

Material Handling Guide

(confidential)

This manual describes the correct material handling and the required level of cleanliness.

1. Tools and Manual Accessories:

- 99% e.g. MEK/IPA/BITREX for cleaning
- Lint-free wipes
- Gloves (nitrile, powder-free)
- Tweezers where applicable

1.1 Prohibited Accessories

- Surfactant based cleaning agents
- Cellulose based wipes (cotton)
- Fabric based Gloves (cotton)
- Do not use / store cartons and packaging around unpacked membrane

2. Surface Cleaning

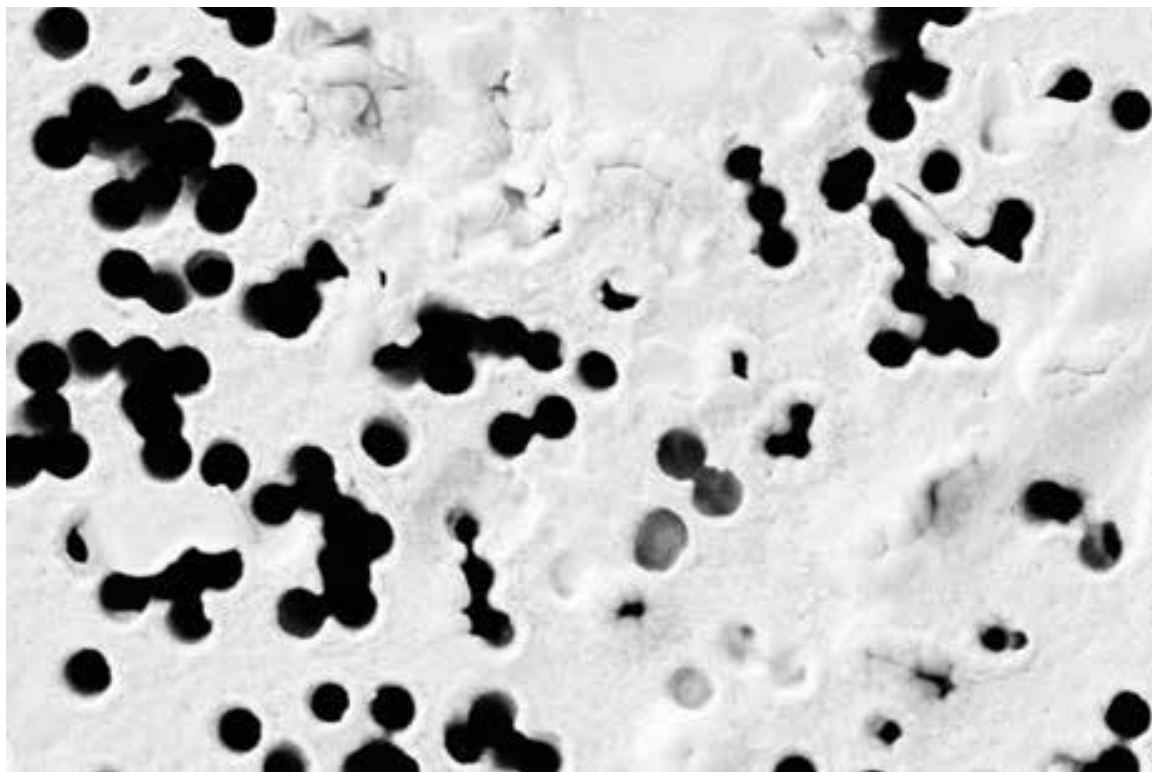
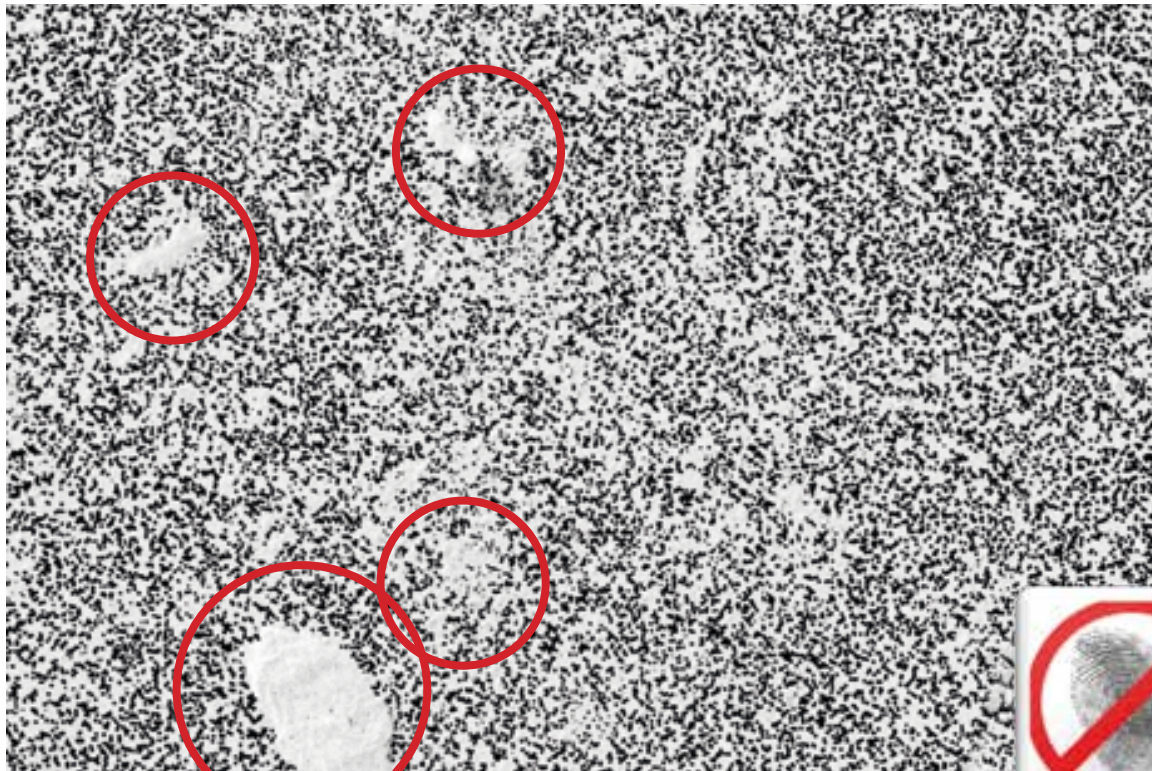
- All surfaces (workspace, shelves, storage place) must be cleaned with gloves and ethanol prior to start of work
- All gauges, test-rigs, and toolings must be cleaned with gloves and ethanol before operation
- Gloves must be changed after cleaning
Hands must be washed and disinfected

3. Tools and Manual Accessories:

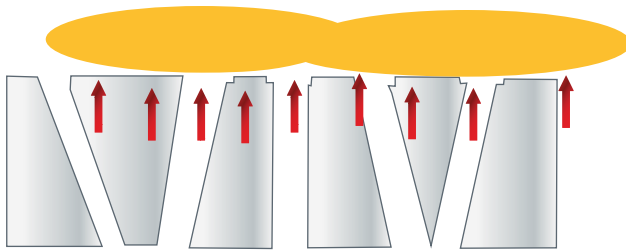
- Only touch membrane with gloves
- Use gloves attentively
- Don't touch your face while wearing gloves
- Do not contact door handles, keyboards, or uncleaned items while wearing gloves
- No re-use of gloves
- Do not sanitize gloves
- Replace gloves every 20 minutes
- Clean and sanitize hands before start of work
- Treat membrane carefully at all times
- Handle membrane very carefully with tweezers
- Do not use any soaps, hand creams, greases, or oils in the production area
- No food (including chewing-gum, candy) in the production area
- Do not write on membrane (labeling etc.) or apply other labels to the membrane

3.1 What happens when the membrane is touched without gloves?

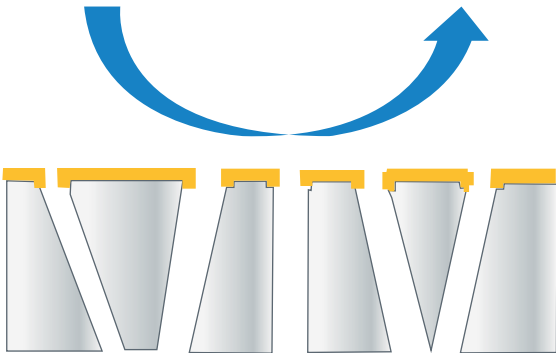
When touching the membrane without gloves, grease and other traces from human skin might attach to the surface and clog the pores (see below example). This can affect overall membrane performance.



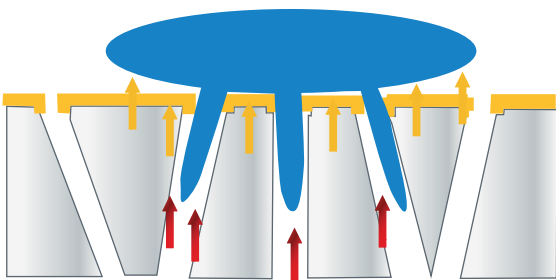
3.2 What can happen when the membrane contacts solvents or chemicals?



Based on the lower surface tension of some detergents/chemicals compared to water, it can partially wet the surface of the membrane



When wiping off membrane, a thin residue layer can remain on the surface



Once water encounters the membrane, it will not contact the membrane surface but rather touch the residue of the detergent / chemical. Therefore, the function of the membrane will now depend on the characteristics of the detergent / chemical and no longer on the membrane itself