

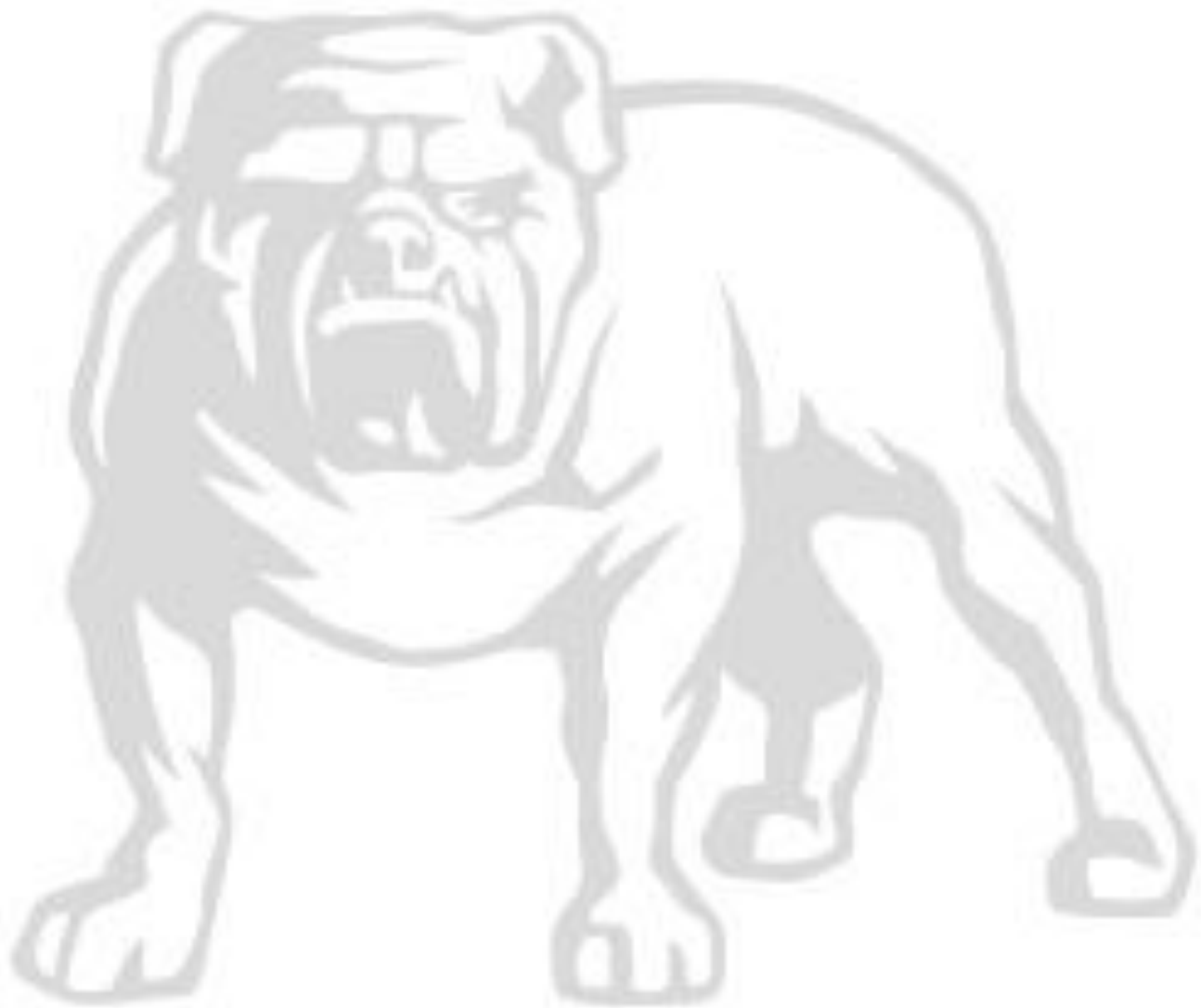


End user panel

Petter Andersson Mirka Ltd

TAPPI Nano 2021 Virtual Conference
15-16 June 2021





Mirka Ltd introduction

- Finnish abrasives company
- 300 M€ turnover
- 1500 employees
- 5 production facilities
- 97% export



Nanocellulose: Shortcomings

- No ready solutions for **non-aqueous** resin systems on industrial scale
- **Viscosity / shear thinning challenging** in applications when good **levelling** is needed – also **pumpability** important
- High water content with higher levels of nanocellulose – more energy needed for drying
- For abrasives **few drop-in solutions** – new product concepts has to be developed

Nanocellulose: Benefits

- Few drop-in solutions – **new unique product concepts** can be developed – possibility to rethink abrasives
- **Binder matrix of nanocellulose** for new types of abrasives: little or no fossil-based binders
- **Reinforce aqueous resins** (phenolic and urea formaldehyde, latexes), especially when viscosity is no issue: more with less – greener products

Nanocellulose: Benefits

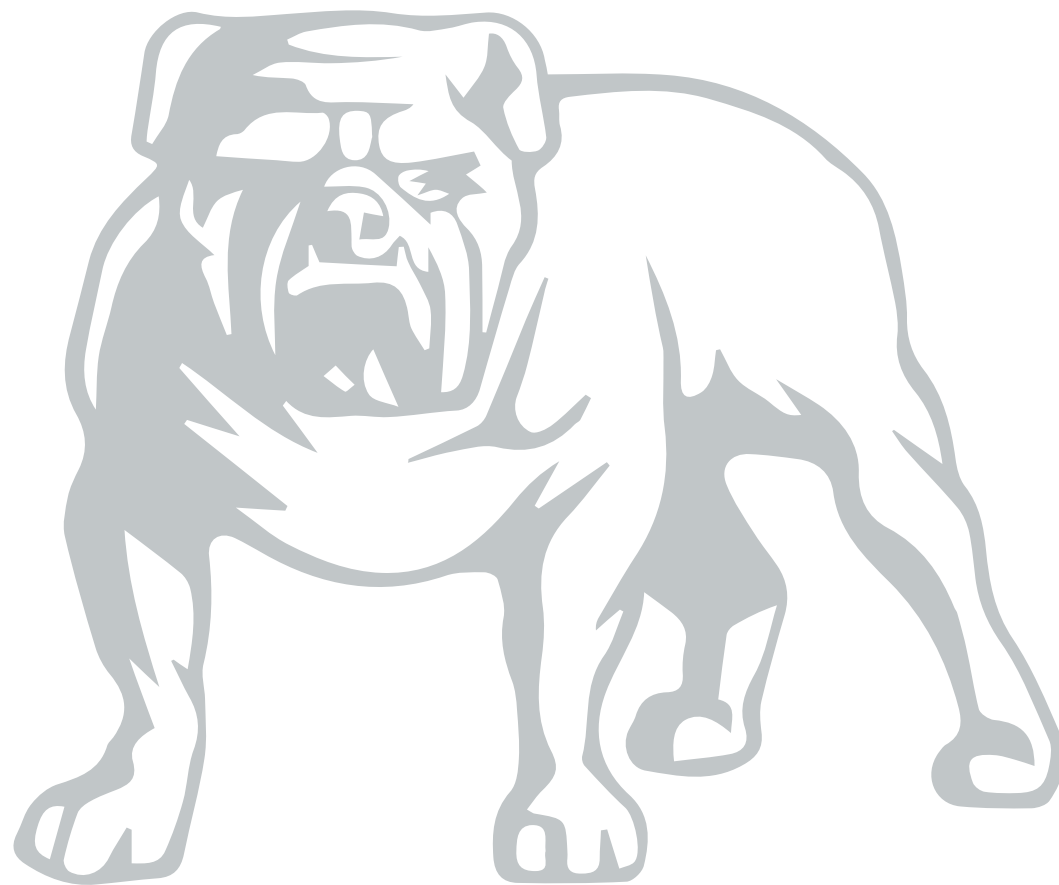
- Can be used as **viscosity modifiers**: process aids (anti-settling, anti-sagging, dispersing) – always a balance if a certain extent of levelling needed
- In coatings: **lower coat weight** due to shear thinning with part nanocellulose

Supplier requirements

- Ready-to-use nanocelluloses (MFC, CNF, CNC) for **non-aqueous** (non-polar) systems: functionalization and/or removal of hydrogen bonds
- Lower shear thinning effect with maintained reinforcing effect for drop-in solutions where viscosity can be a problem

Future

- New unique concept nanocellulose-based abrasive products
- Nanocellulose-enhanced products for traditional abrasives
- Better process stability with the aid of nanocellulose



mirka.com