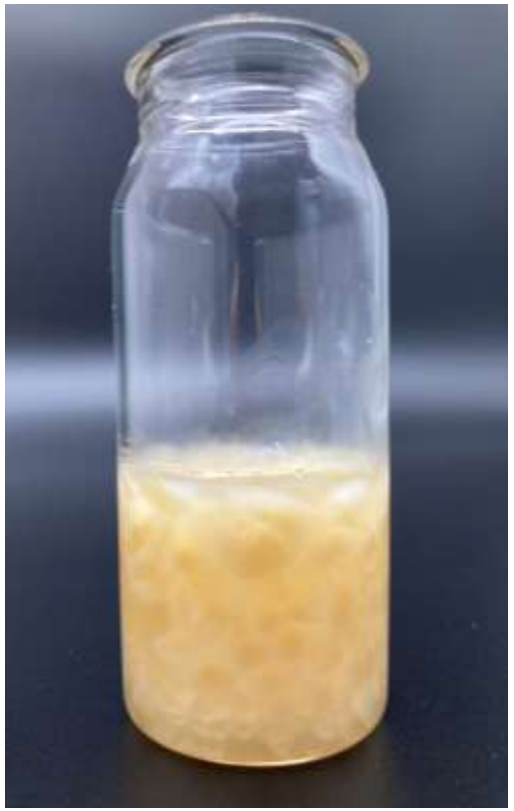
Sokalan® CP 301 properties

		Sokalan® CP 301
Product properties		
Ionic character		Non-ionic
Physical form at 23°C		beige to brown solid
Melting point		43 °C
Rel. density at 20°C (OECD 109)		1.162
Dynamic viscosity (ASTM D7042)		
at 60°C		124 mPa·s
Cloud point (EN 1890, method A)		77.5 °C
Water solubility (OECD 120)		fully miscible
pH (1% solution in VE water, EN 1262)		4.2
Surface tension (0.5% in de-ionized water at 20 °C)		37.8 mN/m
Registration/ Exemption		
EU[1]	REACH	polymer exempt
USA[1]	EPA TSCA	planned
	EPA Inert	planned
Canada[1]	PMRA	planned
China[1]		planned

[1)] as of June 2025



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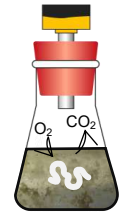
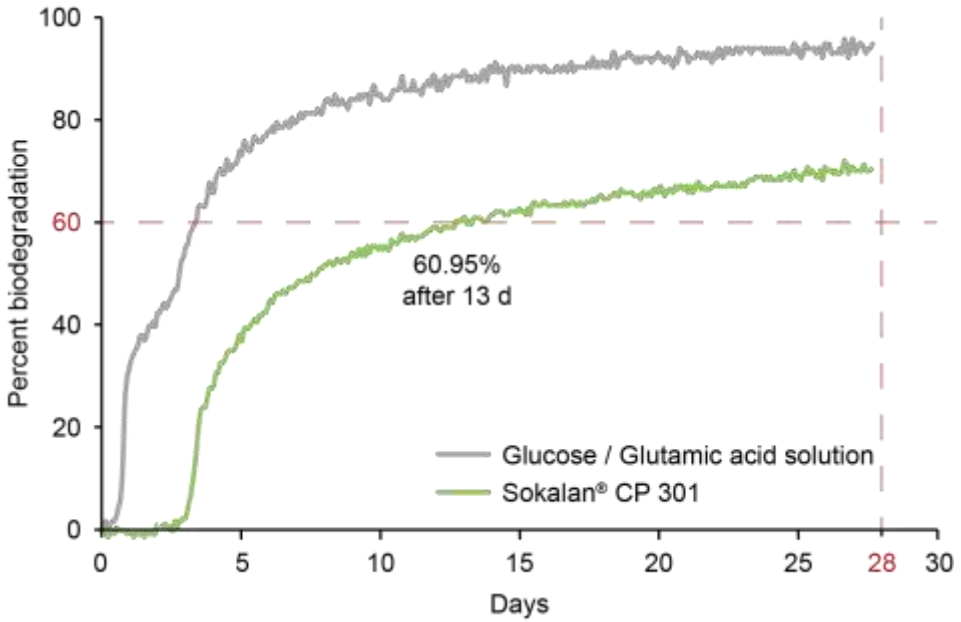
Sokalan® CP 301 shows unique biodegradation in sludge & soil

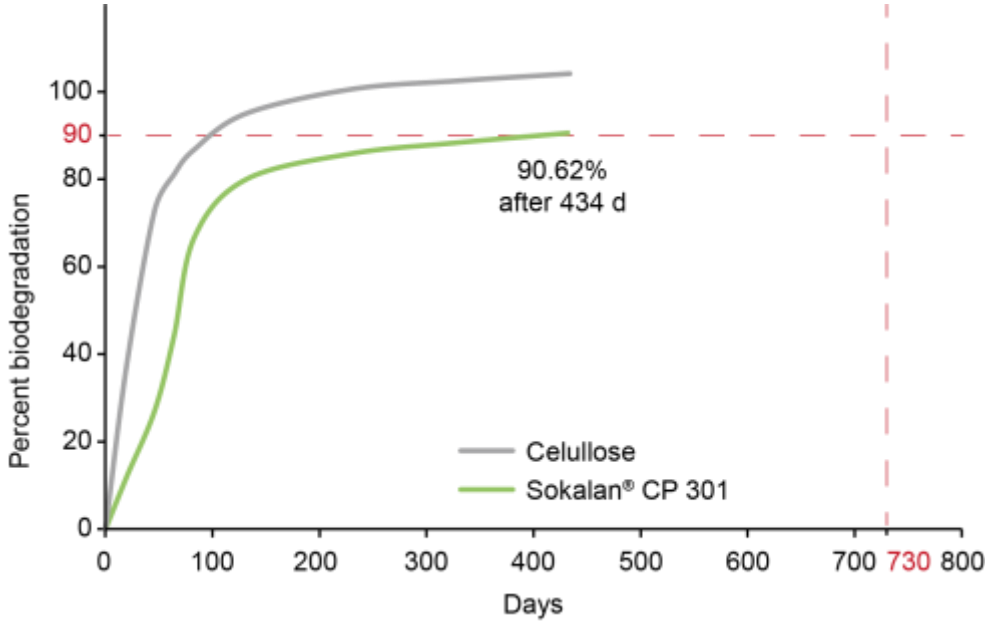


Sludge test according to OECD 301 F



Readily biodegradable
(>60% biodegradation within 28 days)

Soil test according to ISO 17556



Biodegradable in soil
(>90% biodegradation within 2 years)

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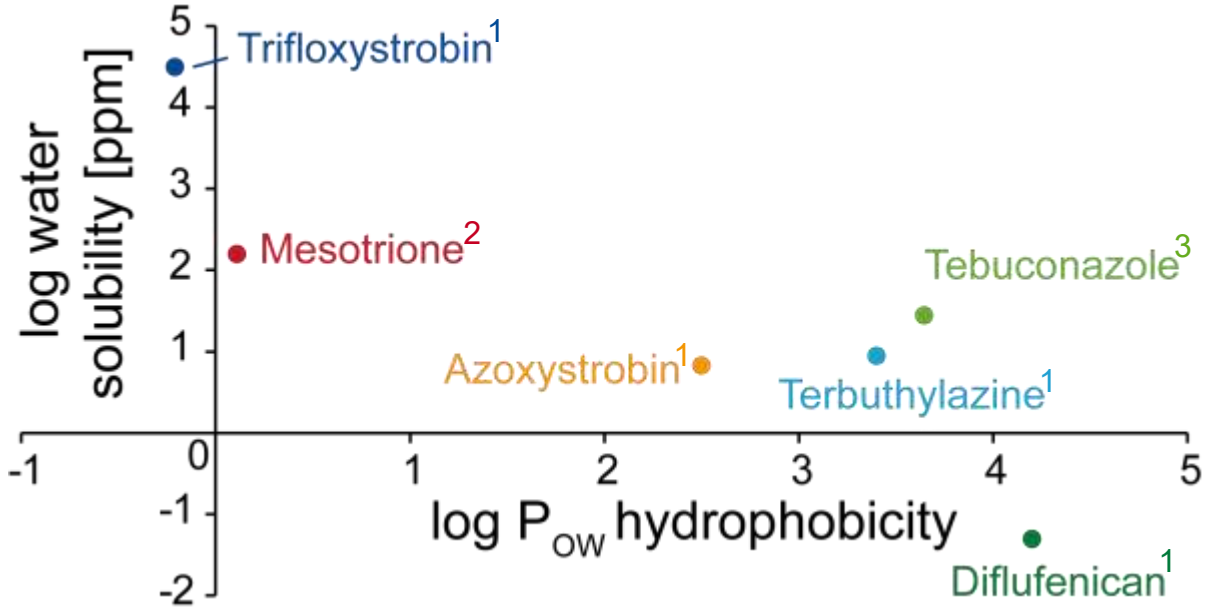
Sokalan® CP 301 is benchmarked in simplified SCs under CIPAC methods for various active ingredients

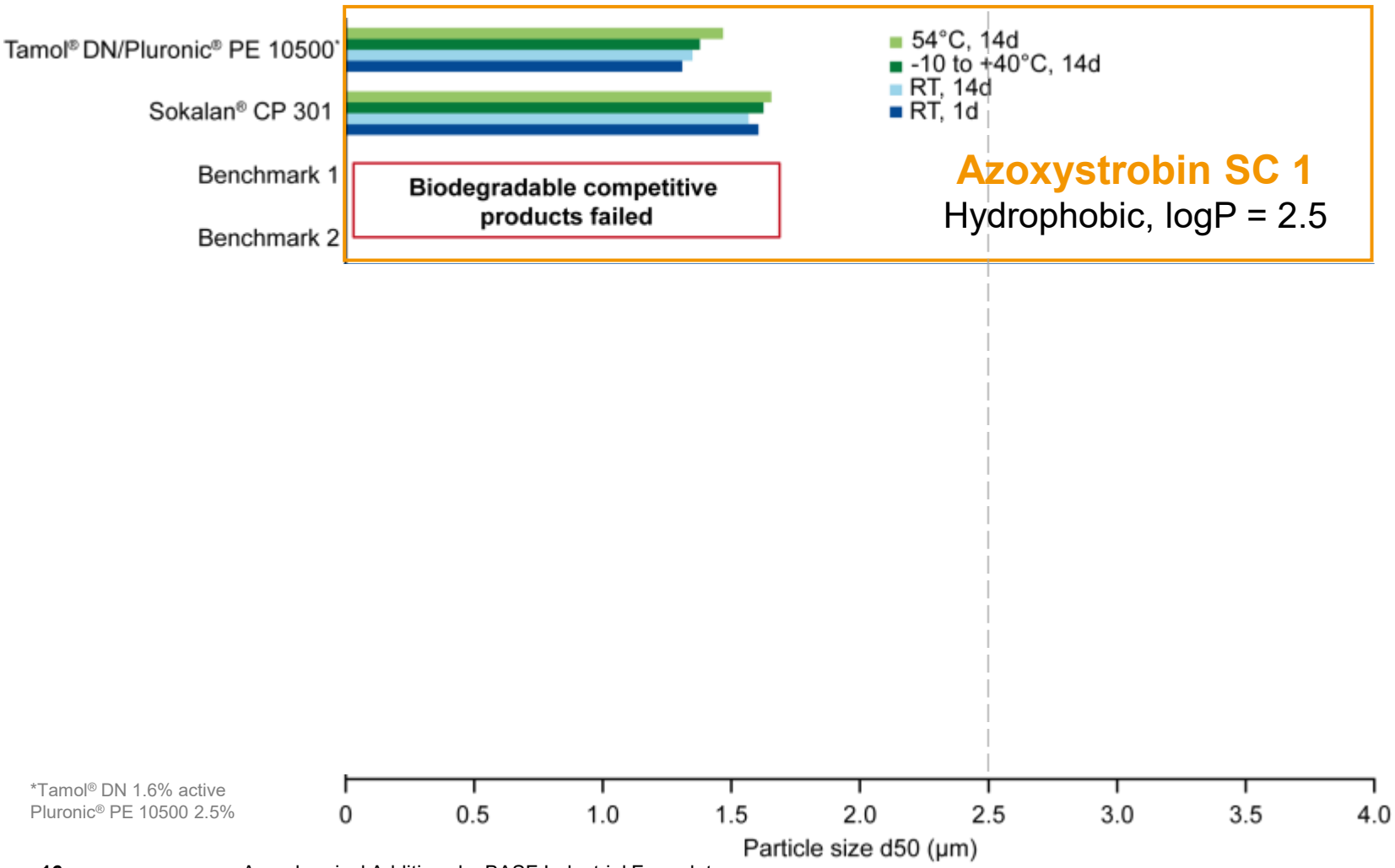
Benchmarks: two biodegradable references and non-biodegradable Tamol® DN with Pluronic® PE 10500



Component	Dosage (%ws)		
	SC 1	SC 2	SC 3
Active ingredient	40.0	10.0	45.0
Dispersant	5.0	2.5	5.0
Anti-foam	0.3	0.3	0.3
Anti-freeze	7.0	0.0	5.0
Surfactant	0.0	20.0	0.0
Aq. phase	47.7	67.2	44.7

Sokalan® CP 301 outperforms biodegradable market references

Versatile performance across a wide range of a.i.s, comparable to non-biodegradable alternatives



*Tamol® DN 1.6% active
Pluronic® PE 10500 2.5%

- Sokalan® CP 301 shows a ***high dispersion quality*** matching the non-biodegradable reference in Azoxystrobin SC

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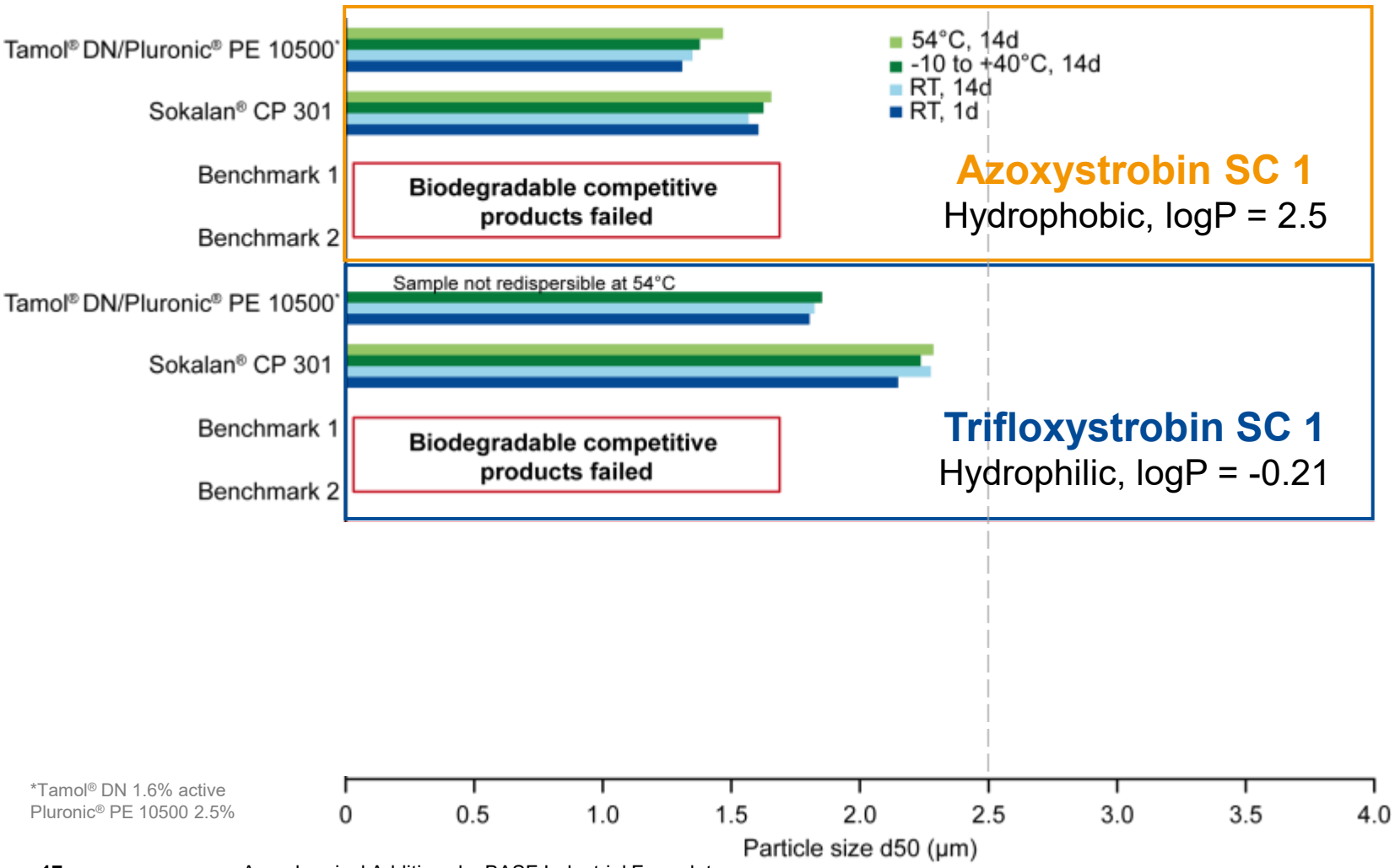
Sokalan® CP 301 outperforms biodegradable market references

Versatile performance across a wide range of a.i.s, comparable to non-biodegradable alternatives



*Tamol® DN 1.6% active
Pluronic® PE 10500 2.5%

- Sokalan® CP 301 shows a ***high dispersion quality*** matching the non-biodegradable reference in Azoxystrobin SC
- Sokalan® CP 301 ***outperforms*** biodegradable market references in tested simplified SCs
- Sokalan® CP 301 shows ***good dispersion quality for challenging a.i.s*** such as Trifloxystrobin

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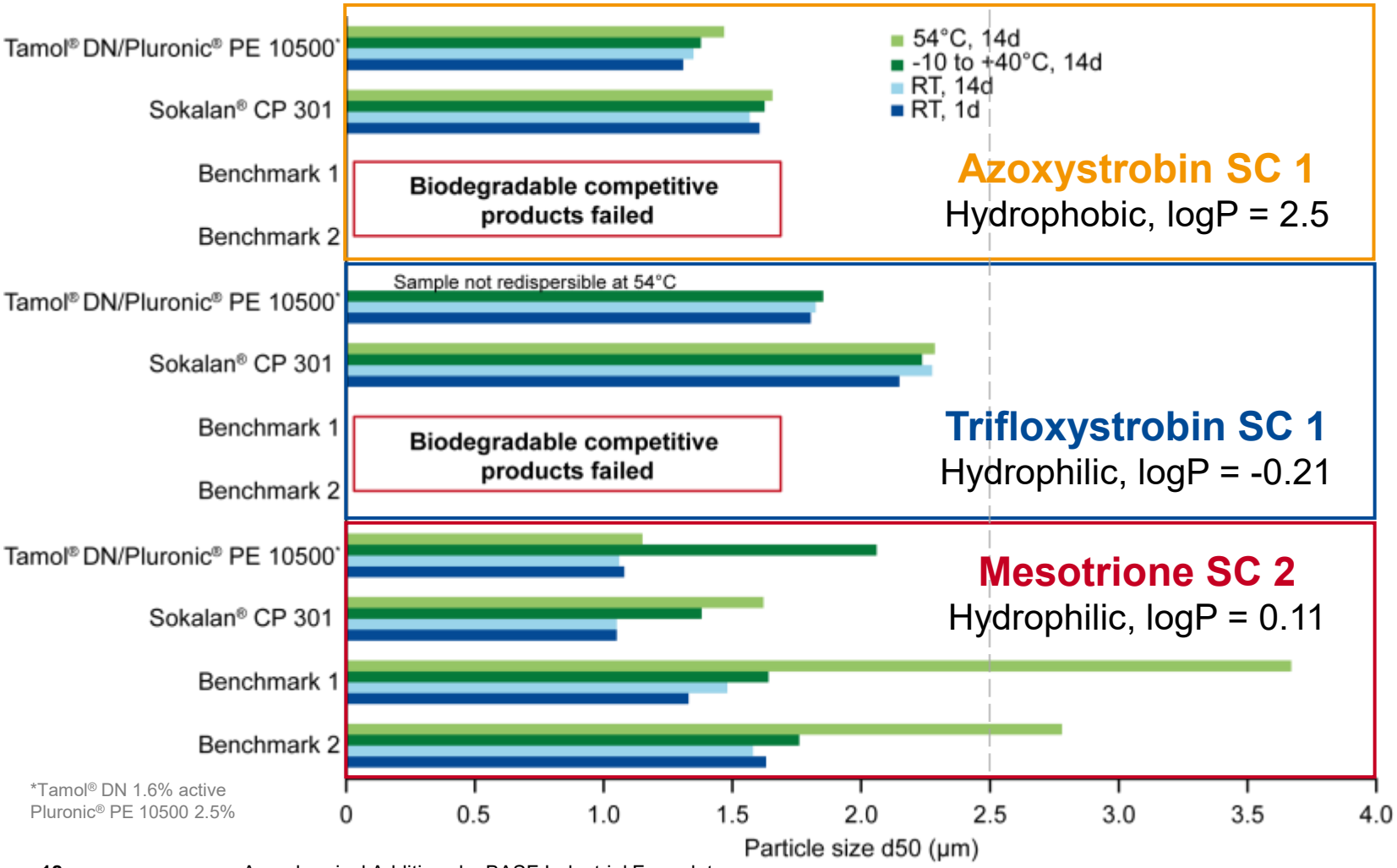
Sokalan® CP 301 outperforms biodegradable market references

Versatile performance across a wide range of a.i.s, comparable to non-biodegradable alternatives



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- Sokalan® CP 301 ***outperforms*** biodegradable market references in tested simplified SCs
- Sokalan® CP 301 shows ***good dispersion quality for challenging a.i.s*** such as Trifloxystrobin
- Sokalan® CP 301 ***performs at low pH*** for Mesotrione SC (pH~3.5 of a 1% aq. solution)

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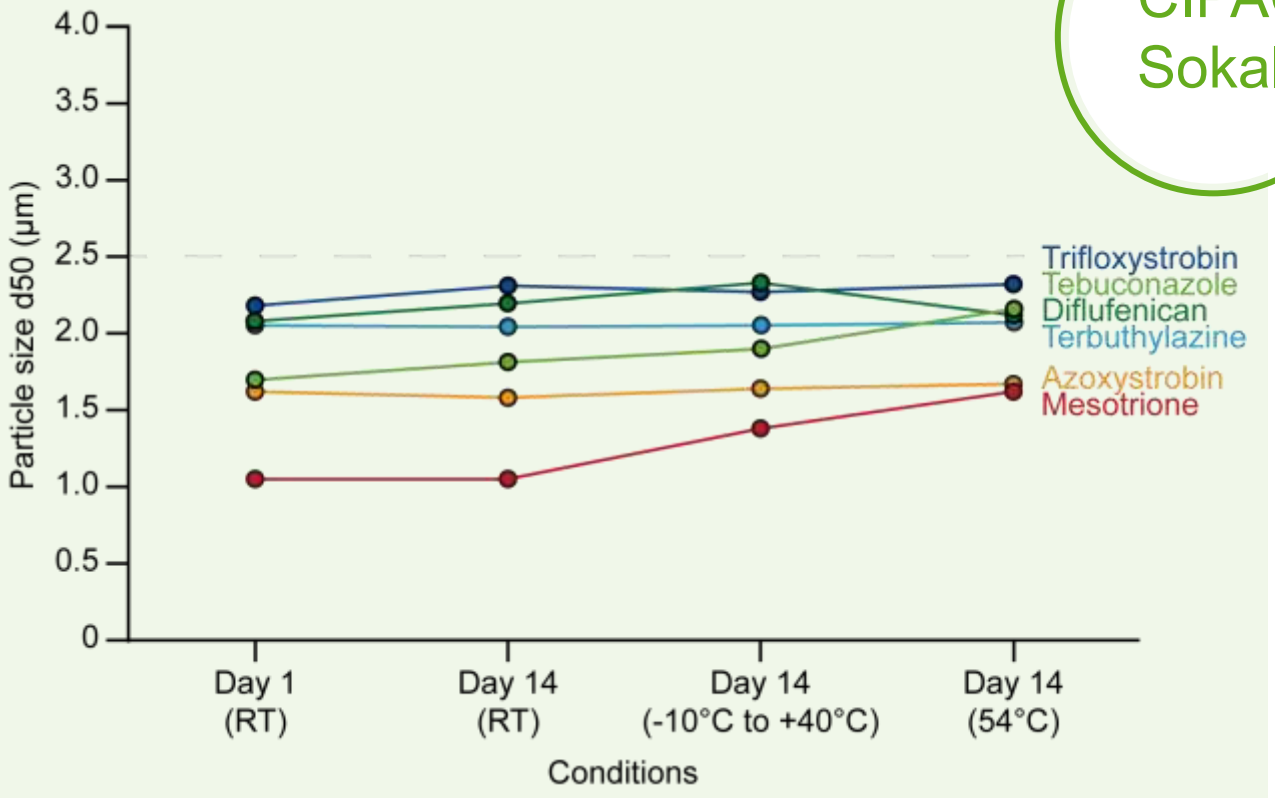
Sokalan® CP 301 enables long-term particle size stability in SCs across chemically diverse active ingredients



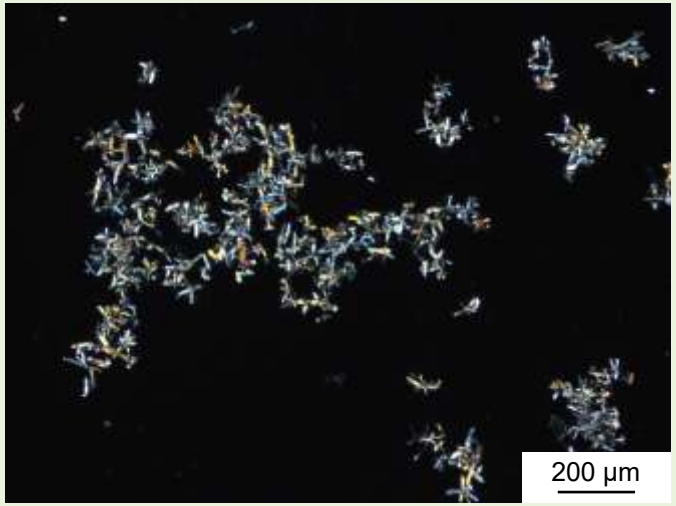
CIPAC-compliant evaluation of SC stability with Sokalan® CP 301 across all tested a.i.s

- **Stable particle size** (d50 < 2.5 µm) (CIPAC MT 187)
- **Accelerated storage test** (no sedimentation or aggregation) (CIPAC MT 46.3)
- **Suspensibility** (between 99-100%) (CIPAC MT 161)
- **Homogeneous Appearance**

Sokalan® CP 301 shows superior inhibition of crystal growth

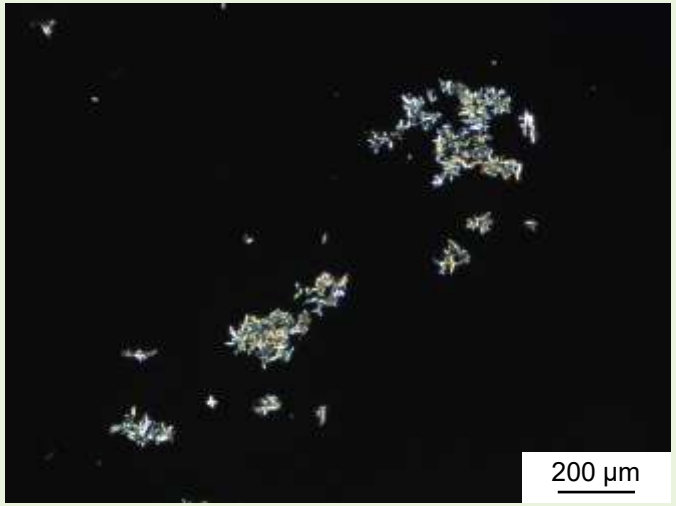
Microscopy imaging of Tebuconazole crystals under polarized light

Control: no dispersant



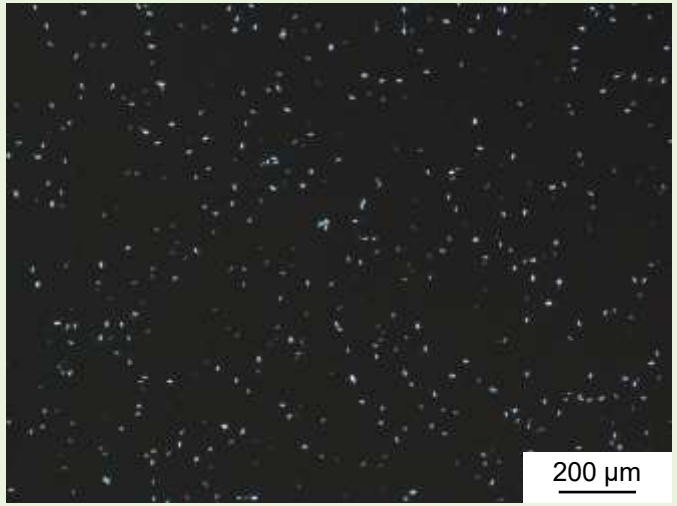
- High number of large and aggregated crystals under polarized light

Sokalan® CP 9



- Less and slightly smaller crystals

Sokalan® CP 301



- Much smaller particles due to superior inhibition of growth and aggregation

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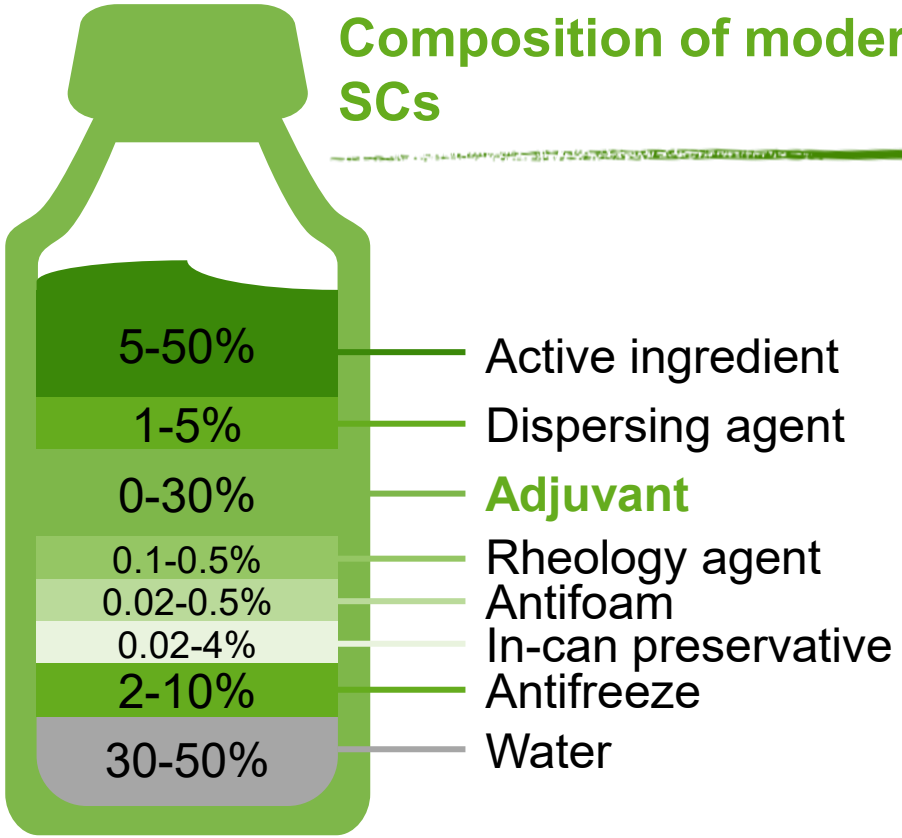
Modern SC formulations typically contain adjuvants, which may impact dispersant efficiency

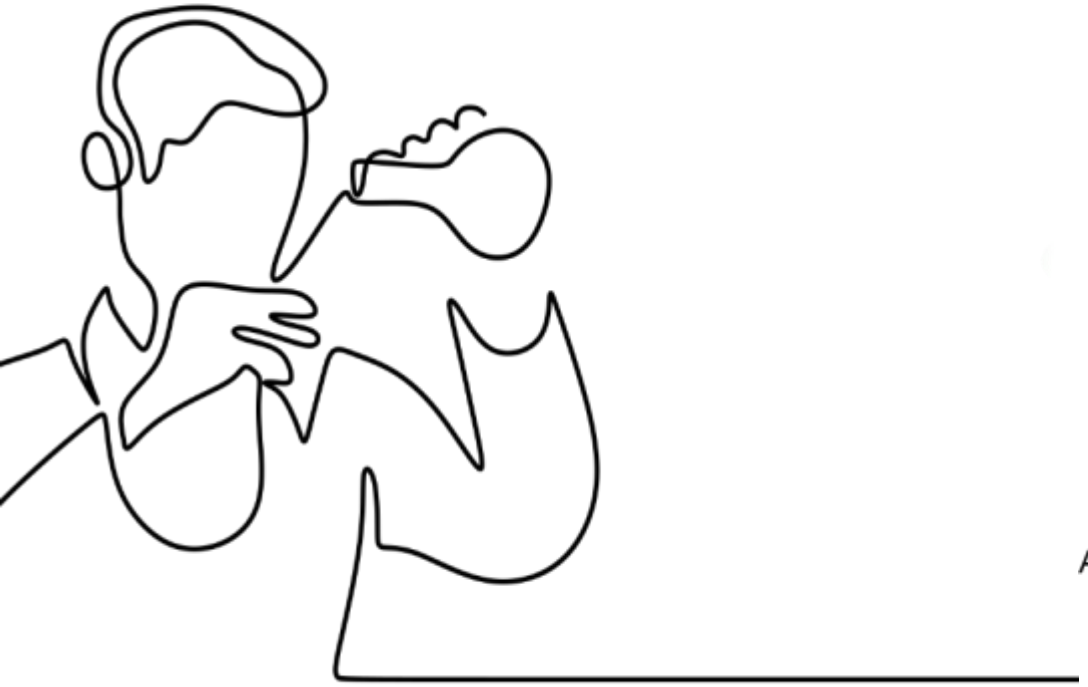
Composition of modern SCs



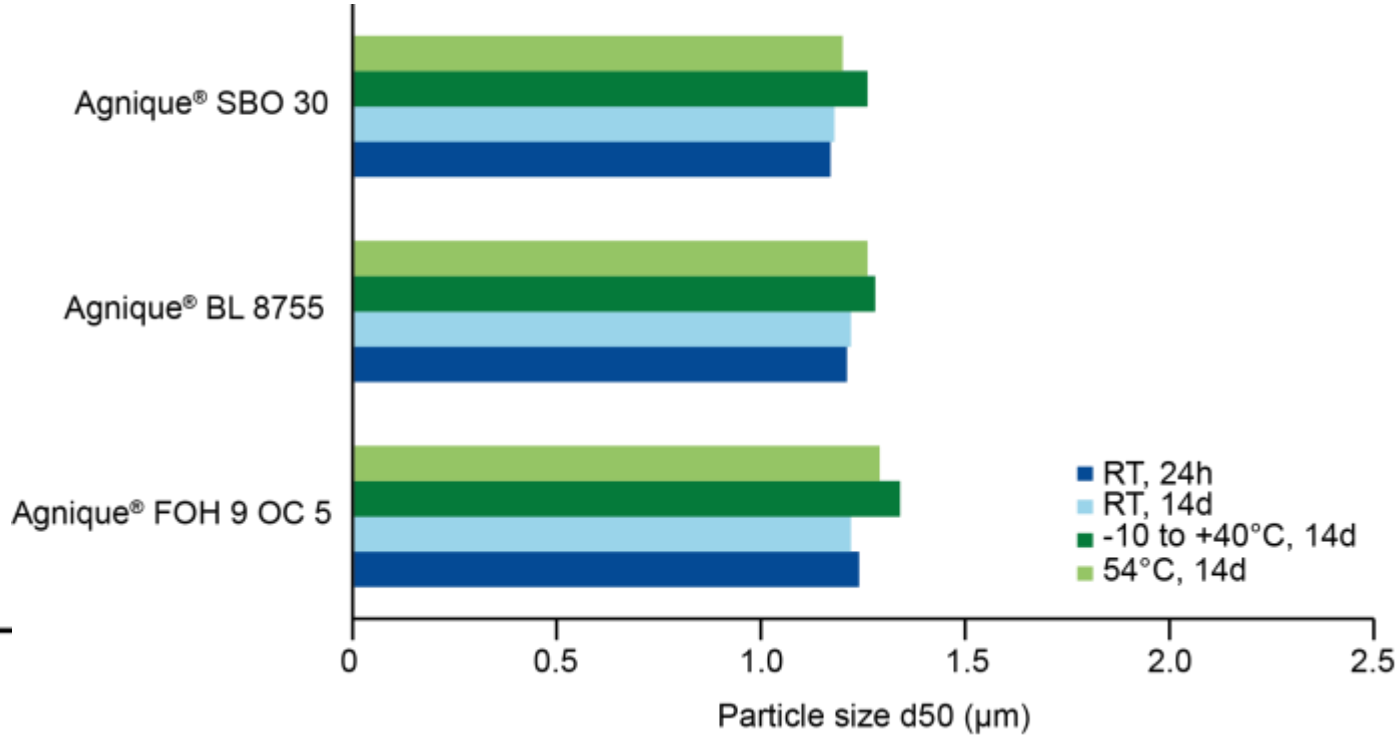
- **Adjuvants are critical** for efficacy and uptake – but can destabilize dispersants via *e.g.* flocculation or sedimentation
- **SCs are space-limited systems**, often packed with actives and co-formulants, leaving little room for formulation flexibility
- **Dispersants-adjuvant compatibility** must be screened across surfactant types to ensure robust particle stabilization
- **Concentrated dispersants** (as supplied) support formulators with limited space in their challenging SC formulation

Sokalan® CP 301: Proven compatibility with adjuvants

High adjuvant loads (10-20%) while maintaining excellent dispersion efficiency



Simplified SC formulation:
%ws: 20.0% (Azoxystrobin), 5.0% (Sokalan® CP 301), 0.3% (Silicone defoamer), **10.0% (Adjuvant)**, 64.7% (Water)



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Azoxystrobin SC test formulation with Sokalan® CP 301

Ready-to-use formulation concept validated under CIPAC conditions

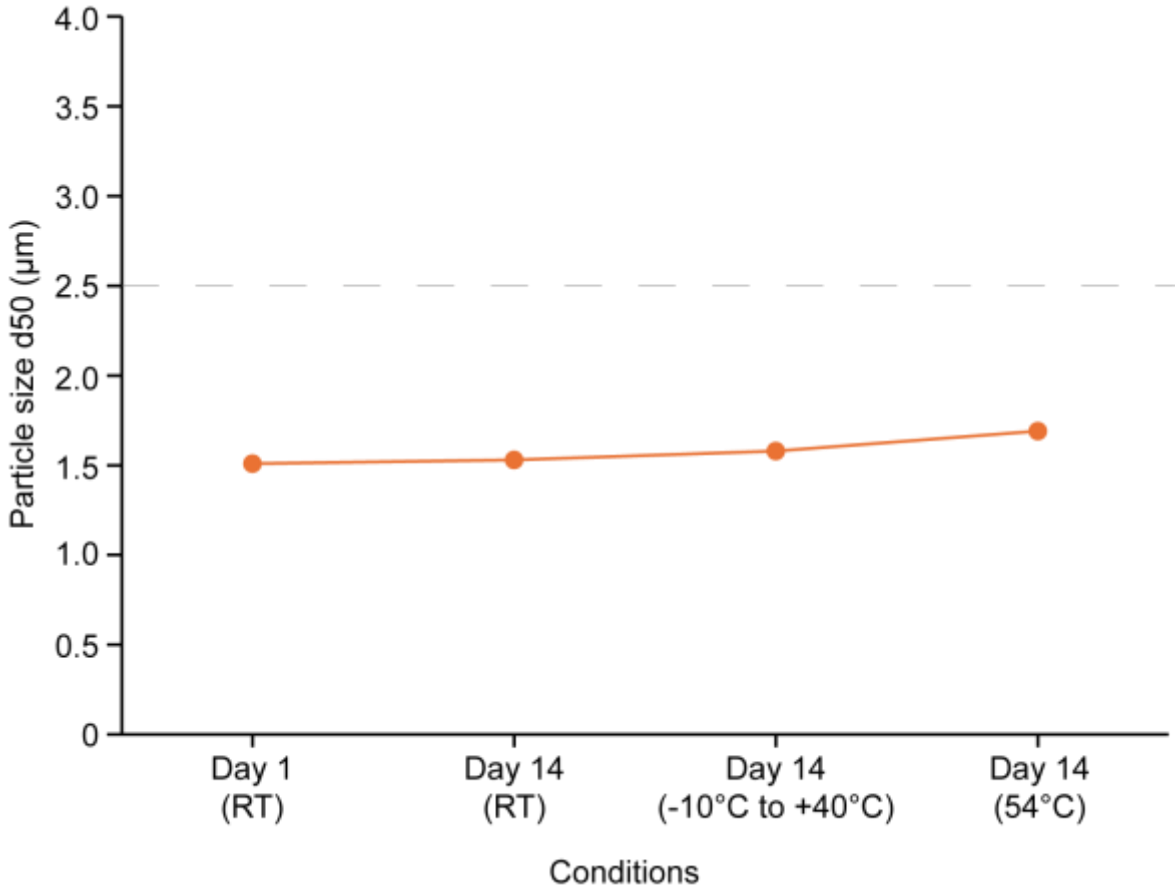
Test SC with Azoxystrobin (SCJ-R27)

Component	Function	% ws
Azoxystrobin	a.i.	25.0
Sokalan® CP 301	dispersant	5.0
Agnique® DFM 111 S	anti-foam	0.3
Propylene glycol	anti-freeze	7.0
Xanthan Gum	thickener	0.2
Exocide® MBS	In-can preservative	0.2
Lutensol® XP 80	adjuvant	15.0
Water	continuous phase	to 100.0

Suspensibility (%)

Day 1 (RT)	Day 14 (RT)	Day 14 (-10°C to +40°C)	Day 14 (54°C)
100.0	99.9	99.9	99.9

Validated performance under CIPAC conditions



Terbuthylazine SC test formulation with Sokalan® CP 301

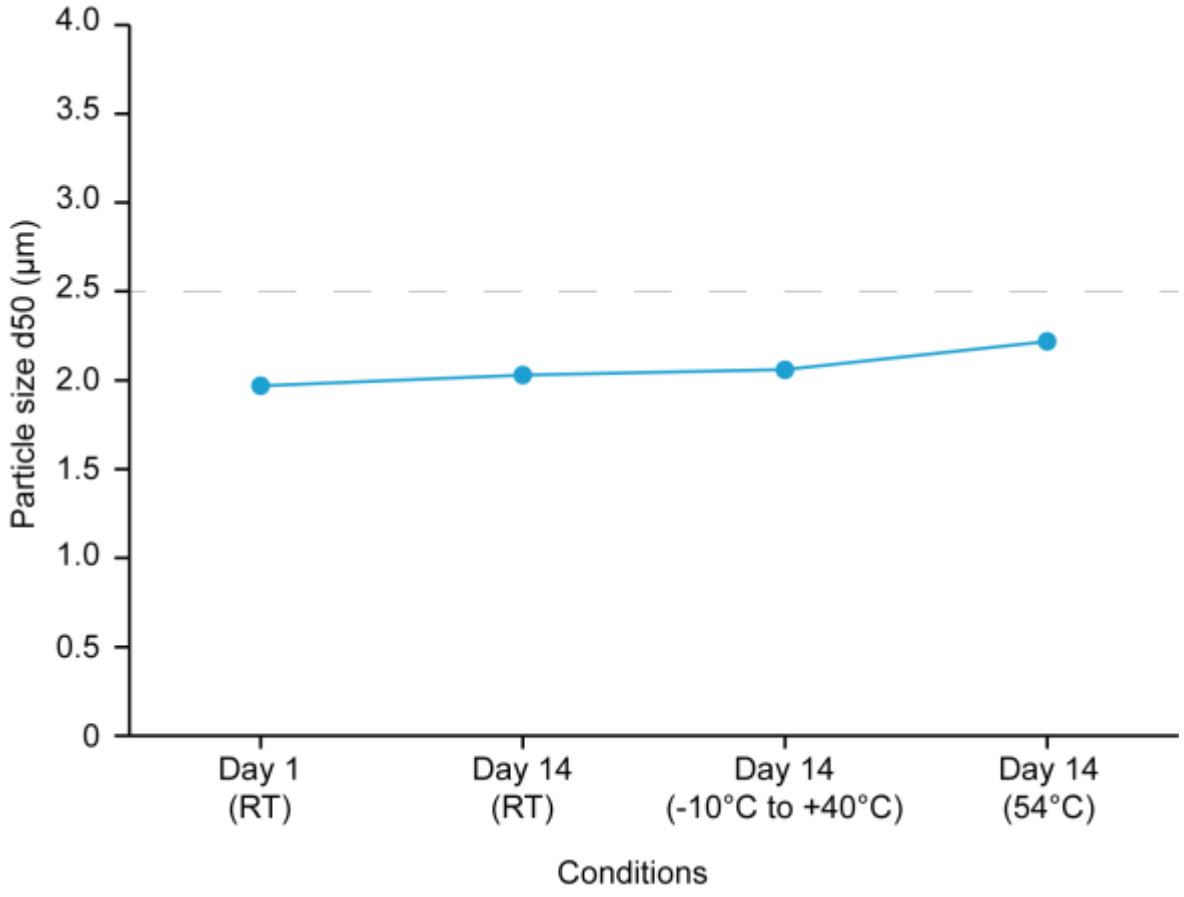
Ready-to-use formulation concept validated under CIPAC conditions

Test SC with Terbuthylazine

Component	Function	% ws
Terbuthylazine	a.i.	25.0
Sokalan® CP 301	dispersant	5.0
Agnique® DFM 111 S	anti-foam	0.3
Propylene glycol	anti-freeze	7.0
Xanthan Gum	thickener	0.2
Exocide® MBS	In-can preservative	0.2
Lutensol® XP 80	adjuvant	15.0
Water	continuous phase	to 100.0

Suspensibility (%)			
Day 1 (RT)	Day 14 (RT)	Day 14 (-10°C to +40°C)	Day 14 (54°C)
99.4	99.9	99.5	99.6

Validated performance under CIPAC conditions



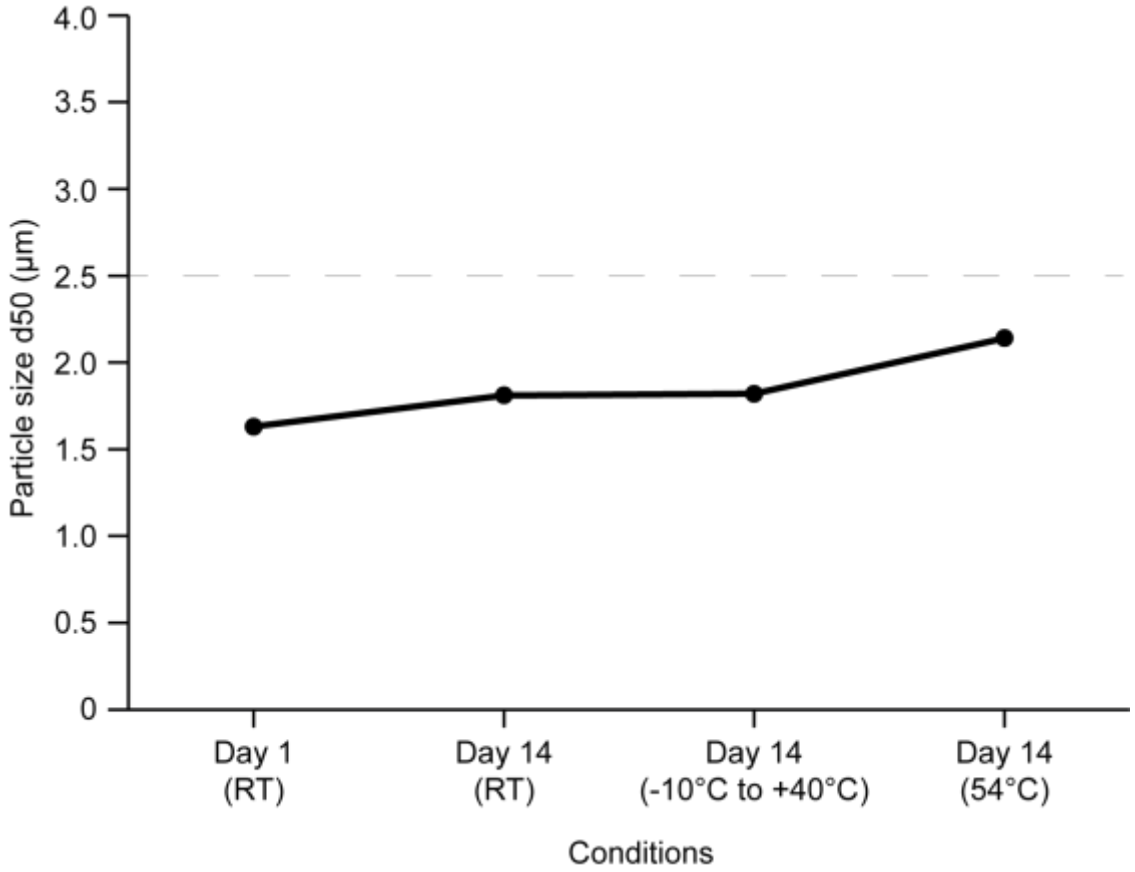
Flufenacet and Terbuthylazine SC formulation with Sokalan® CP 301

Robust dual-active formulation concept validated under CIPAC conditions

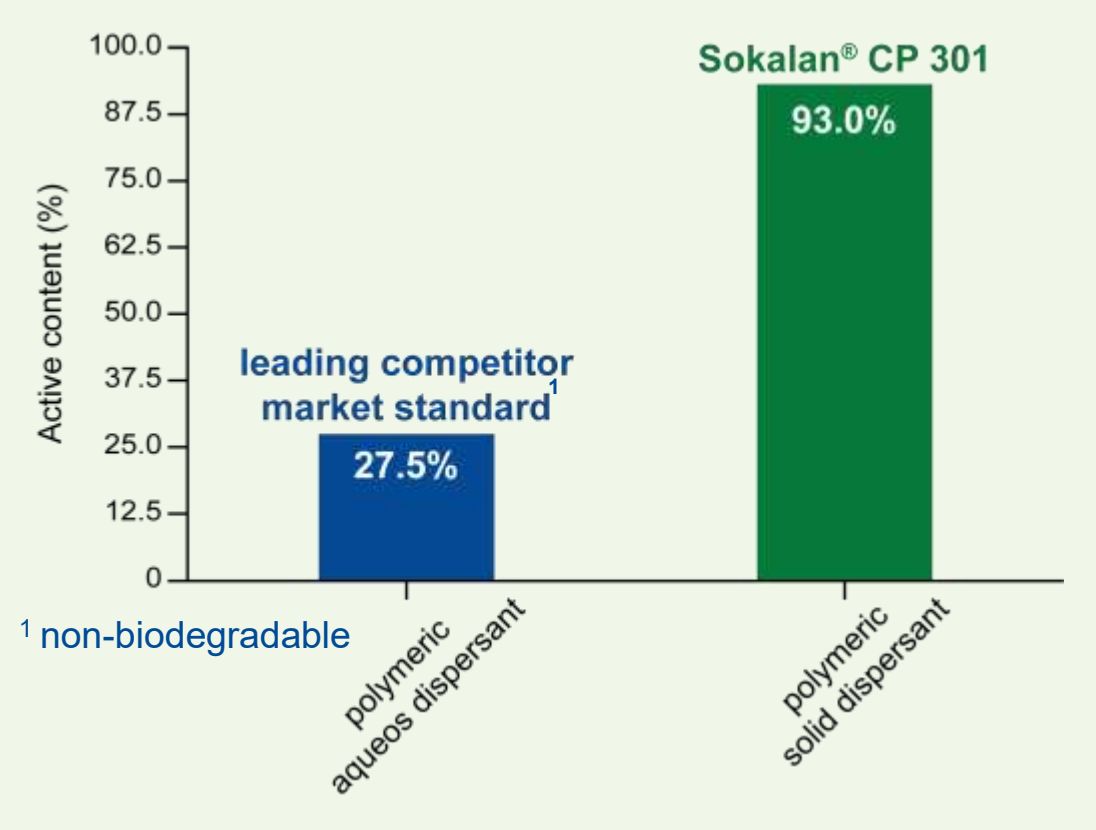
Test SC with Flufenacet and Terbuthylazine

Component	Function	% ws
Flufenacet	a.i.	20.0
Terbuthylazine	a.i.	33.0
Sokalan® CP 301	dispersant	1.25
Agnique® DFM 111 S	anti-foam	0.3
Propylene glycol	anti-freeze	7.0
Xanthan Gum	thickener	0.2
Exocide® MBS	In-can preservative	0.2
Lutensit® A-BO	wetting agent	0.5
Water	continuous phase	to 100.0

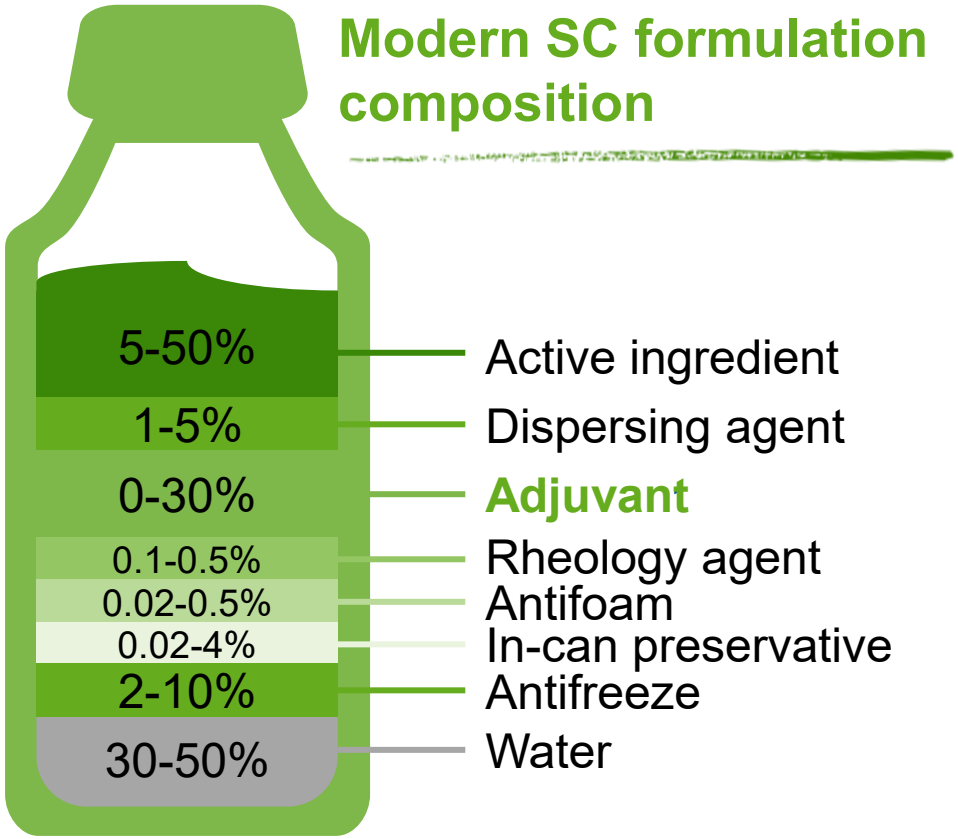
Validated performance under CIPAC conditions



Sokalan® CP 301 offers more than triple the concentration level of a leading competitor´s dispersant



Modern SC formulation composition



With up to 93% concentrated content, **Sokalan® CP 301** minimizes water load and **maximizes space for co-formulants in crowded SC formulations**

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Application-oriented evaluation of Sokalan® CP 301 in a dispersible concentrate (DC) formulation

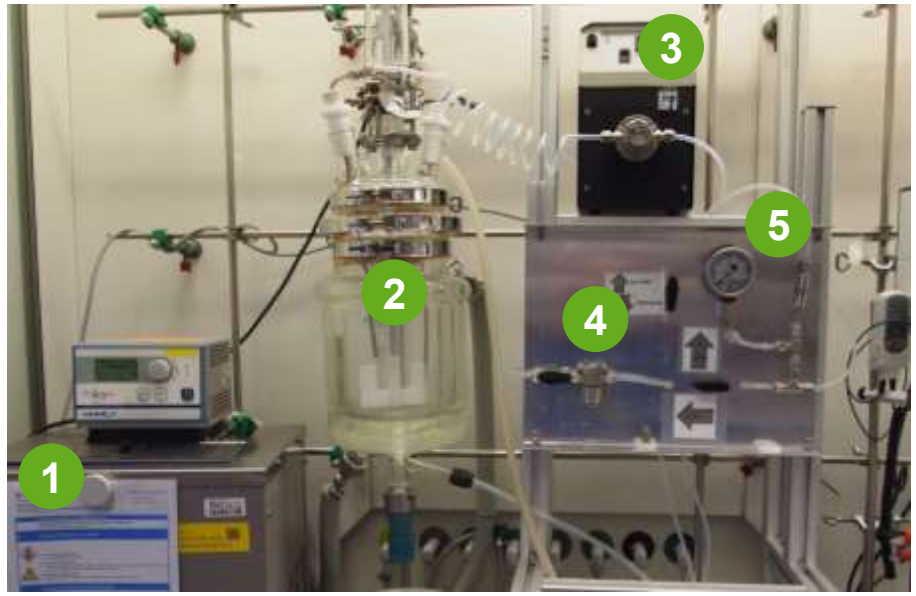
DC formulation compositions and evaluation metric

Component	Function	% ws	
		DC 1	DC 2
Cyproconazole	Fungicide	10.0	10.0
Agnique® AMD 3L	Solvent	85.0	90.0
Sokalan® CP 301	Dispersant	5.0	0.0
DC Density [g/ml]		1.07	n.d.

DC concentrate is diluted in CIPAC D water and performance is evaluated via:

- **Visual inspection** of dispersion quality and stability
- **Monitoring pressure changes** during re-circulation to detect clogging or buildup
- **Quantifying precipitate** by weighing dried residue on filter

Re-circulation methodology



1. **Cryostat** to maintain temperature at 4 °C
2. **Reservoir (3 L)** (0.5% DC in CIPAC D water)
3. **Gear-pump** to control flow at 1 L/min (over 6h)
4. **In-built filter** (140 µm) to quantify coagulum
5. **Pressure gauge** (max. 3.5 bar)

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Sokalan® CP 301 enables Cyproconazole DC with excellent dispersibility upon dilution in CIPAC D water

Visual inspection of dispersion quality and stability in CIPAC D water (5% DC in CIPAC D water)

DC 1 after 24h

Excellent stability

No separation observed

DC 2 after 24h (no dispersant)

Complete phase separation, a.i. precipitates

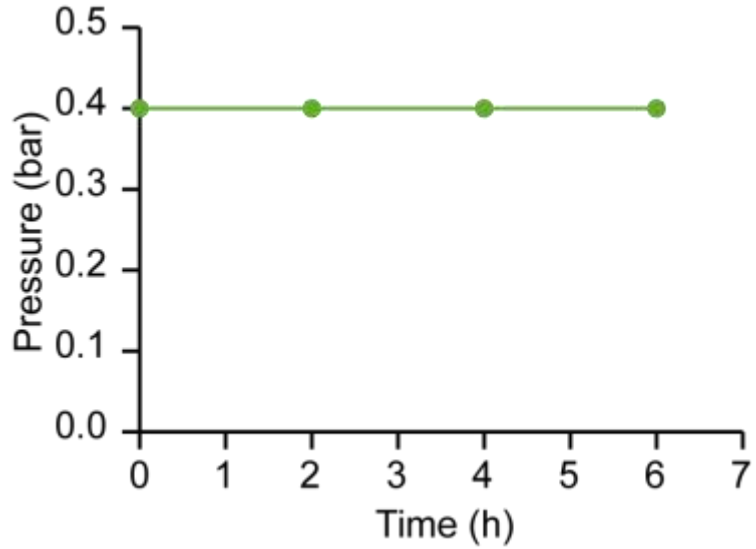
Cyproconazole precipitate

Re-circulation results (weighed residue on filter as well as pressure changes during re-circulation)

Residue on filter (DC1)

< 10 mg

Pressure changes during re-circulation (DC1)



No increase in pressure after 6 h circulation

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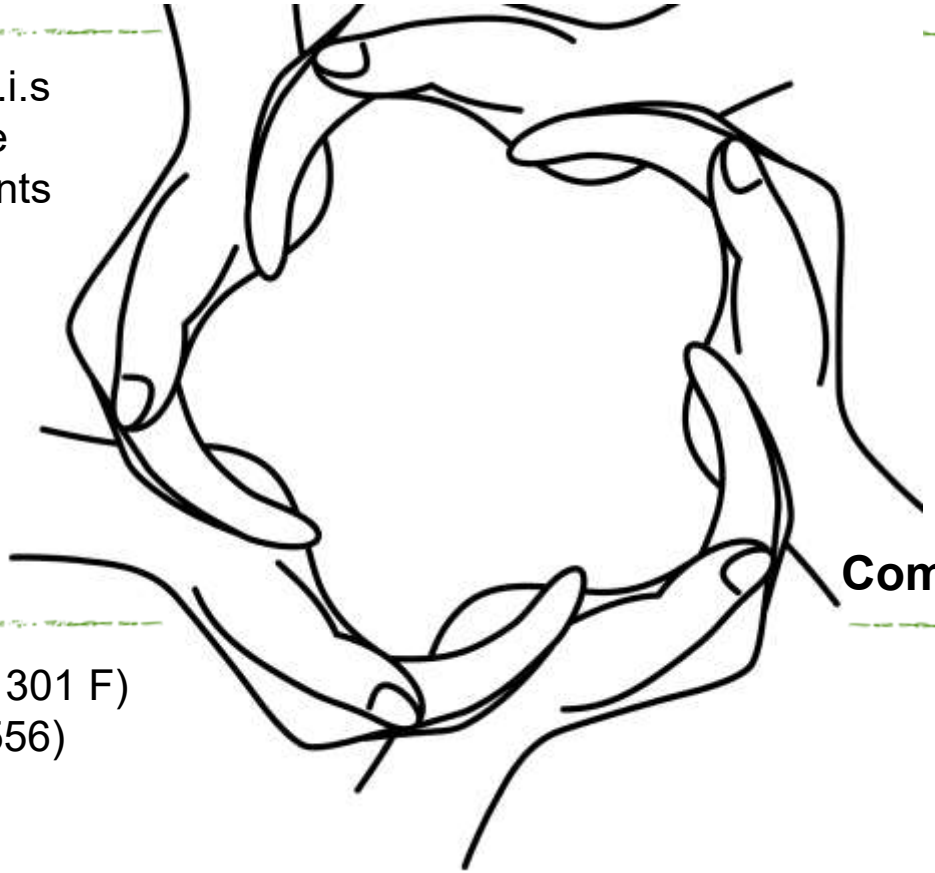
Sokalan® CP 301 – a high performance and readily biodegradable polymer dispersant

Key performance benefits:

- Proven performance for many a.i.s
- Applicable over a wide pH range
- Compatible with 10-20% adjuvants
- Supressing crystal growth
- Preventing flocculation
- Reduced driftable particles
- Recommended for SC & DC



Toxicological pre-screening with no CMR or category 1 classification:

- Negative Ames test
- Non-eye-irritant
- No skin sensitization
- No aqua tox (daphnia, algae)

Biodegradability:

- **Readily biodegradable** (OECD 301 F)
- **Biodegradable in soil** (ISO 17556)

Commercialization:

- Based on proprietary BASF technology and IP protected
- Commercial samples available

Sokalan® CP 301 samples available for testing