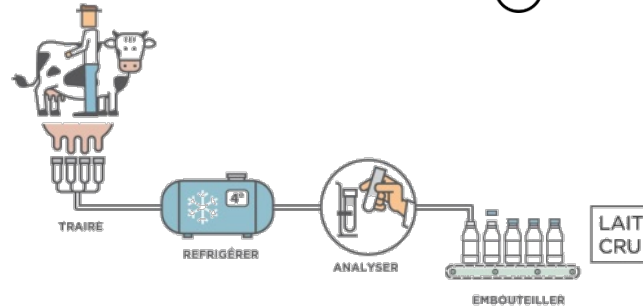
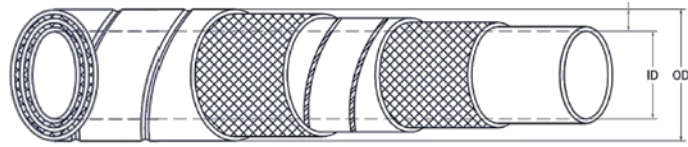


Risk assessment of multilayers hoses

Issues

- Migration risk assessment of volatiles substances originating from non-evaluated material layer
- Migration risk assessment of non-evaluated substances behind a "barrier" layer
- Lack of specified regulations and guidance for repeated uses or in contact with flow
- Variation of geometries of hoses and use conditions



Our contributions

- Material deformation
- Chained modeling using tiered-approach
- Identification of acceptable operating conditions for the hoses
- Estimation of consumer exposure

Long-term storage of the hose
(no liquid in contact)

Mass transfer from external layers to inner walls (loading step)



contact time: t_1

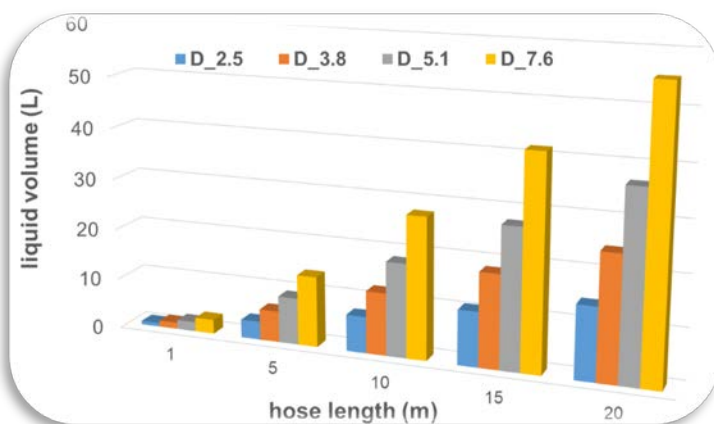
Flow
(single pass or recirculation)

As before + mass transfer from inner walls to the liquid in contact



contact time: t_2
(depending on scenario)
Total contact time = $t_1 + t_2$

The tube is tested immediately after its storage



Acceptable operating condition (e.g. liquid volume) according to hose lengths and hose diameters

Application areas

- Kitchenwares
- Biotechnological devices
- Industrial equipments

