Biobased gloves

1. Reason & Goal

The market for medical gloves in growing with an annual rate of **11%**

And will be growing until at least **2027**[1]

The influence on the environment can be reduced by using **environmtal friendly chemicals.**[1]

What m/m% **biobased content** can be achieved without loss of quality?

2. Latex & additives

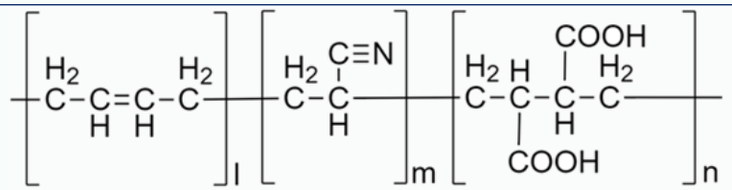
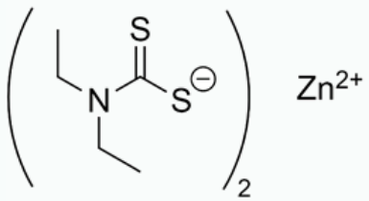


Figure 1: Structure of XNBR.

A latex is a polymerdispersion in water. **Nitril Butadiene Rubber** (XNBR) does not cause allergic reactions. [2]

Sulfur/crosslinking agent

Zink Diethyl-dithiocarbamaat (ZDEC)/accelerator



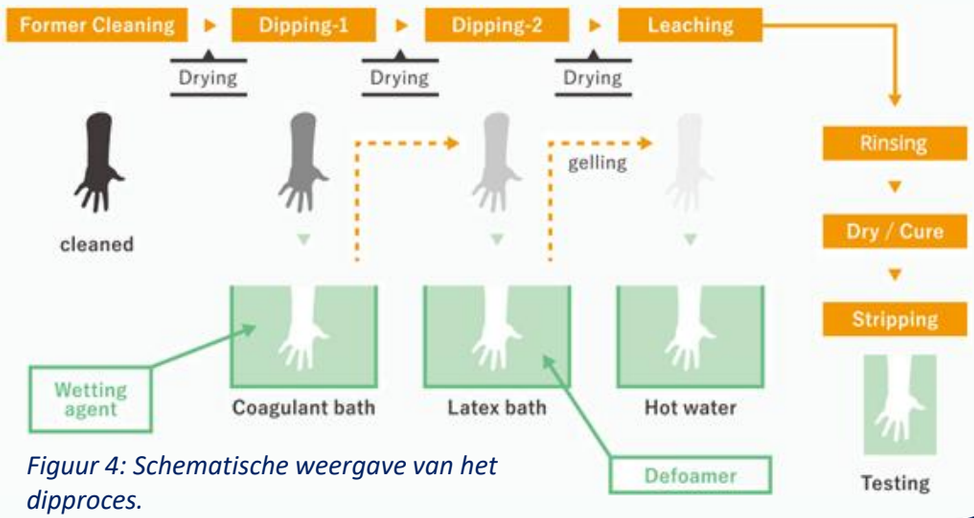
Figuur 3: Structuur van ZDEC.

Zink oxide (Zn^{+2} and O^{-2} ions)/activator

3. Method

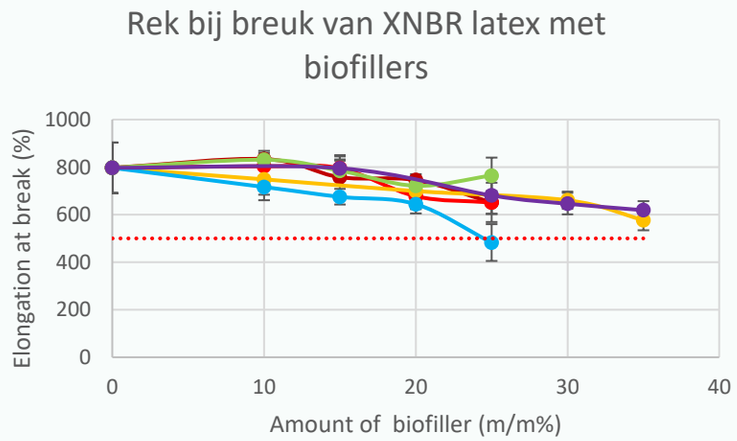
1. Coagulant dip
2. Drying
3. Latex dip
4. Drying + vulcanisation
5. Remove product from the mould

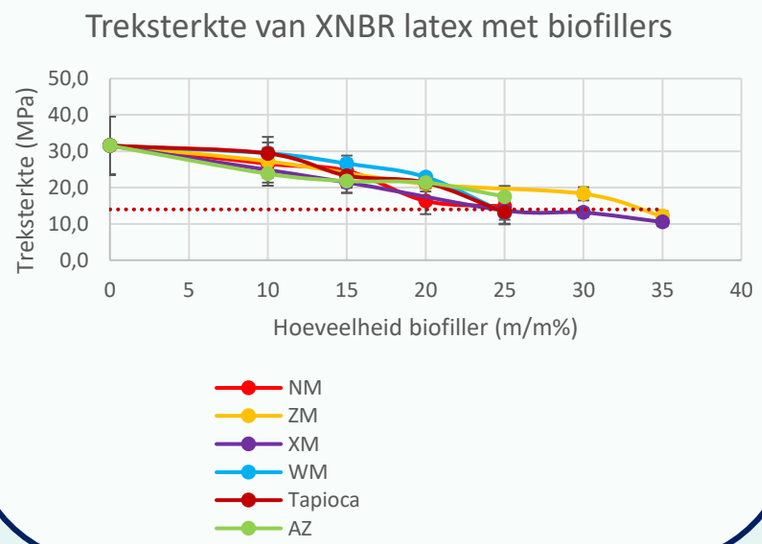
(no warm water dip)



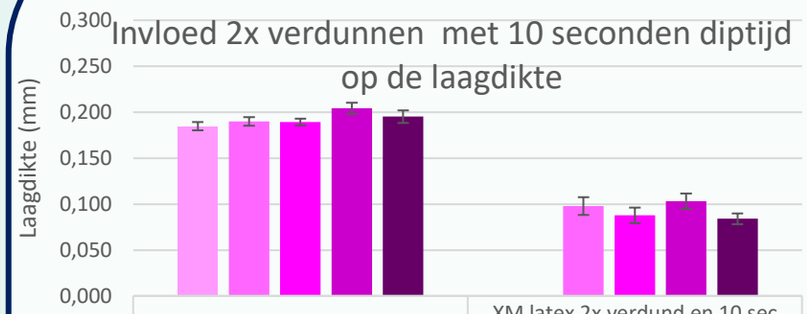
Figuur 4: Schematische weergave van het dipproces.

4. Comparing different starches





5. Thickness of the material



	XM	XM latex 2x verdund en 10 sec dip
0	0,18	
15	0,190	0,098
25	0,189	0,088
30	0,204	0,103
35	0,195	0,084

The elongation at break becomes lower, however the tensile strength remains the same.

6. Conclusie

ZM appears to have the best characteristics. A thickness in the desired range can be achieved with a 2x dillution and 10 seconds dipping time

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