

# Development of an improved 'Detergent' synthesis process

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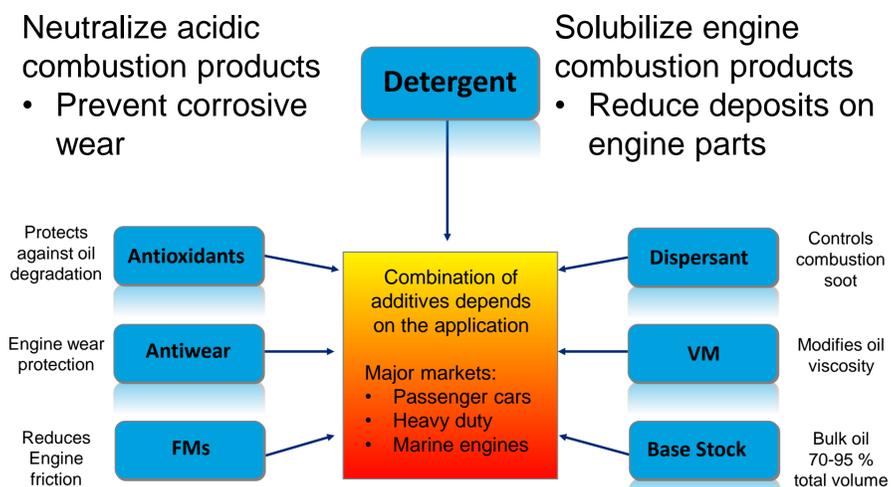
## About Us

Infineum is a world leader in the formulation, manufacturing and marketing of petroleum additives for lubricants and fuels



### Formulation science

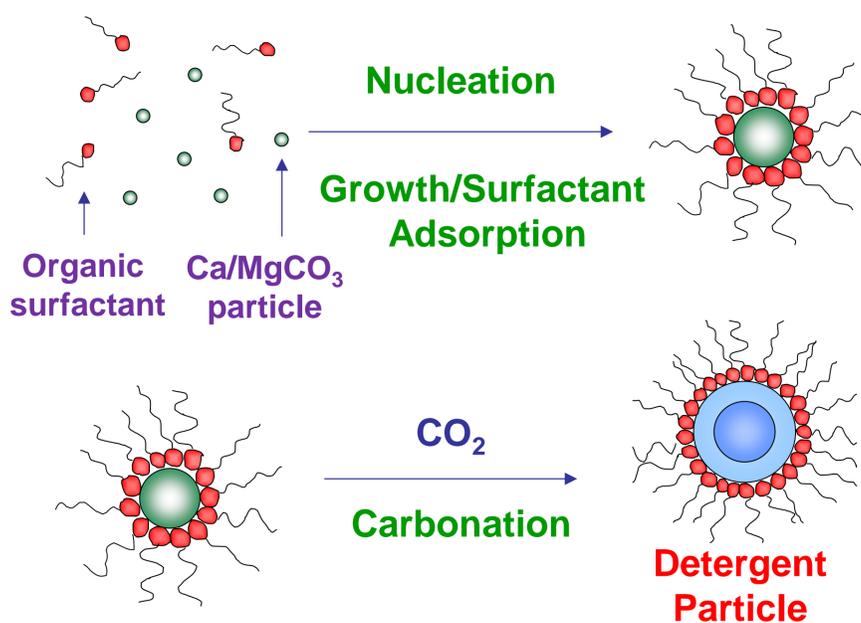
The key is balancing the additives for the application:



### Transformation Map (TM)

'Product by process'

- Develop understanding of the underlying chemistry
- Each reaction step understood in more detail through the development of a transformation map



**Main output: Key chemistry steps identified. Chemist-led activity**

### Initial screening analysis (ISA)

**Challenge:** Improve an existing process to synthesise an improved 'Overbased' detergent product  
**Overall aim: Develop a plan for next phase of this work**

**Where we are now and where we want to be**

- Buy in from the team/stakeholders
- Neutralise personal agendas

**Establish clear goals for the session**

- Agree the agenda for the meeting
- Review pre-read and align expectations
- Discuss constraints



**Main output: Agree purpose of the session**  
**Chemists lead activity**

### Process definition diagram (PDD)

What we currently do at our Manufacturing sites

- Challenging our assumptions
- How do the process steps relate back to the underlying chemistry?
- Overcome engineer/chemist differences when different groups run the process

**Main output: Develop a template of the things we need to understand to define a new process;**  
**Engineering-led (Manufacturing Technology) activity**

### Conclusions and lessons learnt

Senior management presence and engagement

- Extra input from wider experience
- Higher level input – e.g. business/supply drivers
- A greater understanding of the work/plan



**Drawbacks of the session**

- No independent experienced facilitator
  - Impacted tool selection
- Stakeholder decision external to the team