

Forward Together™

Solutions for grinding technology

- COOLANTS (neat oils / solubles)
- + COOLANT DELIVERY SYSTEMS
- + COOLANT MONITORING



The industry leader in industrial process fluids.

Formed in 2019 by the combination of Quaker Chemical and Houghton International.

Revenue:
\$1.6 billion
in sales

4,000
employees in
36 countries

15,000
customers

R&D
expenditure:
\$42 million



GRINDAIX

1 COOLANT MONITORING

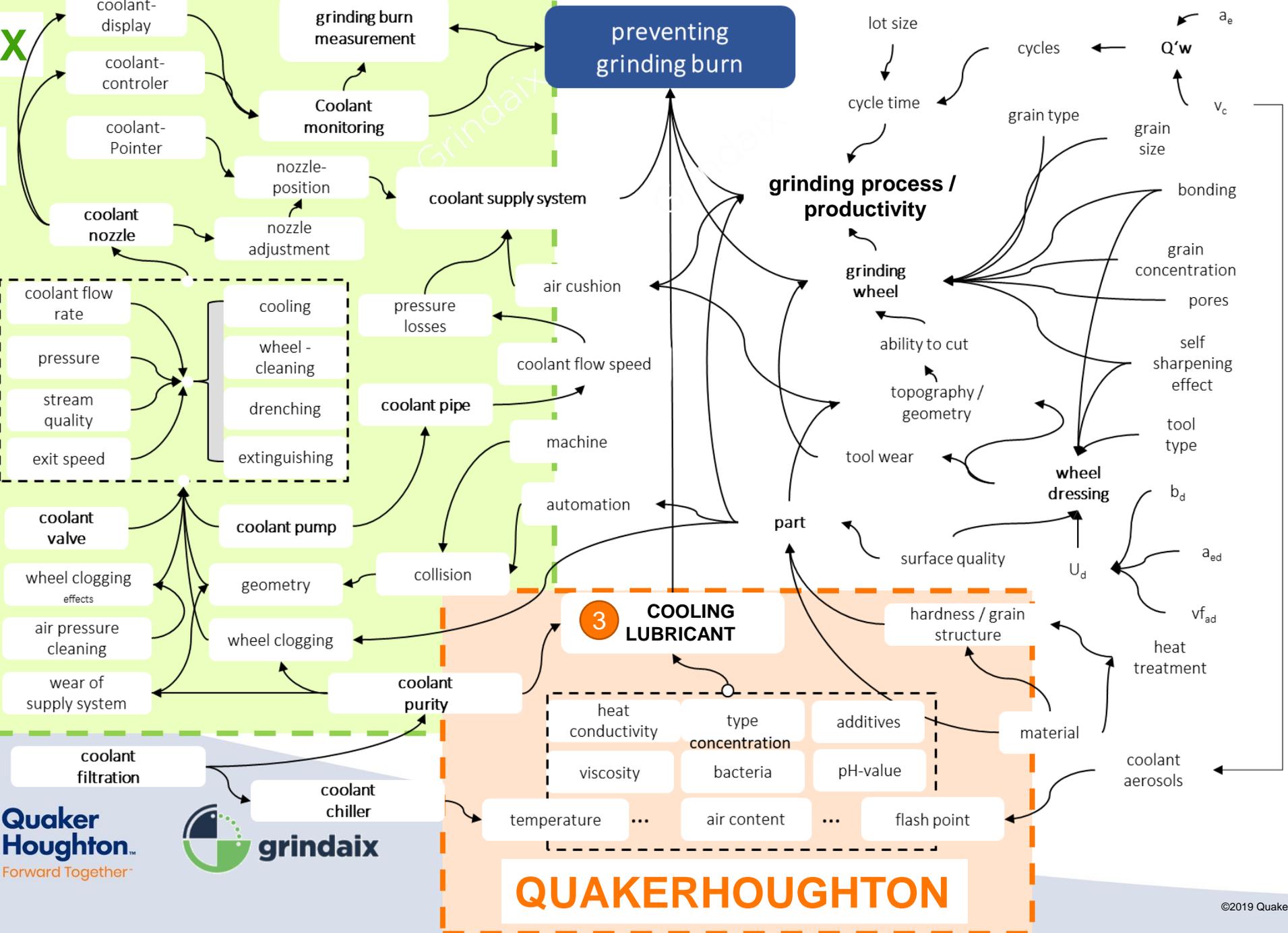
2 COOLANT DELIVERY

preventing grinding burn

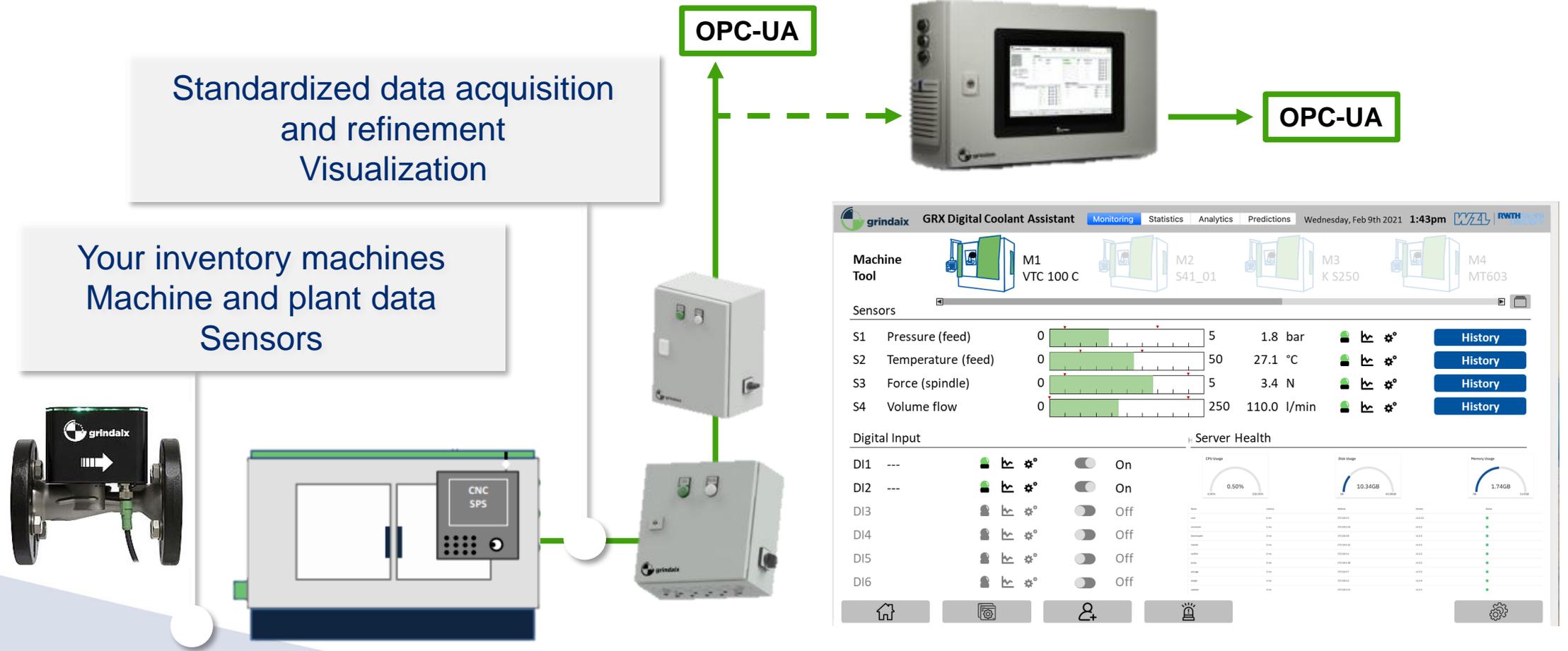
grinding process / productivity

3 COOLING LUBRICANT

QUAKERHOUGHTON



1 COOLANT MONITORING



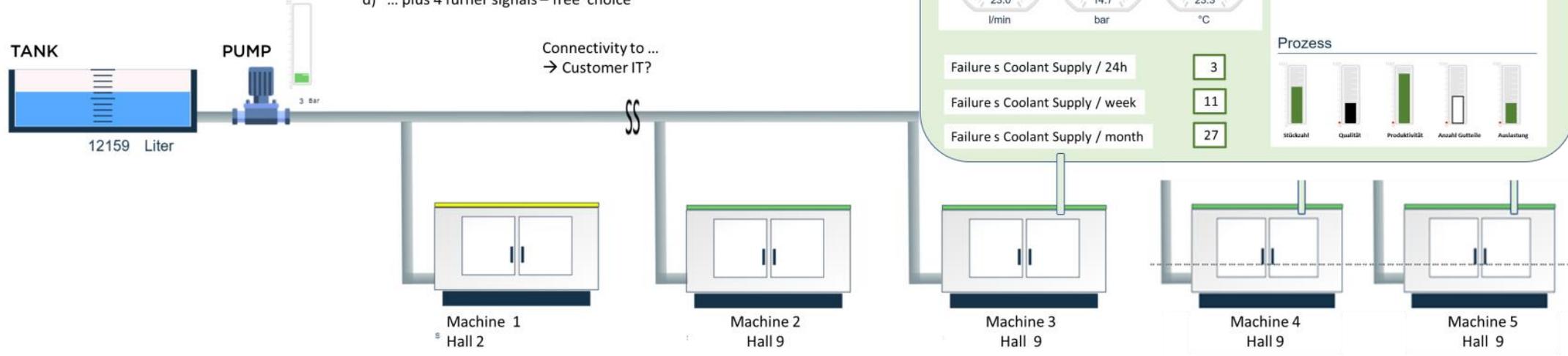
1

COOLANT MONITORING

PILOT PROJECT XYZ A

- Monitoring @ 5 machines**
- a) Coolant pressure (psi)
 - b) Coolant temperature (°K)
 - c) Coolant flow rate (gal/min)
 - d) ... plus 4 further signals – free choice

MAIN COOLANT FILTRATION UNIT



1 COOLANT MONITORING

In approx. 70 % of the manufacturing companies, differentiated condition data and coolant consumption of the equipment (periphery) are not available.

Thus

1. anomaly detection
2. predictive maintenance
3. predictive quality

is prevented.

Source: [1] Umweltbundesamt; [2] UN Climate Change Conference 2015; Bildquelle: Industrieanzeiger, Ingenieur.de, mav/Knoll

1

COOLANT MONITORING

The digitization of inventory machines enables condition monitoring, fault detection, predictive maintenance and predictive quality in production, which is measured on the basis of productivity.

The indicators of productivity are:

- Reduction of the scrap rate (scrap rate)
- Reduction of tool costs by increasing tool service life
- Increase in machine availability
- Improvement of machine/process robustness
- Reduction of operating material consumption

SAVINGS > X..... €
ROI < 12 months

GRINDAIX

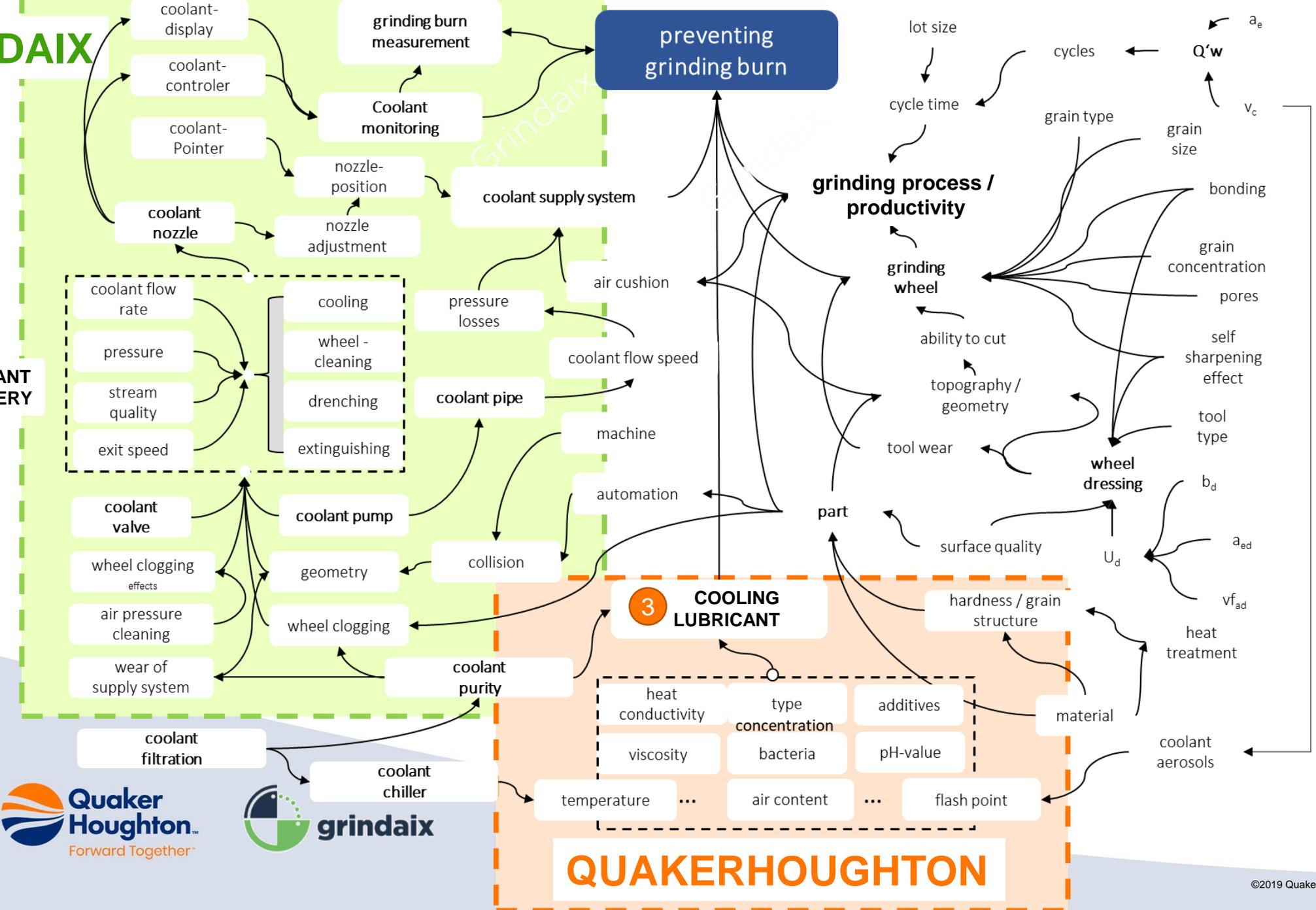
2 COOLANT DELIVERY

preventing grinding burn

grinding process / productivity

3 COOLING LUBRICANT

QUAKERHOUGHTON



2 COOLANT DELIVERY

■ Made
■ in
■ Germany

PATENTED
MULTI CHAMBER NOZZLE

PATENT-NO: 10 2018 002 444



2

COOLANT DELIVERY

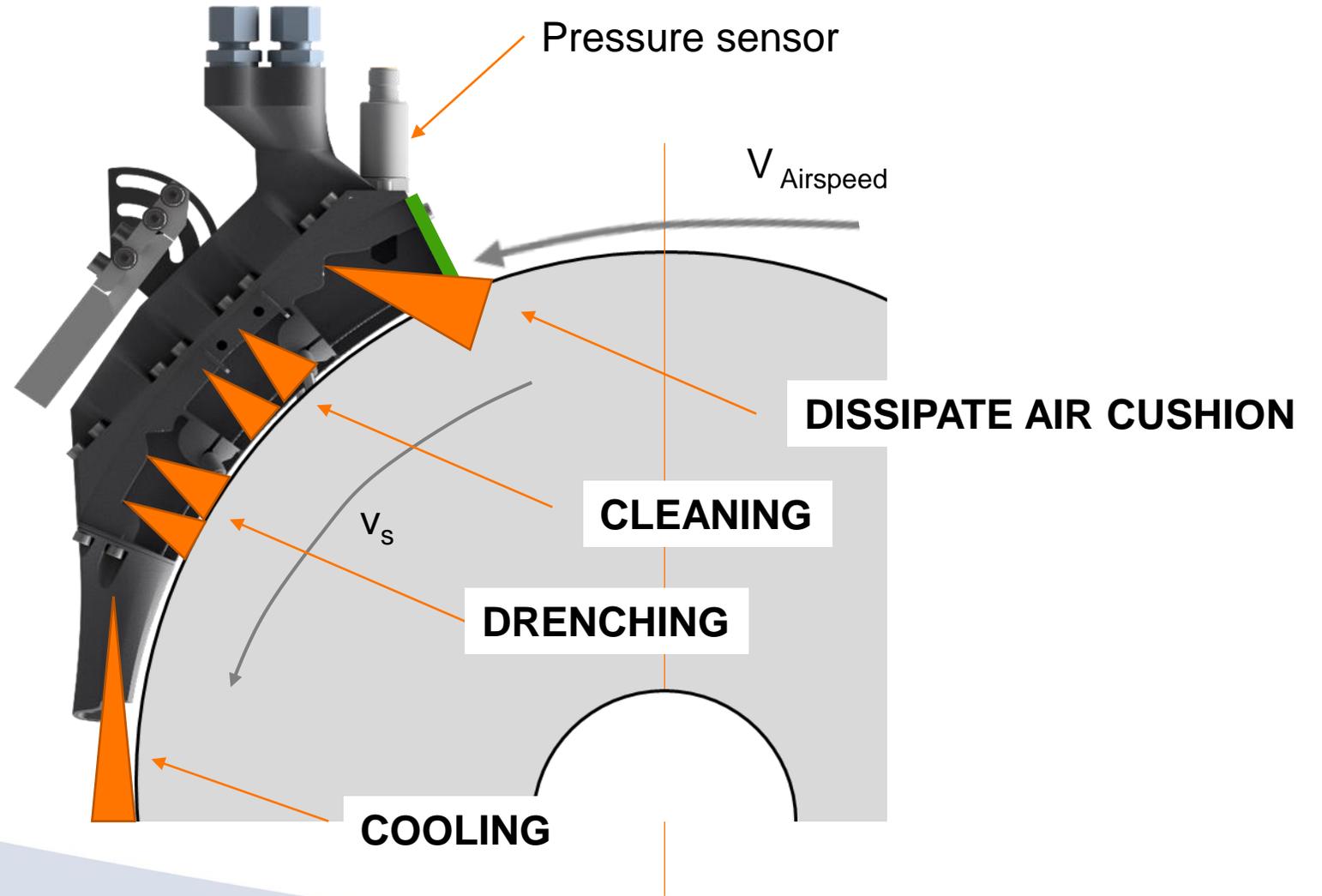
AVOIDING GRINDING BURN!

Each nozzle chamber can be controlled separately!

- Pressure / quantity

Control variables are

- Wheel speed
- spindle power
- Accoustic Emission



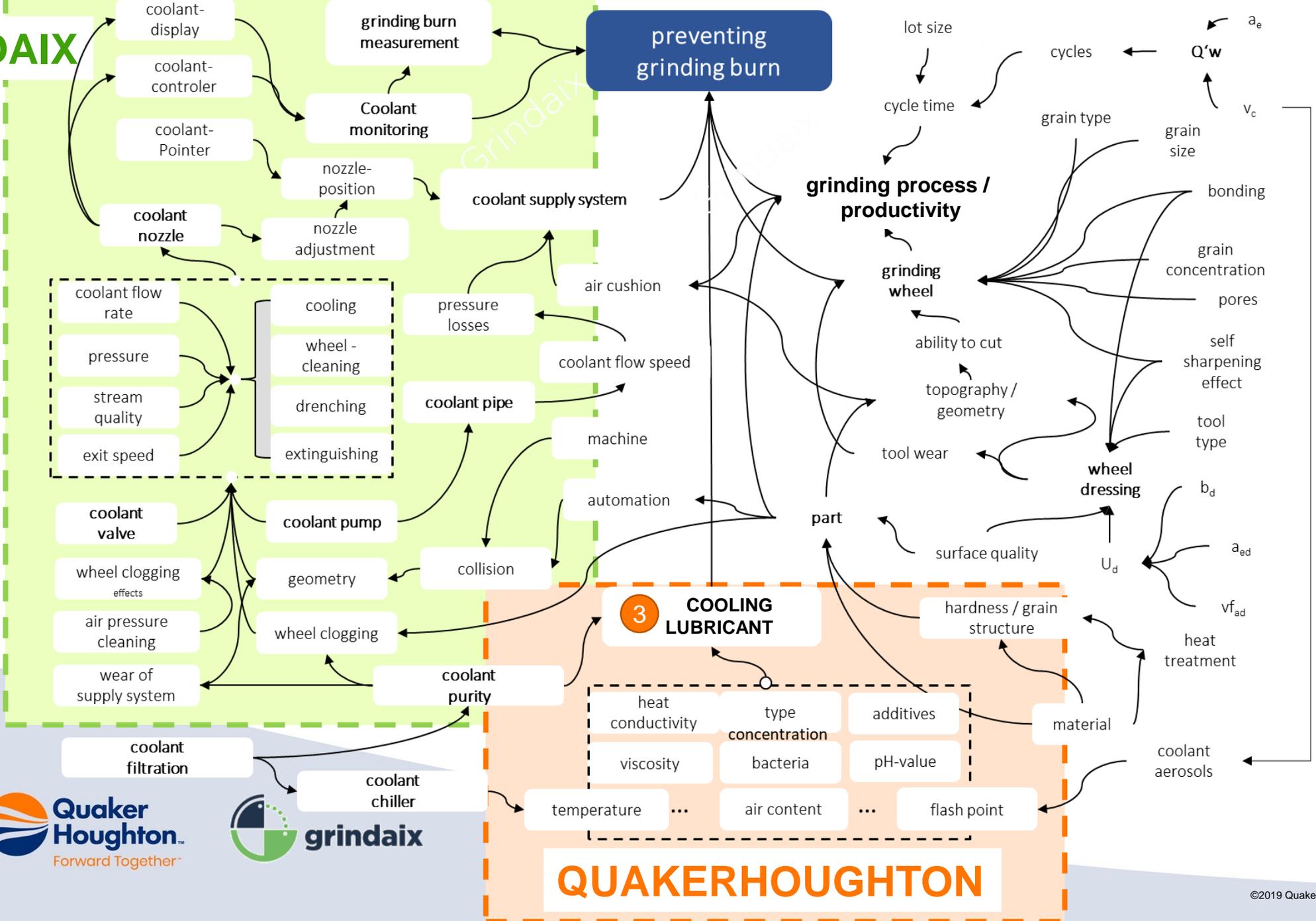
GRINDAIX

preventing grinding burn

grinding process / productivity

3 COOLING LUBRICANT

QUAKERHOUGHTON



3

COOLANT

Quaker Houghton Products

In combination with the already mentioned possibilities, our cooling lubricants are an innovative combination to bring even more stability and quality into the grinding process.

Our long-term cooperation with our customers helps us to drive the development of cooling lubricants further and further.



3

COOLANT

Cooling lubricant: water miscible

QUAKERCOOL 35xx BFF series

Successfully used by:

- **Rolling bearing manufacturers**
- **Automotive partners**
- **Gear manufacturing**
- **and many more**

Excellent in:

- **Long-term stability**
 - Excellent foaming behavior
 - Exemplary bio resistance
 - Robust corrosion protection
- **Flushing behavior**
 - Clean machines
 - Clean tools and parts



3

COOLANT

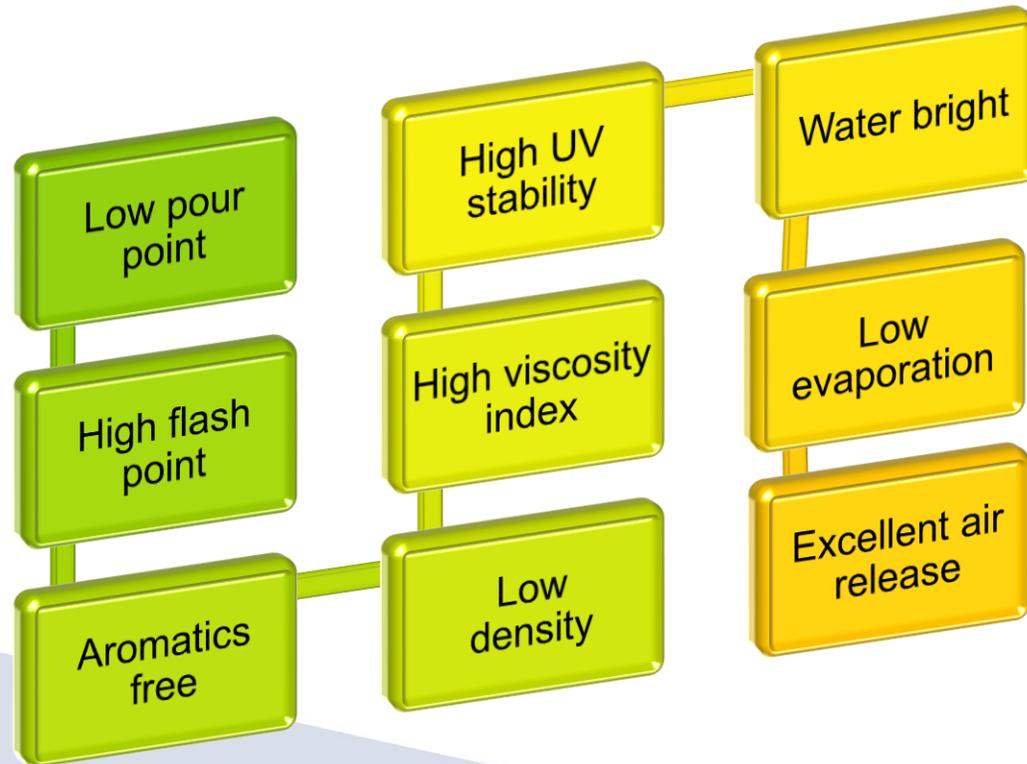
Cooling lubricant: grinding oil

The use of different base oils in the formulation of grinding oils gives, depending on the consideration or requirement, various advantages over conventional mineral oil products.

These formulations are available in many typical viscosities.



Synthetic base oils

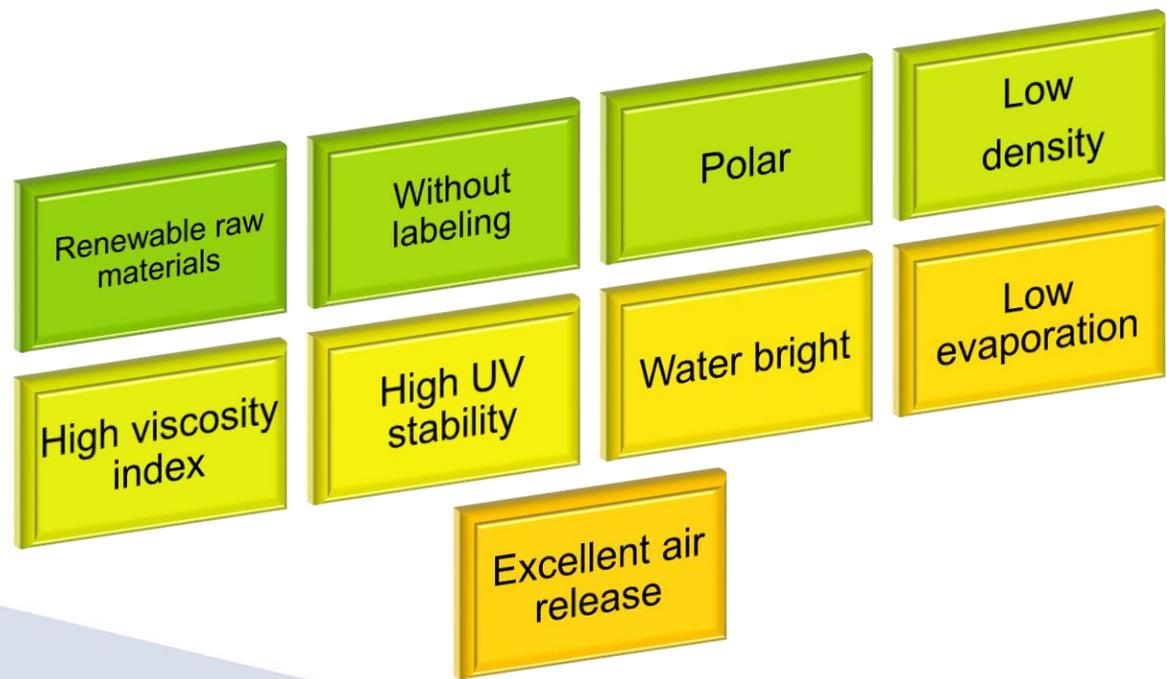


Cut-Max[®] 900 series

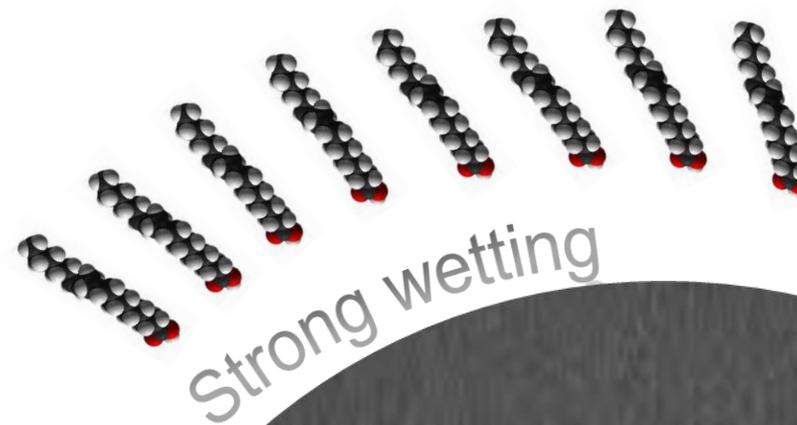
Syn²Oil High Performance

3 COOLANT

Ester-based base oils

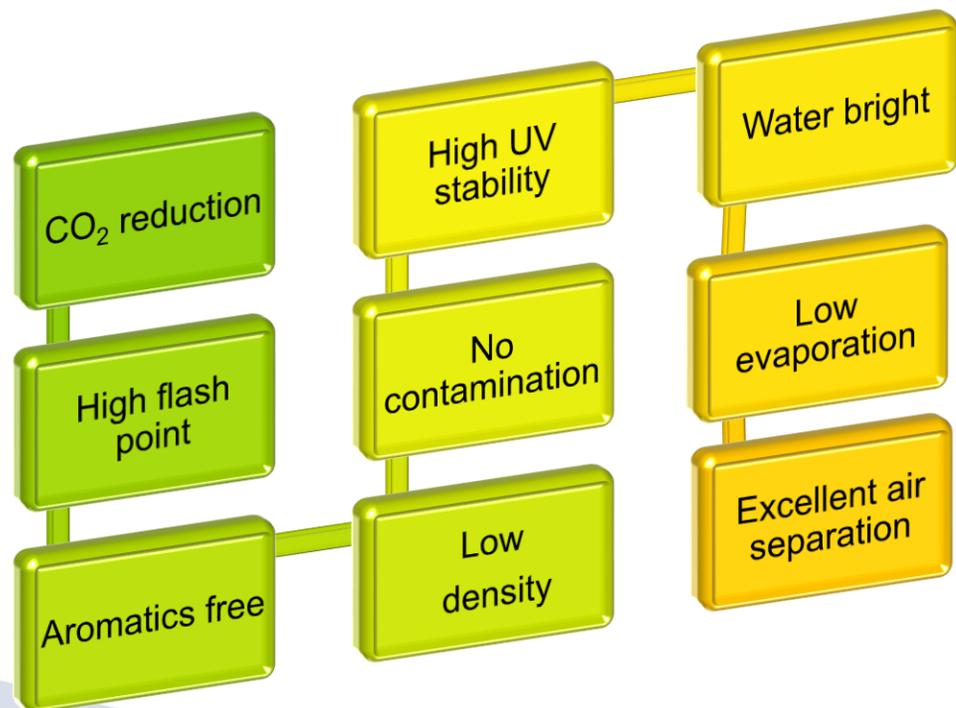


QUAKERCUT® XP series



3 COOLANT

Re-Raffinate



Cut-Max[®] WL SH 10

The quality of re-refinates has experienced a quantum leap in recent years.

Since the recycled oils are consistently of good quality (e.g. PAO-based engine oils), the reprocessed base oils achieve a very high quality (Grp II+).

**Thank you very much
for your attention!**

