THE PATCH. CLEAN UP THE EXCESS FLUID USING ACETONE AND A CLOTH PIECE

7. APPLY PRESSURE TO IT FOR 5 TO 8 MINUTES

8. TO IMPROVE PEELING RESISTANCE, APPLY DRSAILSON THE OVERLAPPING BORDERS FORMING A STRING

9. WAIT FOR 22 MINUTES



4.2 FLEXIBLE BONDING REPAIRS

4.2.12 RIB'S BREAKAGE REPAIR (MICRO-PORES)

DESCRIPTION: Example showing how to repair a rib's tube (micro-pore)

REPAIR TYPE:

Flexible, fortifying, dry

MATERIAL TYPE:

Rubber

MULTIPLE USES:

powerboat, dinghy, pneumatic, ski

USED PRODUCTS: DS10

RELATED PRODUCTS: SM10, DS25, SM25

RELATED TIPS & TRICKS:

Neoprene: tear, Neoprene: breakage, Rib's breakage repair (tear)

1. IDENTIFY THE REPAIR AREA

1.1 Apply soap and water on the repair area

1.2 Grab a pump to inflate the bike's inner tube and spot the micro-pores through the valve

2. DEFLATE THE TUBE

3. CLEAR THE REPAIR AREA

3.1 Sand using sandpaper n° 80

3.2 Clean up the dirt using a ragv

4. DS10 PREPARATION (DRSAILS 10ML)

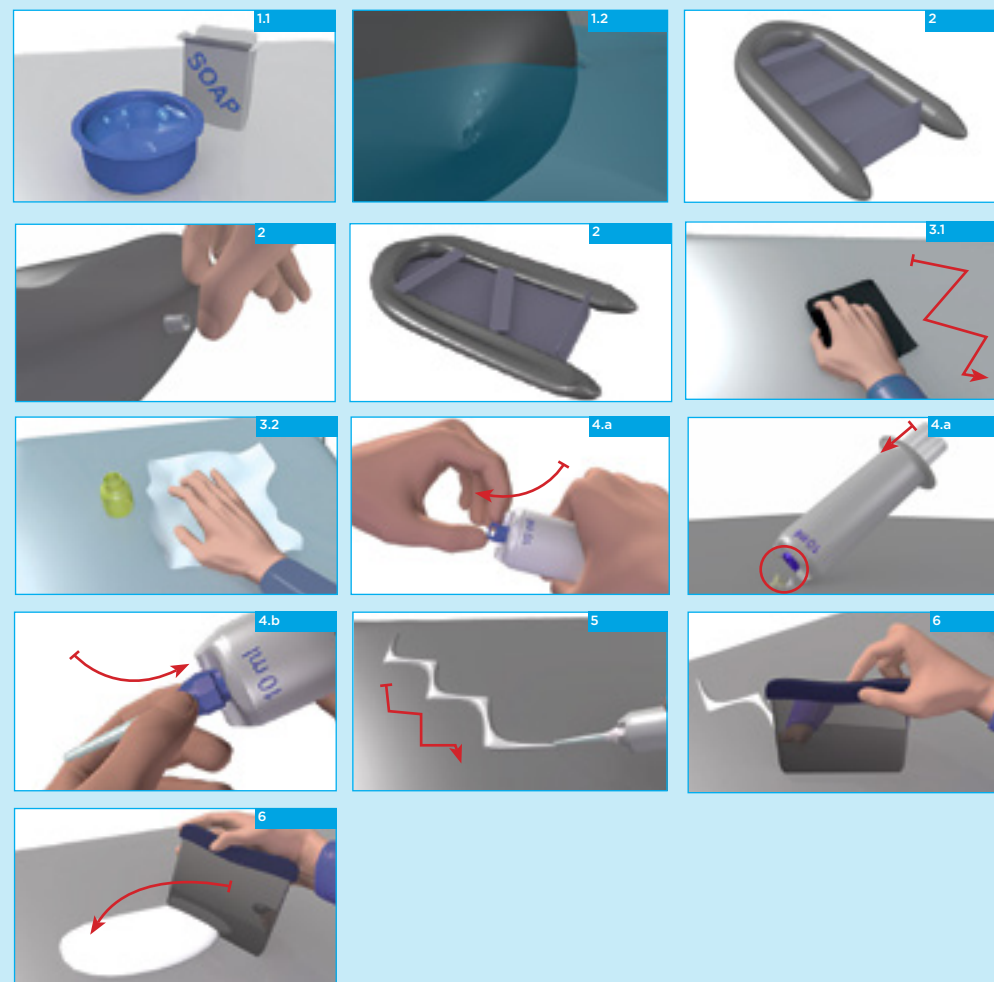
4.a Remove the cap and level off the components

4.b Insert the nozzle

5. APPLY DRSAILS OVER THE REPAIR AREA

6. SPREAD DRSAILS UNIFORMLY THROUGHOUT THE OVERLAPPING AREA WITH THE HELP OF A SCRAPER OR SIMILAR DEVICE

7. WAIT FOR 22MINUTES



4.2 FLEXIBLE BONDING REPAIRS

4.2.13 NEOPRENE'S REPAIR (TEAR)

DESCRIPTION: Example showing how to repair a torn neoprene type 3/4.

REPAIR TYPE:

Flexible, bonding, sealing, fortifying

MATERIAL TYPE:

Neoprene

MULTIPLE USES:

Surf, diving, powerboat, dinghy, windsurf, kitesurfing, kayak

USED PRODUCTS: DS10

RELATED PRODUCTS: SM10, DS25, SM25

RELATED TIPS & TRICKS:

Neoprene: tear, Neoprene: breakage

1. CLEAN UP THE REPAIR AREA USING ACETONE AND A RAG

2. IF NEEDED, PREPARE THE OVERLAP. (BLUNT EDGES)

3. GRAB PLASTIC FILM (ADHESIVE TAPE) AND STICK TO THE INTERNAL SIDE OF THE NEOPRENE (GOAL: FLATTEN OUT THE INTERNAL SIDE TO AVOID FRICTION)

4. DS10 PREPARATION (DRSAILS 10ML)

4.a Remove the cap and level off the components

4.b Insert the nozzle

5. APPLY DRSAILS IN ZIGZAG THROUGHOUT THE OVERLAP

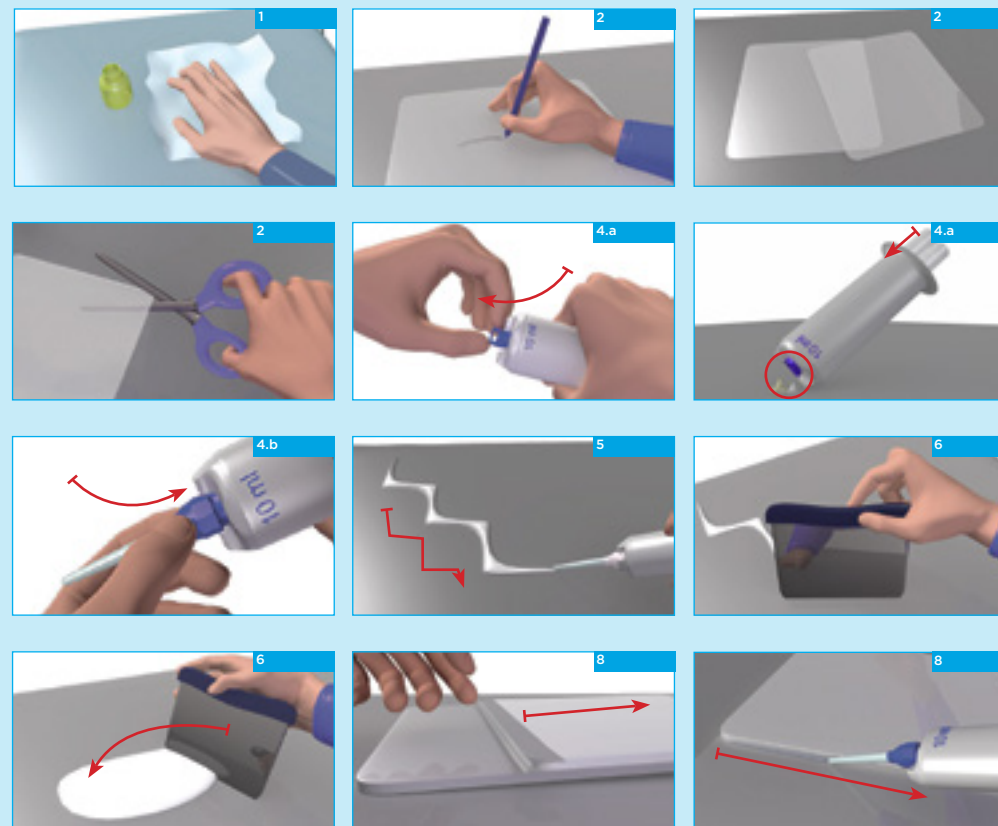
5.1 A distance of 1cm to 3cm between the zigzag lines is recommended

6. SPREAD DRSAILS UNIFORMLY THROUGHOUT THE PATCH. CLEAN UP THE EXCESS FLUID USING ACETONE AND A CLOTH PIECE

7. STRETCH THE NEOPRENE (REGULAR BENDING), BOND THE FABRICS TOGETHER AND APPLY PRESSURE TO IT FOR 5 TO 8 MINUTES

8. TO IMPROVE PEELING RESISTANCE, APPLY DRSAILS ON THE OVERLAPPING BORDERS FORMING A STRING

9. WAIT FOR 22MINUTES



4.2 FLEXIBLE BONDING REPAIRS

4.2.14 FLAT TIRE REPAIR (INNER TUBE)

DESCRIPTION: How to repair a bike's flat tire.

REPAIR TYPE:

Flexible, fortifying, dry

MATERIAL TYPE:

Rubber

MULTIPLE USES:

Powerboat, dinghy, pneumatic, ski

USED PRODUCTS: DS10

RELATED PRODUCTS: SM10, DS25, SM25

RELATED TIPS & TRICKS:

Floating kite repair, Pneumatic: floating patch (pores)

1. DISASSEMBLE THE WHEEL AND TAKE THE INNER TUBE OUT

2. IDENTIFY THE REPAIR AREA

2.1 Apply soap and water on the repair area

2.2 Grab a pump to inflate the bike's inner tube and spot the micro-pores through the valve

3. DEFLATE THE INNER TUBE

4. CLEAR THE REPAIR AREA

4.1 Sand using sandpaper n° 80

4.2 Clean up the dirt using a rag piece

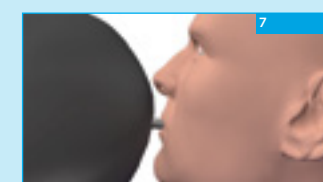
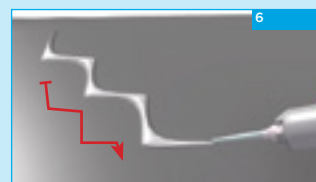
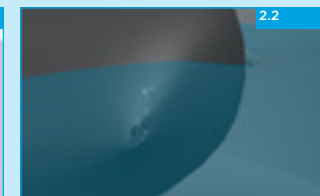
5. DS10 PREPARATION (DRSAILS 10ML)

5.a Remove the cap and level off the components

5.b Insert the nozzle

6. APPLY DRSAILS OVER THE REPAIR AREA

7. WAIT FOR 22MIN FOR DRSAILS TO ASSAMBLE THE WHEEL



4.2 FLEXIBLE BONDING REPAIRS

4.2.15 FLAT TIRE REPAIR (COVER)

DESCRIPTION: How to repair a bike's cover tire.

REPAIR TYPE:

Flexible, fortifying, dry

MATERIAL TYPE:

Rubber

MULTIPLE USES:

Powerboat, dinghy, pneumatic, ski

USED PRODUCTS: DS10

RELATED PRODUCTS: SM10,
DS25, SM25

RELATED TIPS & TRICKS:

Floating kite repair, Pneumatic: floating patch (pores)

4. DS10 PREPARATION (DRSAILS 10ML)

4.a Remove the
cap and level off
the components

4.b Insert the
nozzle

5. APPLY DRSAILS OVER THE REPAIR AREA

6. WAIT FOR 22MIN FOR DRSAILS TO ASSAMBLE THE WHEEL



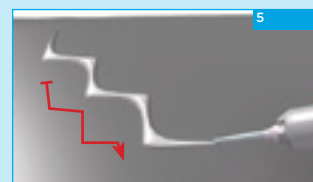
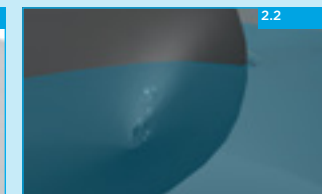
1. DISASSEMBLE THE WHEEL AND
TAKE THE INNER TUBE OUT

2. IDENTIFY THE REPAIR AREA

3. CLEAR THE REPAIR AREA

3.1 Sand using sandpaper n° 80

3.2 Clean up the dirt using a rag



4.3 RIGID BONDING REPAIRS

4.3.1 RIGID BONDING SIMPLE OVERLAP (2 SUBSTRATES)

DESCRIPTION: Example showing how to bond two solid pieces (e.g. bonding of two pieces made of wood).

REPAIR TYPE:

Rigid, bonding, fortifying, dry

MATERIAL TYPE:

Aluminium

MULTIPLE USES:

DIY

USED PRODUCTS: DS10

RELATED PRODUCTS: SM10, DS25, SM25

RELATED TIPS & TRICKS:

Rigid bonding single overlap (2 substrates). Angled rigid bonding (1 substrate).

1. CLEAR THE REPAIR AREA

1.1. Sand using sandpaper n° 80

1.2 Clean up the dirt using a rag

2. DS10 PREPARATION (DRSAILS 10ML)

2.a Remove the cap and level off the components

2.b Insert the nozzle

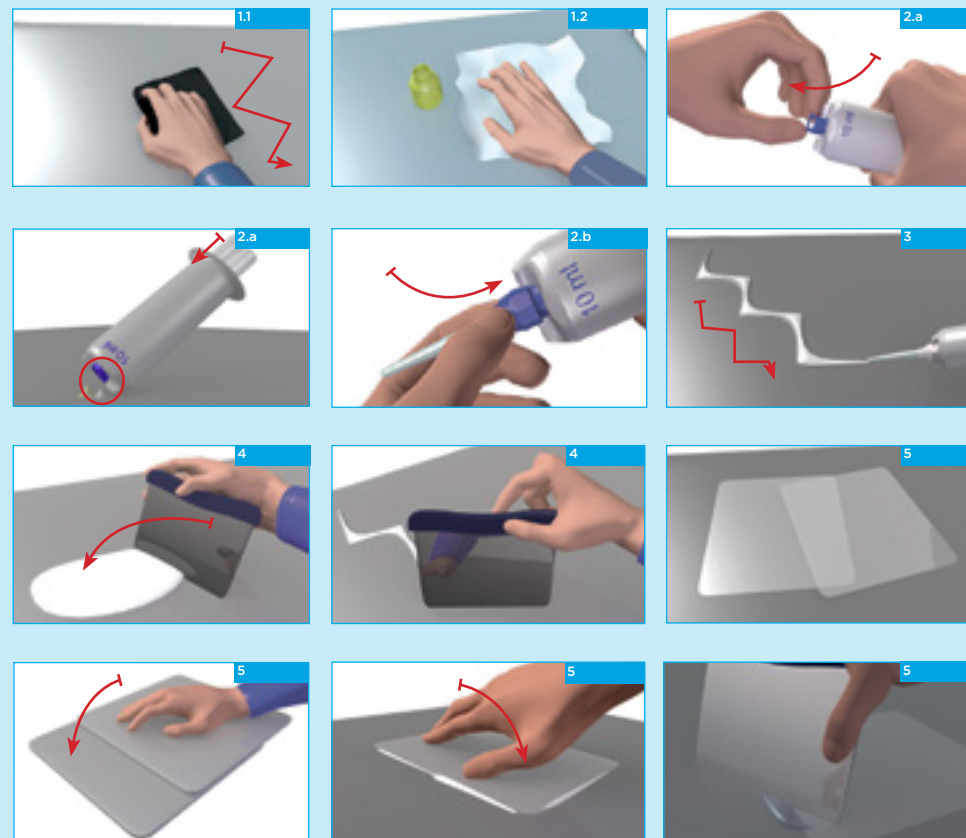
3. APPLY DRSAILS IN ZIGZAG ON A PLATE'S OVERLAP

3.1 A distance of 1cm to 3cm between the zigzag lines is recommended

4. SPREAD DRSAILS UNIFORMLY THROUGHOUT THE BONDING AREA

5. JOIN BOTH PLATES AND APPLY PRESSURE TO THEM FOR 5 TO 8 MINUTES. SHOULD DRSAILS OVERFLOW, BUILD A HANGNAIL SHAPE BETWEEN THE CONTACT AREAS MEETING AT RIGHT ANGLES (SEE ATTACHED IMAGE FOR FURTHER DETAIL)

6. WAIT FOR 22MIN UNTIL DRSAILS REACHES 80% OF ITS PROPERTIES



4.3 RIGID BONDING REPAIRS

4.3.2 TANK REPAIR: MICRO-PORES

DESCRIPTION: Example showing how to repair a pore on a coolant tank made of plastic.

REPAIR TYPE:

Rigid, filling, bonding, fortifying emergency

MATERIAL TYPE:

Aluminum, steel, inox, wood, glass composite, carbon composite, copper, cement, glass, polyester.

MULTIPLE USES:

Sailboat, powerboat, dinghy, pneumatic, sails, hardware, swimming pool, bike, clothing, ski, windsurf, kayak.

USED PRODUCTS: DS10

RELATED PRODUCTS: SM10, DS25, SM25

RELATED TIPS & TRICKS: Surfboard emergency repair (grip)

1. SPOT THE AREA TO BE CLEARED

1.1 Mix water and soap and soak the plastic tank

1.2 Blow through the tank's filling mouth

1.3 Note: Should a micro-pore exist, a soap bubble might form on the tank's surface

2. DRY THE SPOT AREA WITH A RAG

2.1 Sand the bonding surfaces with sandpaper n°80s

2.2 Clean the area with acetone and a rag

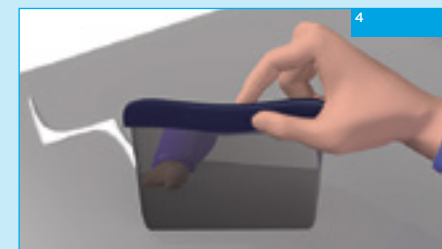
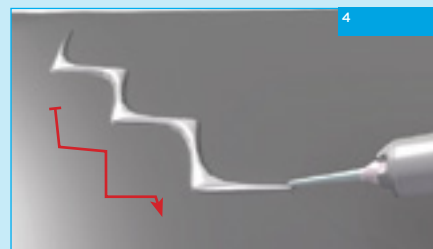
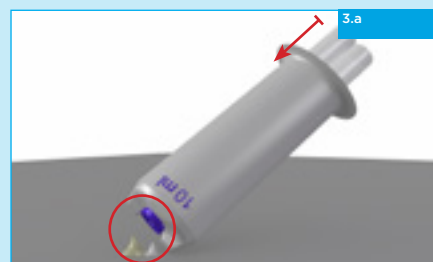
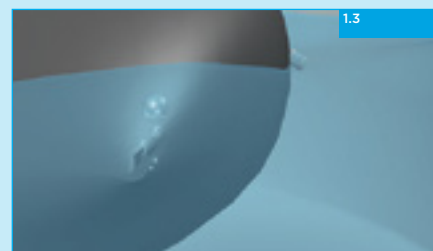
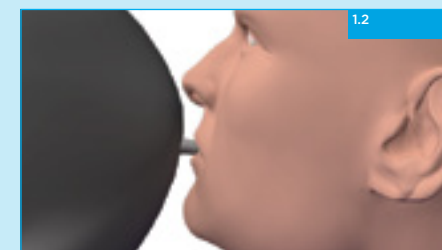
3. DS10 PREPARATION (DRSAILS 10ML)

3.a Remove the cap and level off the components

3.b Insert the nozzle

4. APPLY DRSAILS ON THE REPAIR AREA

5. WAIT FOR 22 MINUTES AND CHECK RESULTS



4.3 RIGID BONDING REPAIRS

4.3.3 SURFBOARD REPAIR DRY CONDITIONS

DESCRIPTION: Example showing how to repair the grip on a surfboard

REPAIR TYPE:

Rigid, filling, bonding, refilling, fortifying, sealing and emergency

MATERIAL TYPE:

Aluminum, steel, inox, wood, glass composite, carbon composite, copper, cement, glass, polyester.

MULTIPLE USES:

Sailboat, powerboat, dinghy, pneumatic, sails, hardware, swimming pool, bike, clothing, ski, windsurf, kayak.

USED PRODUCTS: DS10

RELATED PRODUCTS: SM10, DS25, SM25

RELATED TIPS & TRICKS:

Underwater rigid junction

1. CLEAR THE REPAIR AREA

1.1. Sand using sandpaper nº 80

1.2 Clean up the dirt using a rag

2. DS10 PREPARATION (DRSAILS 10ML)

2.a Remove the cap and level off the components

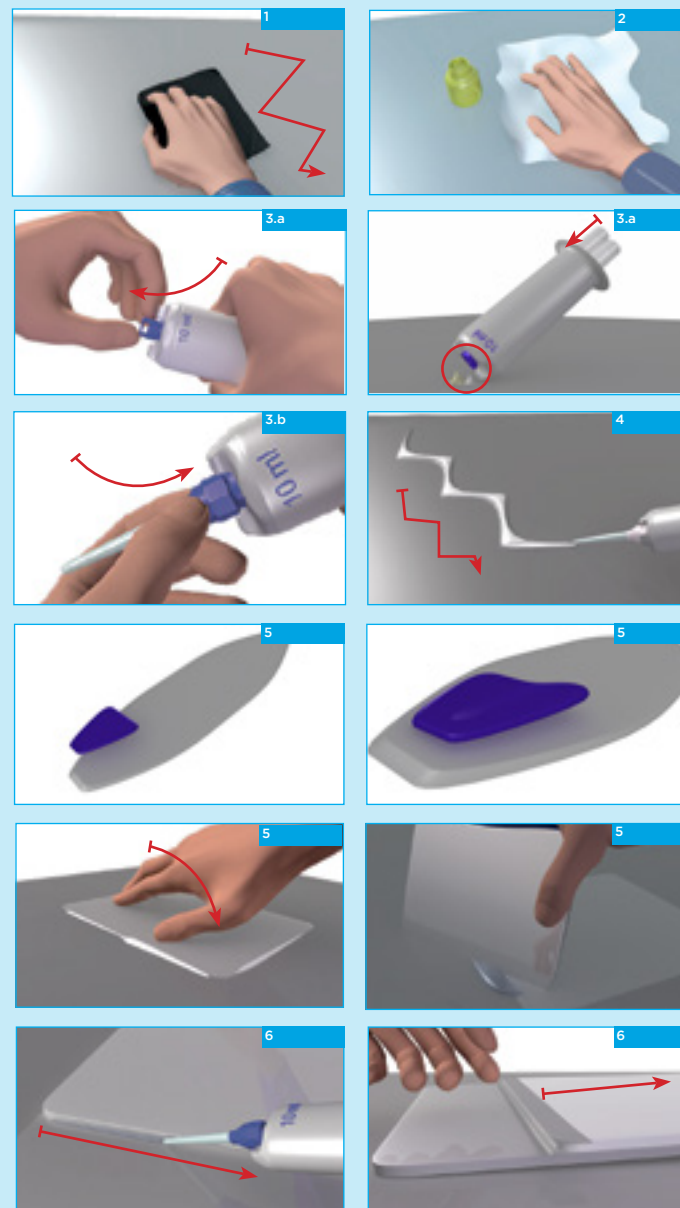
2.b Insert the nozzle

4. APPLY DRSAILS IN ZIGZAG OVER THE REPAIR AREA AND EXTEND THROUGHOUT USING A SCRAPER OR SIMILAR DEVICE

5. PRESS THE GRIP AND REMOVE EXCESS FLUID USING A SCRAPER

6. REINFORCE THE EDGE

7. WAIT FOR 22 MINUTES



4.3 RIGID BONDING REPAIRS

4.3.4 SURFBOARD REPAIR DRY CONDITIONS: FIN

DESCRIPTION: Example showing how to repair a crack on a surfboard

REPAIR TYPE:

Rigid, filling, bonding, refilling, fortifying, sealing, dry

MATERIAL TYPE:

Aluminum, steel, inox, wood, glass composite, carbon composite, copper, cement, glass, polyester.

MULTIPLE USES:

Sailboat, powerboat, dinghy, pneumatic, sails, hardware, swimming pool, bike, clothing, ski, windsurf, kayak.

USED PRODUCTS: DS10

RELATED PRODUCTS: SM25, DS25, SM10

4. APPLY DRSAILS IN ZIGZAG OVER THE REPAIR AREA AND EXTEND THROUGHOUT USING A SCRAPER OR SIMILAR DEVICE

5. REMOVE EXCESS FLUID USING A SCRAPER

6. WAIT FOR 22 MINUTES



RELATED TIPS & TRICKS:

Underwater rigid junction

1. CLEAR THE REPAIR AREA

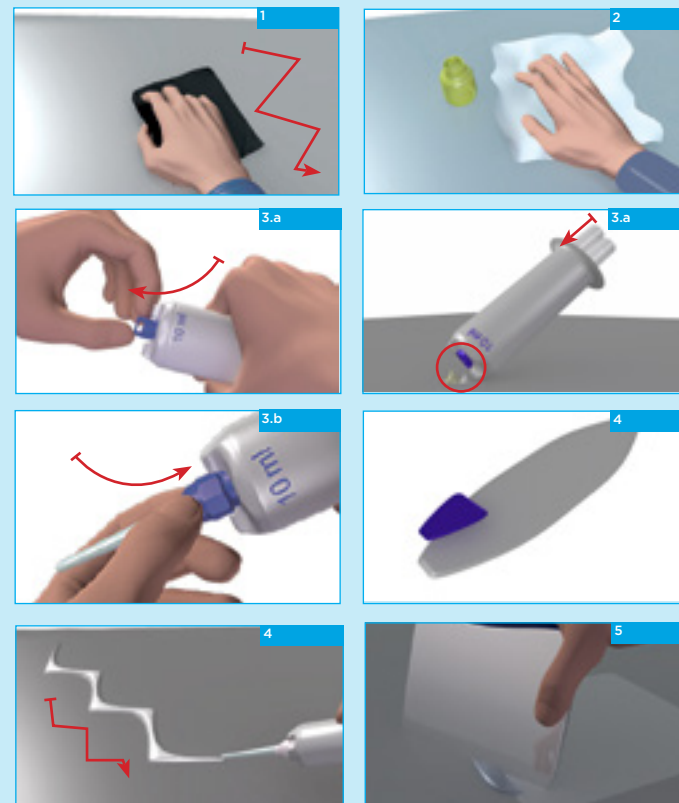
1.1. Sand using sandpaper nº 80

1.2 Clean up the dirt using a rag

2. DS10 PREPARATION (DRSAILS 10ML)

2.a Remove the cap and level off the components

2.b Insert the nozzle



4.4 UNDERWATER AND WET REPAIRS

4.4.1 RIGID BONDING (WET CONDITIONS)

DESCRIPTION: Example showing how to merge two aluminum pieces submerged under water.

REPAIR TYPE:

Flexible, rigid, filling, bonding, refilling, laminating, fortifying, thermal insulation, electrical insulation, crash resistant, waterproofing (watertightness).

MATERIAL TYPE:

Aluminum, steel, inox, wood, glass composite, carbon composite, copper, cement, glass, polyester.

MULTIPLE USES:

Sailboat, powerboat, dinghy, pneumatic, sails, hardware, swimming pool, bike, clothing, ski, windsurf, kayak.

USED PRODUCTS: DS25

RELATED PRODUCTS: SM25, DS10, SM10

3. DS25 PREPARATION (DRSAILS 25ML)

3.a Remove the cap and level off the components

3.b Insert the nozzle

4. APPLY DRSAILS ON THE BONDING SURFACE OF ONE OF THE ALUMINIUM PLATES

5. SPREAD DRSAILS UNIFORMLY USING A SCRAPER

6. APPLY PRESSURE FOR TWO MINUTES

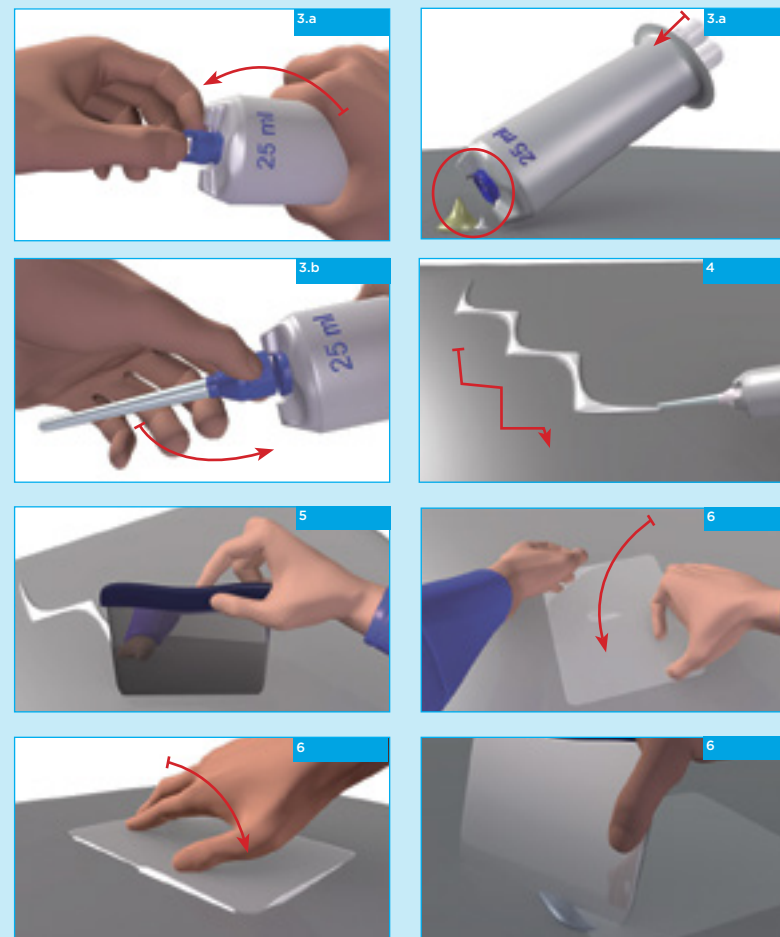
6.1 It is advised to use a weight to reinforce pressure on the plate

7. WAIT FOR 22 MINUTES AND REMOVE THE WEIGHT (IF APPLICABLE)



1. DEFINE THE BONDING AREA AND THE AMOUNT OF DRSAILS TO BE APPLIED (SEE 2.3.3)

2. SETUP THE BONDING PIECE(S) (OVERLAP, PIECE, ETC.)



The background is split diagonally from the top-left to the bottom-right. The upper-left portion is a solid blue color, while the lower-right portion is white. A thick, dark blue horizontal line spans across the middle of the image, starting from the left edge and ending just before the diagonal split.

05

**Product
guide**

5.1 DRSAILES ADHESIVES

5.1.1 DRSAILES 10ML (DS10)

“Self-applicable format ideal for Olympic and light sail classes, permitting small, quick and precise applications. Brings materials together under extreme circumstances with precision, uniformity and guaranteed safety.”

Weight: 64g

Dimensions: 4.7 x 4.7 x 17.5 cm

Elements: 2 static mixers
Instructions 14 languages



Volume: 10ml

Surface: [50; 2000]cm²



Ready to use



Underwater



200 kg/cm²



Flexible



Crash resistain



Structural



DS10



DS25



DS265

5.1.2 DRSAILES 25ML (DS25)

“A two component epoxi based adhesive able to harden under water and characterized by its flexibility and fast use. DrSails offers an exclusive self-applicable format ready to use under all circumstances!. Brings materials together under extreme conditions with precision, uniformity and guaranteed safety”

Weight: 95g

Dimensions: 4.8 x 4.8 x 17.5 cm

Elements: 2 static mixers
Instructions 14 languages



Volume: 25ml

Surface: [125; 5000]cm²



Ready to use



Underwater



200 kg/cm²



Flexible



Crash resistain



Structural

5.1.3 DRSAILES 265ML (DS265)

“A two component epoxi based adhesive able to harden under water and characterized by its flexibility and fast use. This format offered by DrSails is compatible with conventional high viscosity silicon pistols and is ideal for an intensive use of DrSails technology.”

Weight: 590g

Dimensions: 10 x 10 x 25.5 cm

Elements: 5 static mixers
Instructions 14 languages



Volume: 265ml

Surface: [1325; 53000]cm²



Ready to use



Underwater



200 kg/cm²



Flexible



Crash resistain



Structural

5.2 STATIC MIXERS

5.2.1 SM10 (10ML)

“DS10 mixing nozzles replacements. Mixing nozzles are an essential component to properly use DrSails.”

Weight: 35g

Dimensions: 15.5 x 10 x 2 cm

Elements: 5 static mixers



5.2.2 SM25 (25ML)

“DS25 mixing nozzles replacements. Mixing nozzles are an essential component to properly use DrSails.”

Weight: 45g

Dimensions: 15.5 x 10 x 2 cm

Elements: 5 static mixers



5.2.3 SM265 (265ML)

“DS265 mixing nozzles replacements. Mixing nozzles are an essential component to properly use DrSails.”

Weight: 85g

Dimensions: 18 x 11 x 3 cm

Elements: 5 static mixers





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