

A dark green silhouette map of Europe is centered in the background. The text is overlaid on this map.

**BALTIC TECH CONFERENCE**

**20-22 Nov '09**

*[www.baltictech.com](http://www.baltictech.com)*

# Summary

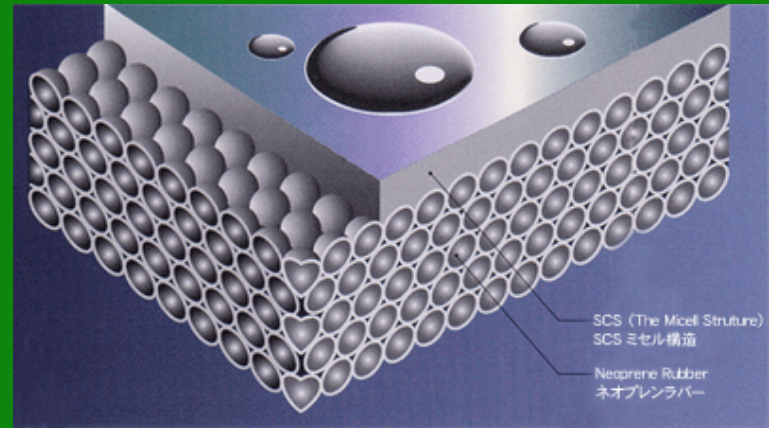
- *Introduction*
- *Finding leak(s)*
- *Seal replacement (latex)*
- *Zipper care*

# Introduction

- Lex Schotema
- Diver since 1986
- Owner of:
  - Aqua Diving Veenendaal NL (1998)
    - Technical Dive Center
    - Regulator service
    - Drysuit repair

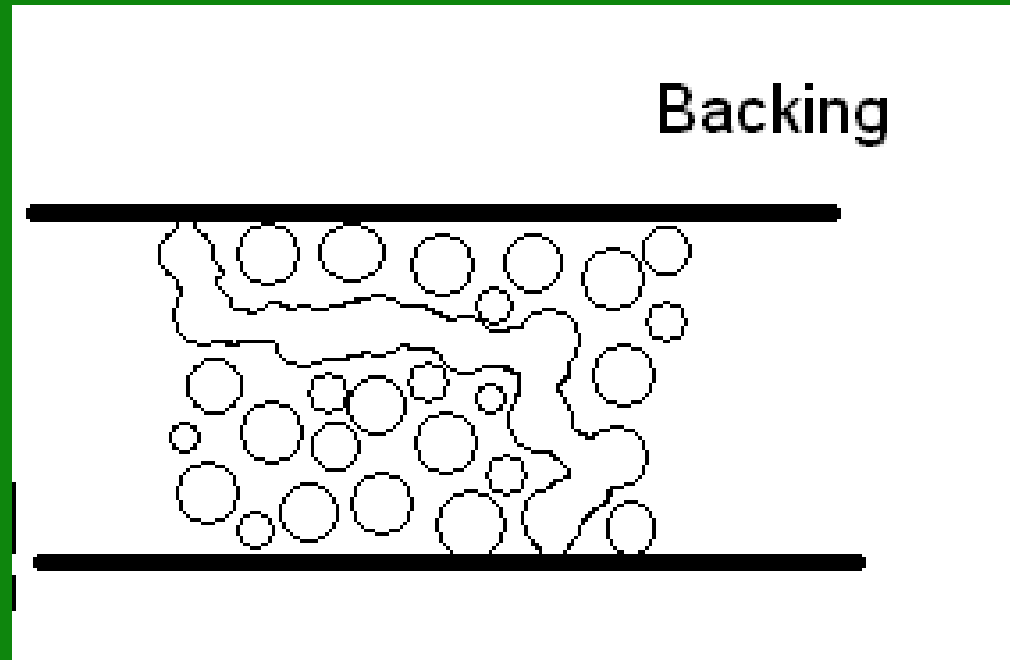
# Basic information

- Neoprene drysuits



- Trilaminare / Cordura drysuits
  - 3 layers: nylon/rubber/nylon
- Rubber drysuits
  - 2-3 layers: rubber/nylon

# Neoprene suits



# Test dry suit

- **RIGHT SIDE OUT**
  - best at finding leaks in
    - Neoprene suits
    - Trylamine / Cordura / Rubber suits with 'hard'boots
- **INSIDE OUT**
  - best at finding leaks in the seams of any Trylamine / Cordura / Rubber

# Right side out

- Stop off the seals:
  - Wrist: PET bottle / something tapered
  - Neck: soft strips of material - an old T-shirt cut into strips works well



# Right side out

- close the waterproof zipper
- close the exhaust valve all the way (use dummy)
- attach the suit inflation hose to the inflator valve
- pressurize the suit until the exhaust valve begins to leak
- spray suit down with soapy water
- patches or application of Aquaseal® / Aquasure® on the inside of the suit



# Inside out

- Close the exhaust valve and turn the suit inside out.
- Stop off the seals:
  - Wrist: PET bottle / something tapered

# Inside out

- close the waterproof zipper
- drop an open-end hose inside the neck seal
- stop off the neck seal and hose:
  - soft strips of material - an old T-shirt cut into strips works well



# Inside out

- gently open tank valve to inflate the suit
- spray suit down with soapy water
- patches or application of Aquaseal® / Aquasure® on the inside of the suit









# Patching Leaks

1. MATERIAL PATCH
2. SEALANT PATCH



# Material patch

- Locate and mark where the leak
  - neoprene dry suit: glue the tear together
- Lay the suit inside out
- cut a patch of material
  - Tri laminate:
    - apply two coats of glue
  - Neoprene:
    - apply three / four coats of glue

# Material patch

- Apply the patch to the suit
- Seal the edges
  - mixing 10ml of Aquaseal® or Aquasure® and 10ml of CotoI-240
  - apply two coats of the mixture to the edges

# Neoprene glue



Black Witch – neoprene glue

# *Replace Latex Wrist Seals*

- cut the wrist seal off and/or use hair dryer



# *Replace Latex Wrist Seals*



remove the old seal

# *Replace Latex Wrist Seals*

Remove old / remaining glue



# *Replace Latex Wrist Seals*

- Prepare two plugs to be used in sleeve ends



# *Replace Latex Wrist Seals*

- Use masking tape, tape 2cm up from the end





# *Replace Latex Wrist Seals*

- Insert plug into arm seal
- Sand the exposed area of the seal (2cm)



# *Replace Latex Wrist Seals*

- Pull the seal into position over the plug until it overlaps the sleeve, then fold it back



# *Replace Latex Wrist Seals*

- Clean the sanded area with solvent.

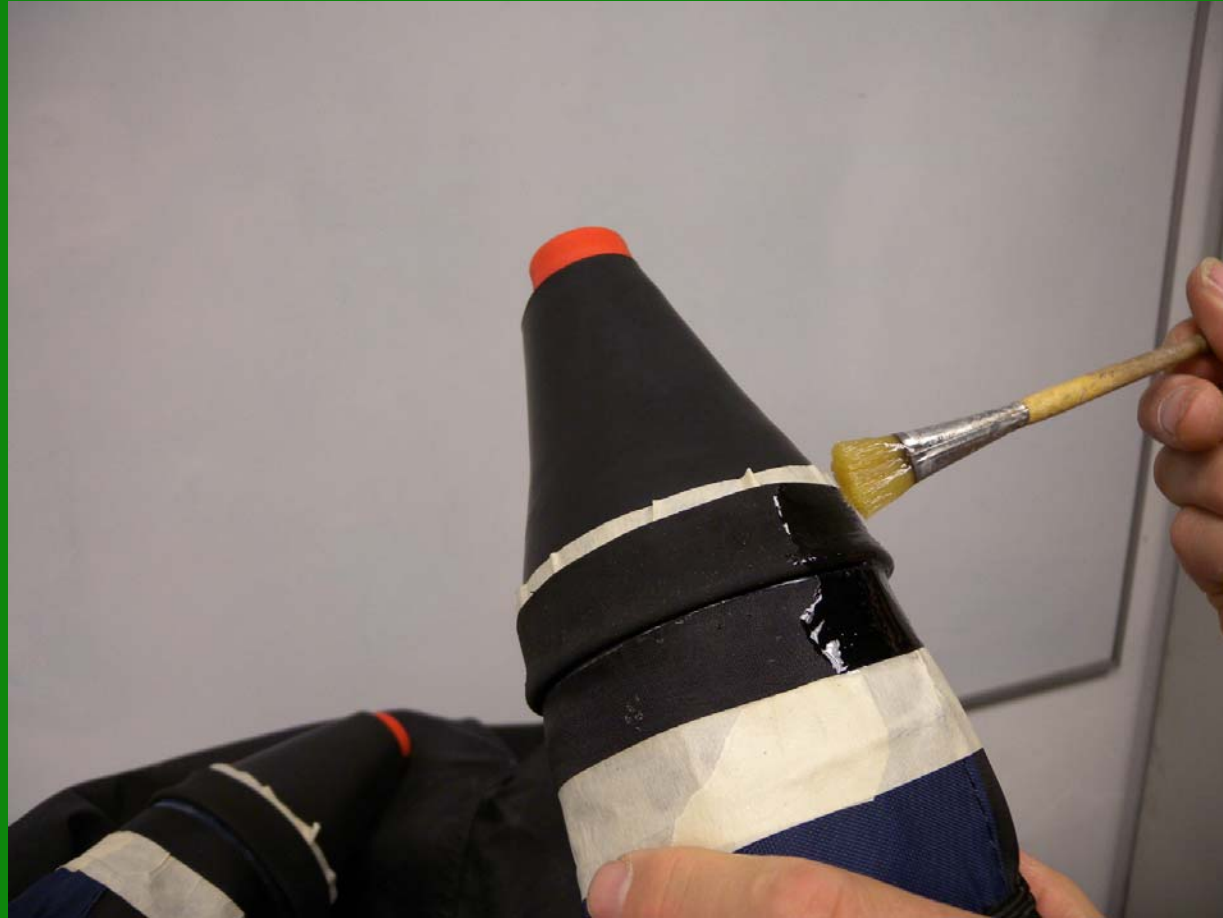


# *Replace Latex Wrist Seals*

- Apply three even coats of glue to the sanded area of the seal and the sleeve



# *Replace Latex Wrist Seals*



- Fold the seal back over the sleeve

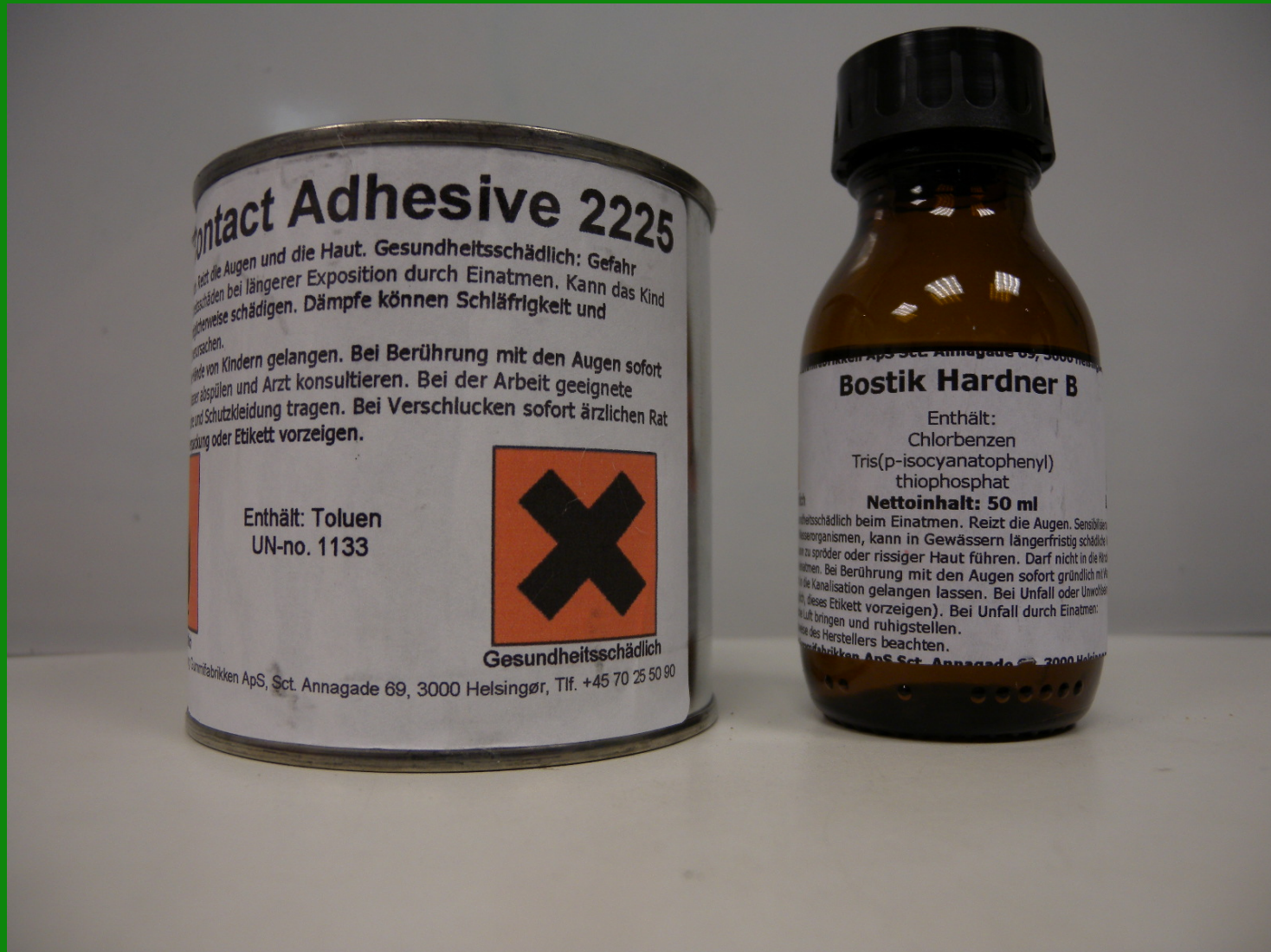
# *Replace Latex Wrist Seals*

- Turn the sleeve inside out exposing the junction of the suit for sealing.
- Seal by mixing 10ml Aquaseal® / Aquasure® and 10ml of CotoI-240® or Aceton and apply two coats of the mixture around the INSIDE junction of the seal and suit. The coats should be 2cm wide, 1cm on the seal and 1cm on the sleeve. Allow to dry for approximately 20 to 30 minutes.

# Sealant patch

- Locate and mark where the leak
- Turn suit inside out and seal by mixing:
  - 10ml of Aquaseal® or Aquasure® and 10ml of CotoI-240
  - apply two / three coats of the mixture

# 2 components Glue





# Seal Cement



# Cutol-240



# *Replace Latex neck Seal*

- cut the wrist seal off and/or use hair dryer



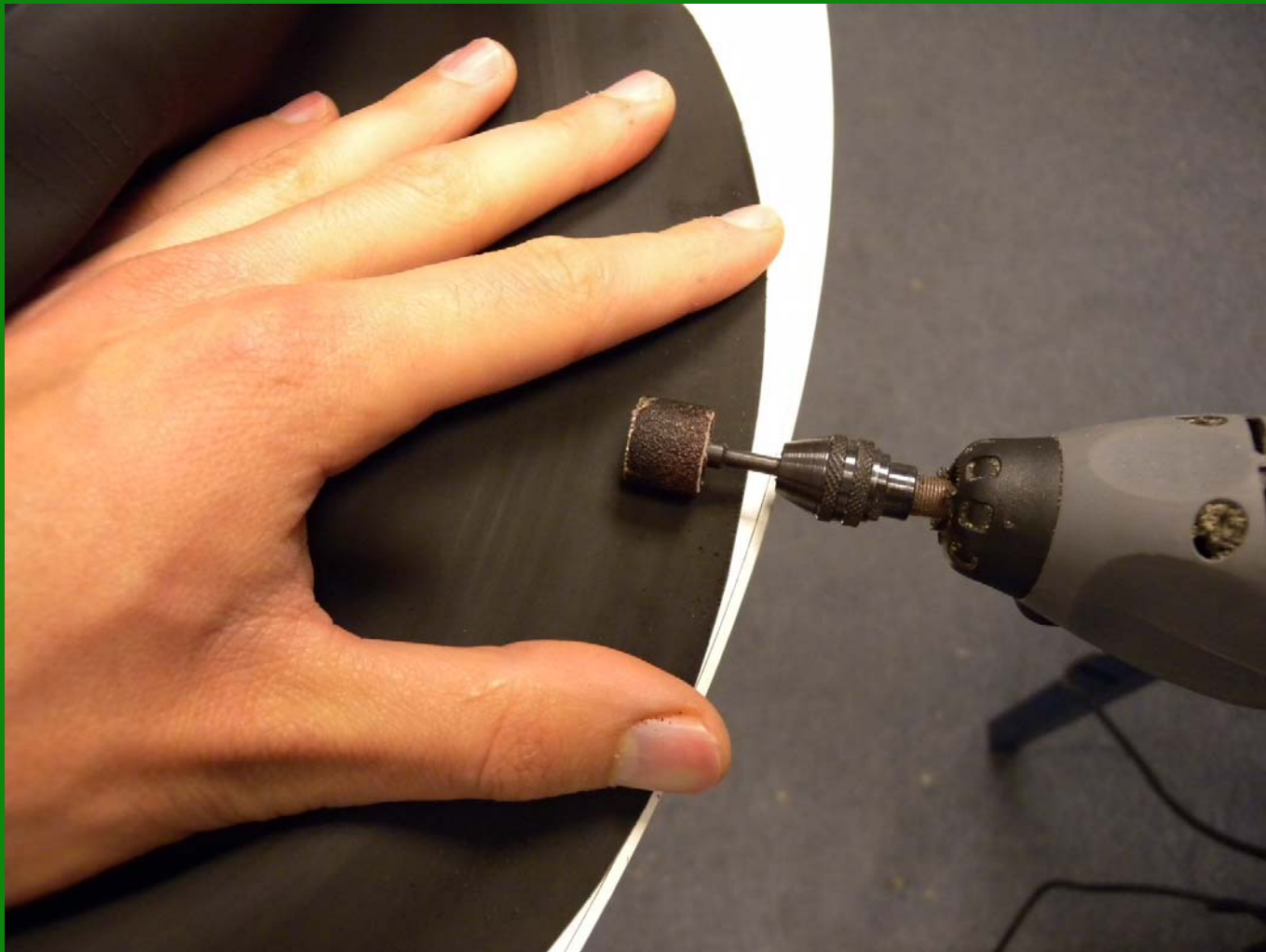
# *Replace Latex neck Seal*



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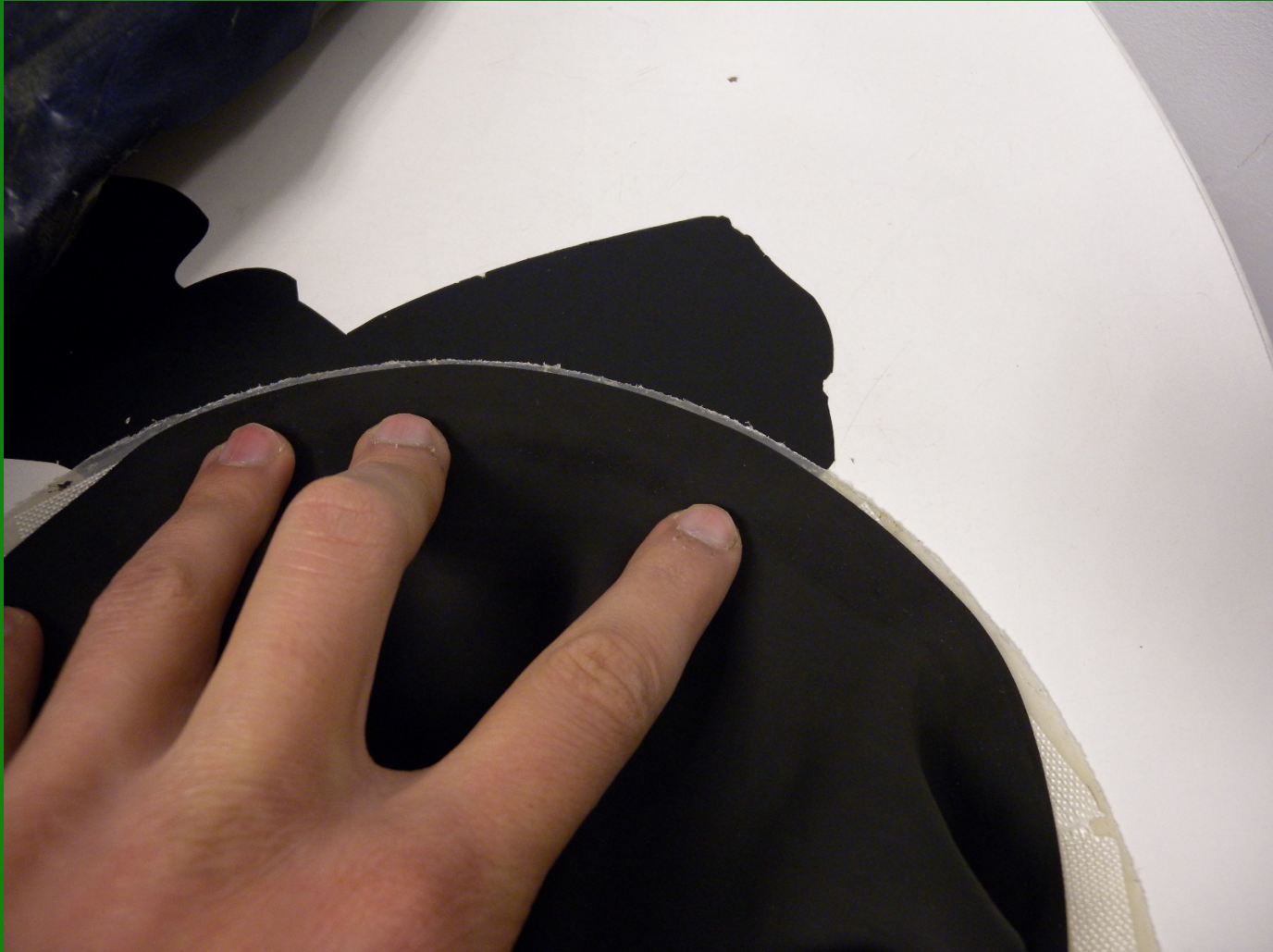




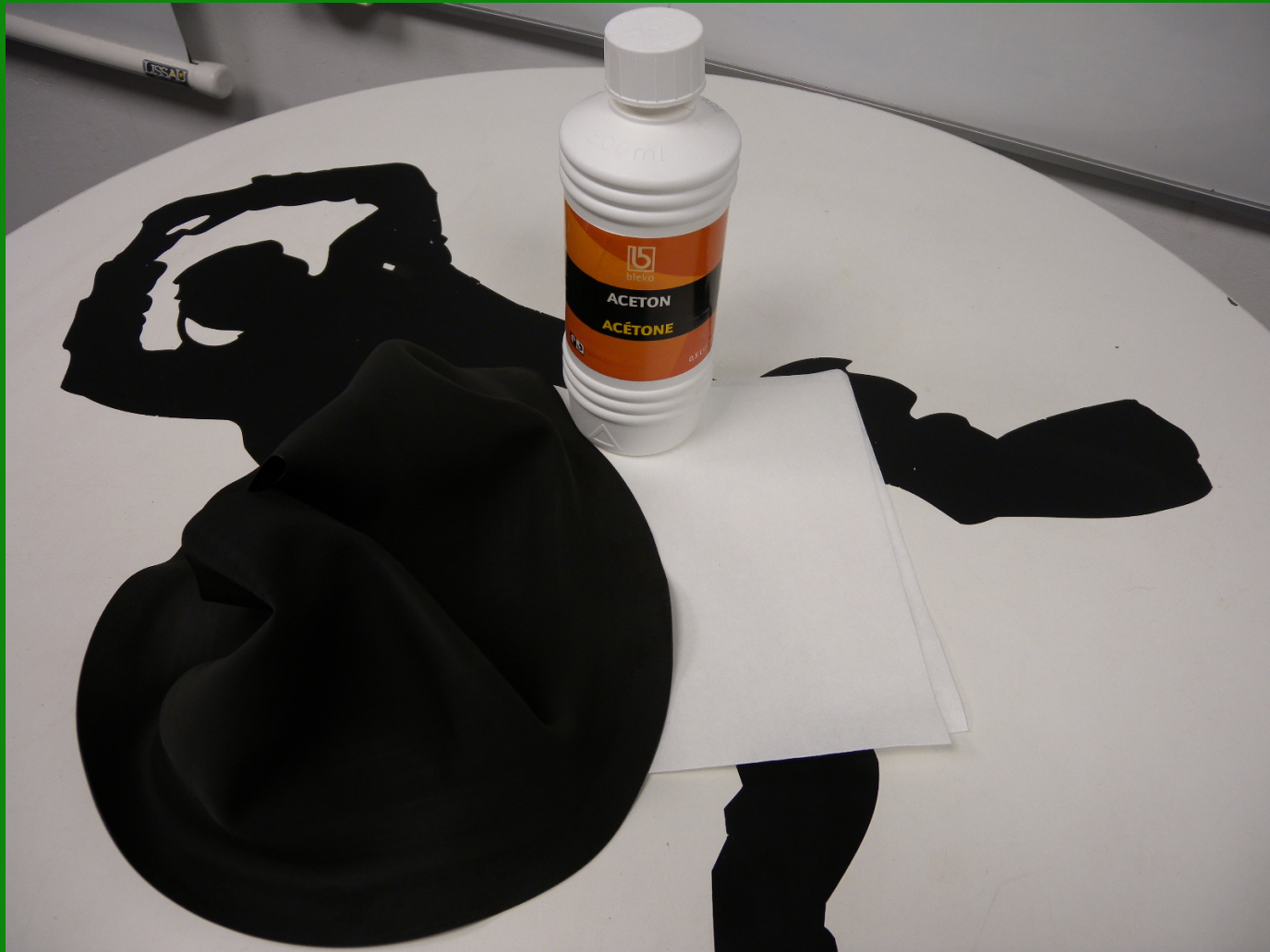
# *Replace Latex neck Seal*



# *Replace Latex neck Seal*



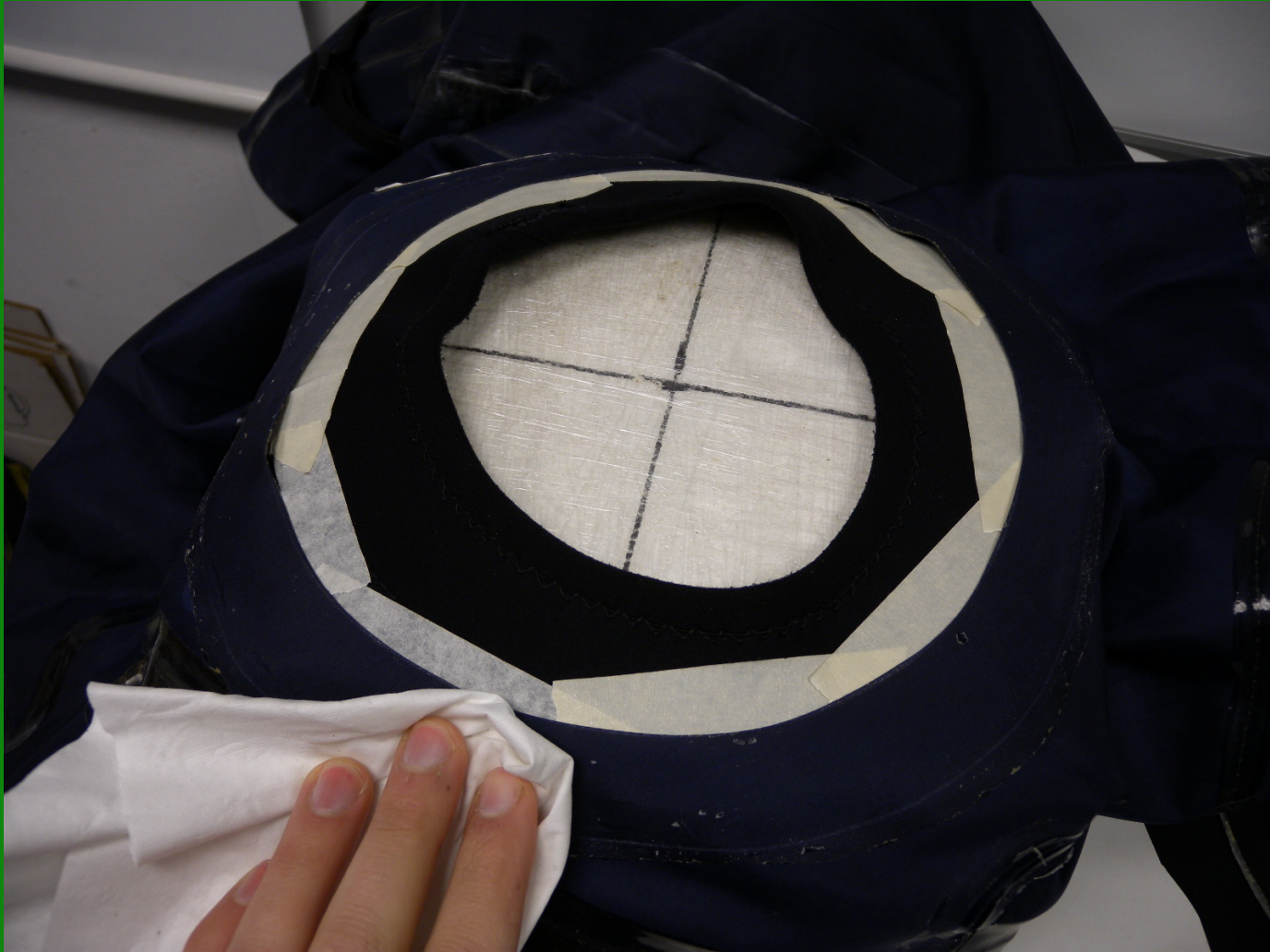
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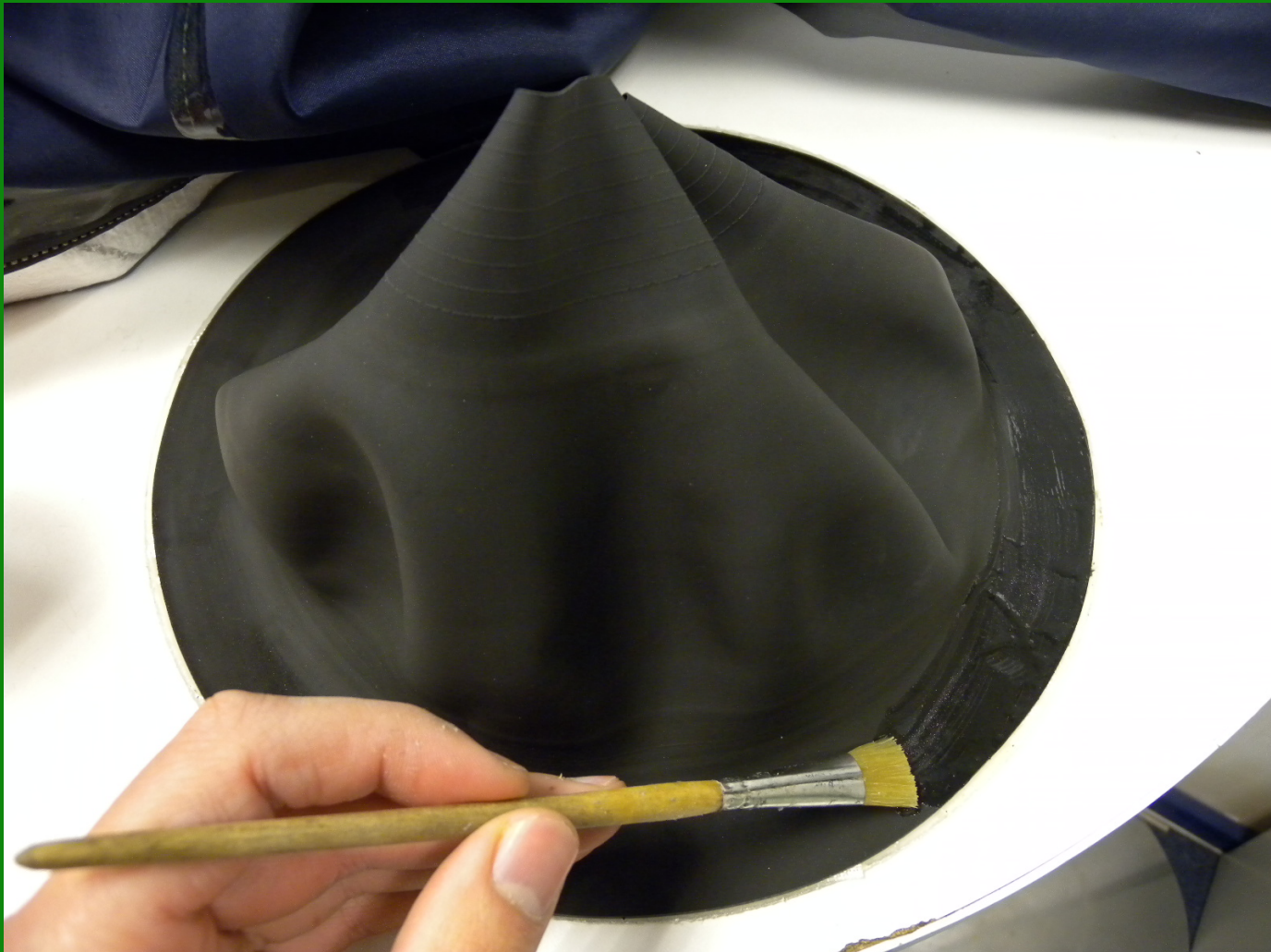
# *Replace Latex neck Seal*



# *Replace Latex neck Seal*



# *Replace Latex neck Seal*



# *Replace Latex neck Seal*



# ***Replace Latex neck Seal***

- Apply three even coats of glue to the sanded area of the seal and the exposes area of the neck opening.
- Allow a ten-minute curing time between the first and second coats and five minutes between the third coat



# *Replace Latex neck Seal*



Microwave foil, avoiding the seal directly sticks on the dry suit

# *Replace Latex neck Seal*



# *Replace Latex neck Seal*



- Remove foil and press seal in place

# *Replace Latex neck Seal*



Sand around the base of the seal

# *Replace Latex neck Seal*



# ***Replace Latex neck Seal***

- Seal by mixing 10ml Aquaseal® / Aquasure® and 10ml of CotoI-240® or Aceton and apply two coats of the mixture around the junction of the seal and suit.
- The coats should be 2cm wide, 1cm on the seal and 1cm on the sleeve. Allow to dry for approximately 20 to 30 minutes.

# *Replace Latex neck Seal*



# Zipper Care

- Zipper care is essential
  - replacement is expensive
  - time consuming
- Cleaning
  - Remove dirt / sand
- Lubricating
  - Outer elements: wax
  - Inner elements: no wax!



# Zipper Care

- Don't use Paraffin wax or Beeswax
  - If applied to the inner elements: it will fill the gaps, preventing interlocking
- Store the suit with:
  - Lubricated zipper
  - Zipper OPEN!  
(if stored in a bag: the zipper is wrapped around the outside of the bundle)
- Don't use Silicon spray
  - Affects Zipper replacement

# Zipper Care

- Zipper edges:  
Remove the bits of fluff  
(fibers at the edges of the zipper)  
use the outside of the heating element of a soldering iron with care!
- Always pull zipper straight (parallel) during closing / opening

# Summary

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- *Seal replacement (latex)*
- *Zipper care*

Lex Schotema  
Aqua Diving Veenendaal – The Netherlands

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Order:

Glue

Seals

Manual

Any questions?

Feel free to ask 😊